Sally Kidsley

School of Medicine

Contraceptive Use in Nepal

Thesis submitted for

Doctor of Philosophy

Abstract.

This thesis presents three inter-related studies investigating different aspects of contraceptive use in rural Nepal.

The intrauterine device (IUD) is one of the most cost effective methods of reversible contraception available but is not well known or understood and consequently not well used in Nepal. This has not always been the case, when family planning was first introduced in Nepal the IUD was the most widely used method. Over the decades its use has dwindled to a point where less than one percent of women of reproductive age use it as their preferred method of contraception. The government and non-government organisations are concerned about the rising costs of providing family planning to a growing population of need. The IUD has therefore created much interest from these parties due to its cost-effectiveness. In order to increase the use of the IUD, demand must be created. To increase demand the reasons for the present low use must be understood.

This thesis identifies the reasons behind the low use of the IUD in eastern rural Nepal, by employing qualitative methodology. These qualitative findings are then further employed to create demand for the IUD. The thesis draws attention to the various roles different routes of increasing awareness and demand for the IUD have. By creating demand it is shown that the uptake of the IUD is increased. Increasing demand alone does not equate to satisfaction with the method so the thesis points to quality of care being an important factor in high satisfaction leading to high continuation of the IUD.

Male influence is shown to have an influence on the uptake of the IUD within two of the studies so a third study investigates the knowledge, attitudes and practice of Nepalese men towards family planning and reproductive health. This thesis identifies a number of factors that are influencing positive changes in Nepalese men's knowledge, attitudes and practice that may have an effect on

future contraceptive use, family planning and sexually transmitted infection rates. These changes may have an effect on fertility rates, contraceptive prevalence rates and levels of unmet need.

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Glossary

CPR	Contraceptive Prevalence Rate
CYP	Couple Years of Protection
DFID	Department for International Development
DHS	Demographic and Health Surveys
FCHV	Female Coomunity Health Volunteers
FGD	Focus Group Discussions
FHD	Family Health Division
FPAN	Family Planning Organisation of Nepal
FP/MCH	Family Planning / Maternal and Child Health
FPP	Family Planning Programs
HIV	Human Immunodeficiency Virus
HMG	His Majesty's Government
HRT	Hormone Replacement Therapy
ICPD	International Conference on Population and Development
IEC	Information, Education and Communication
IUD	Intrauterine Device
KAP	Knowledge, Attitude and Practice
LNG-IUS	Levonorgestrel releasing Intrauterine System
LSE	London School of Economics
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MOPE	Ministry of Population and Environment
MSI	Marie Stopes International
NCP	National Commission on Population
NGO	Non Government Organisation
PCA	Principal Components Analysis

PID	Pelvic Inflammatory Disease
QOC	Quality of Care
SFDP	Small Farmers Development Program
SPN	Sunualo Parvivar Nepal
SSI	Systematic Sampling Interval
STD	Sexually Transmitted Diseases
STI	Sexually Transmitted Infections
TFR	Total Fertility Rate
UNFPA	United Nations Population Fund
VHW	Village Health Workers
WHOMEC	World Health Organisation's Medical Eligibility Criteria

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Finally I would like to thank all my friends and family, especially Carlton for continually pushing me to complete the thesis and for Oscar for keeping me smiling.

Introduction to Thesis

The International Conference on Population and Development, held in Cairo in 1994, delivered a statement on objectives for change in the field of reproductive health, which could be achieved in the 20 years following the conference. Some of the objectives related to women's rights, some to men's rights and some to sexual health.

It was stated that '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'. This implies that given peoples capability to reproduce they have the freedom to decide if, when and how often to do so. Women and men therefore have the right to be informed and have access to safe, effective, affordable and effective methods of family planning of their choice, as well as other methods of fertility regulation. All these factors should enable women to go safely through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

Four objectives are linked specifically to reproductive health and these relate to the empowerment and status of women, women's health and safe motherhood, male responsibilities and participation and finally, sexually transmitted diseases (STD) and HIV prevention.

The basis for taking action in these four areas was set out as follows:

Empowerment of women.

The full participation and partnership of both women and men is required in productive and reproductive life. In most regions of the world, women receive less formal education than men and education is one of the most important means of empowering women. Improving the status of women will enhance their decision-making capacity, especially in the arena of sexuality and reproduction.

Women's health and safe motherhood.

At the global level, it has been estimated that about half a million women die each year of pregnancy related causes, 99% of them in developing countries. The age at which women begin or stop childbearing, the interval between each birth, the total number of lifetime pregnancies can all influence maternal morbidity and mortality. Also a significant proportion of the abortions carried out in developing countries are self-induced or otherwise unsafe, contributing to a large proportion of the maternal morbidity and mortality.

Male responsibility and participation.

Men play a key role in bringing about gender equality since, in most societies; men exercise power in nearly every sphere of life, including decisions regarding family size. It is therefore essential to improve communication between men and women on issues of sexuality and reproductive health.

Sexually transmitted diseases and HIV prevention

The worldwide incidence of sexually transmitted diseases is high and increasing.

In order to try and achieve a change informed by these statements, the ICPD set out certain objectives relating to reproductive health. Some of the key objectives are listed.

Women's empowerment:

1 To achieve equality and equity based on harmonious partnership between men and women.
2 To ensure that all women are provided with the education necessary for them to meet, and exercise their human needs and rights.

Women's health and safe motherhood

1 To ensure comprehensive and factual information and a full range of reproductive health care services, including family planning, are accessible, affordable, acceptable and

convenient to all users.

2 To enable and support decisions about child bearing, methods of family planning and fertility regulation

3 To help couples and individuals meet their reproductive goals in a framework that promotes optimum health and their right to choose the number, spacing and timing of their children.

4 To improve the quality of family planning advice, information, education, communication, counselling and services.

5 To achieve a rapid and substantial reduction in maternal morbidity and mortality and reduce the differences observed between developing and developed countries.

6 To reduce greatly the number of deaths and morbidity from unsafe abortion.

Male participation

1 To increase the participation and sharing of responsibility of men in the actual practice of family planning.

2 To encourage and enable men to take responsibility for their sexual and reproductive behaviour and their social and family roles.

The research described in this thesis touches on many of the issues discussed at the ICPD. The intrauterine contraceptive device (IUD) is a particular method of family planning not widely known in Nepal and very seldom chosen as a form of contraception. The IUD is the most widely used method of reversible contraception in the world yet makes a very small proportion of the method mix in Nepal. The IUD is a very effective method that can equally be used for spacing as well as limiting childbearing. Despite all the known benefits of this method of contraception, it is not clearly understood why women in Nepal are not choosing it as a method. Are some women being denied a choice? Are some women undereducated about the method? Is the method not widely available or accessible to the nation's women? Or despite choice, availability and understanding are women still not choosing the method?

Very limited research has been undertaken on this issue in Nepal. To date only one study has been carried out by the Ministry of Health in and around the capital of Nepal, Kathmandu.

I joined the Opportunities and Choices Reproductive Health Knowledge Program in May 2001 as a clinical research fellow. My background was in Obstetrics, Gynaecology and Women's Heath.

The Opportunities and Choices Program was a consortium composed of members from the University of Southampton, Marie Stopes International (MSI) and the London School of Economics (LSE) and was funded by the Department for International Development (DFID). The program researched many issues surrounding reproductive health including maternal mortality and morbidity, family planning and contraception and HIV and sexually transmitted infections.

I became involved as the primary researcher in a project to investigate the use of the IUD in Nepal. A member of the MSI team working with their affiliates in Nepal had noted that the use of the IUD had been steadily falling. The MSI affiliates in Nepal were Sunualo Pavirar Nepal (SPN). As a non-government organisation (NGO) in Nepal they wanted to try and increase the use of the IUD because of its cost-effectiveness and high value couple year's protection (CYP). They were not alone in this desire as the government itself as well as other NGOs were also starting to take an interest in finding ways of increasing the use of the IUD within the female population of Nepal.

My first visit to Nepal occurred in August 2001 where I worked alongside members of SPN to develop a study project to investigate methods of increasing the use of the IUD. One idea was to provide the IUD at the same time and in the same location as the mobile sterilisation camps. Mobile sterilisation camps, or sibirs, have been in operation in Nepal for many years. Having first been introduced by the government as a means of providing a one off permanent method of contraception to men and women of reproductive age in rural parts of Nepal, it was then taken up

as a method of providing contraception by the Family Planning Association of Nepal (FPAN) and other NGOs, including SPN. The camps are carried out in the dry season and move from area to area providing this surgical procedure. In each area the camp would stay for approximately 7 to 10 days and then move on once it was felt that demand in that area had been satisfied.

The initial plan for the research was to take another team of providers to offer the IUD as an alternative to sterilisation at the time of the camps. Any form of research in Nepal has to have the backing of the government and so as the principal researcher I went along with the director of SPN, Mrs Kamala Thapa, to meet the Minister of the Family Health Division of the Ministry of Health Mr Pathak. We also met with the Senior Health and Population Advisor of DFID Nepal, Mr Michael O'Dwyer.

After initial discussions it was felt there may be some difficulties in offering the IUD by such a route, mainly the ability to provide follow up for women choosing the IUD in rural areas where there are no health posts. The idea behind sterilisation camps is that the areas are rural with no health posts but the procedure is a one off operation with no requirement of follow up, so health posts are not as important. This is not the case for the IUD where follow up is important for the health of the woman.

After a number of discussions with all members involved the provision of the IUD was felt to be optimal through static clinics. SPN had static clinics in 10 districts of Nepal (Nepal has 75 districts in all) so it was appropriate to provide the service through these clinics. These clinics run by SPN have minimum standards that they have to reach and provide all methods of family planning including the IUD and sterilisation.

The next issue that had to be addressed was demand for the IUD. When the original thought had been to provide the IUD at the sterilisation camps I had decided that those women attending the

camps had their minds set on sterilisation and it would be very difficult to persuade them otherwise at the time of the operation. Awareness and knowledge of the IUD is poor so it was felt in order to increase uptake of the IUD we needed to increase demand. In order to increase demand it was imperative that the reasons for low use were understood and these reasons utilised to develop strategies to raise demand. To that end I employed the services of a research group recommended by SPN. SPN has previously used the services of the research group to help research condom use in Nepal.

On discussion with members of both the research group and Opportunity and Choices I felt the most appropriate way of investigating reasons behind the poor use the IUD was through the qualitative methodology of focus group discussions. These discussions would be held in the same districts as the study to investigate the use of the IUD. I developed a question route with assistance from Opportunity and Choices members with a qualitative research background.

The focus group discussions were held in November 2001 and then the data was analysed. I analysed this data with the assistance of a member of the MSI group, the data revealed that a number of positive issues could be identified that could be used in the development of information, education and communication (IEC) strategies:

- *"Hassle free":* Once the IUD is inserted the woman does not have to worry again as she is protected from pregnancy.
- *·Works for 12 years:* The longevity of the method was seen as very positive.
- *·No requirement for an operation:* Some women saw the IUD as a real alternative to surgical sterilisation negating the need for an operation.
- *·No need to remember daily or three monthly methods:* The IUD has a life of 12 years and once inserted it does not require any maintenance when compared to hormonal methods such as the contraceptive pill and Depo-Provera.
- *·No hormonal effects:* Women taking hormonal contraceptives can experience side effects such as irregular periods, headaches, breast tenderness and abdominal bloatedness. IUD users experience none of these hormonal effects.

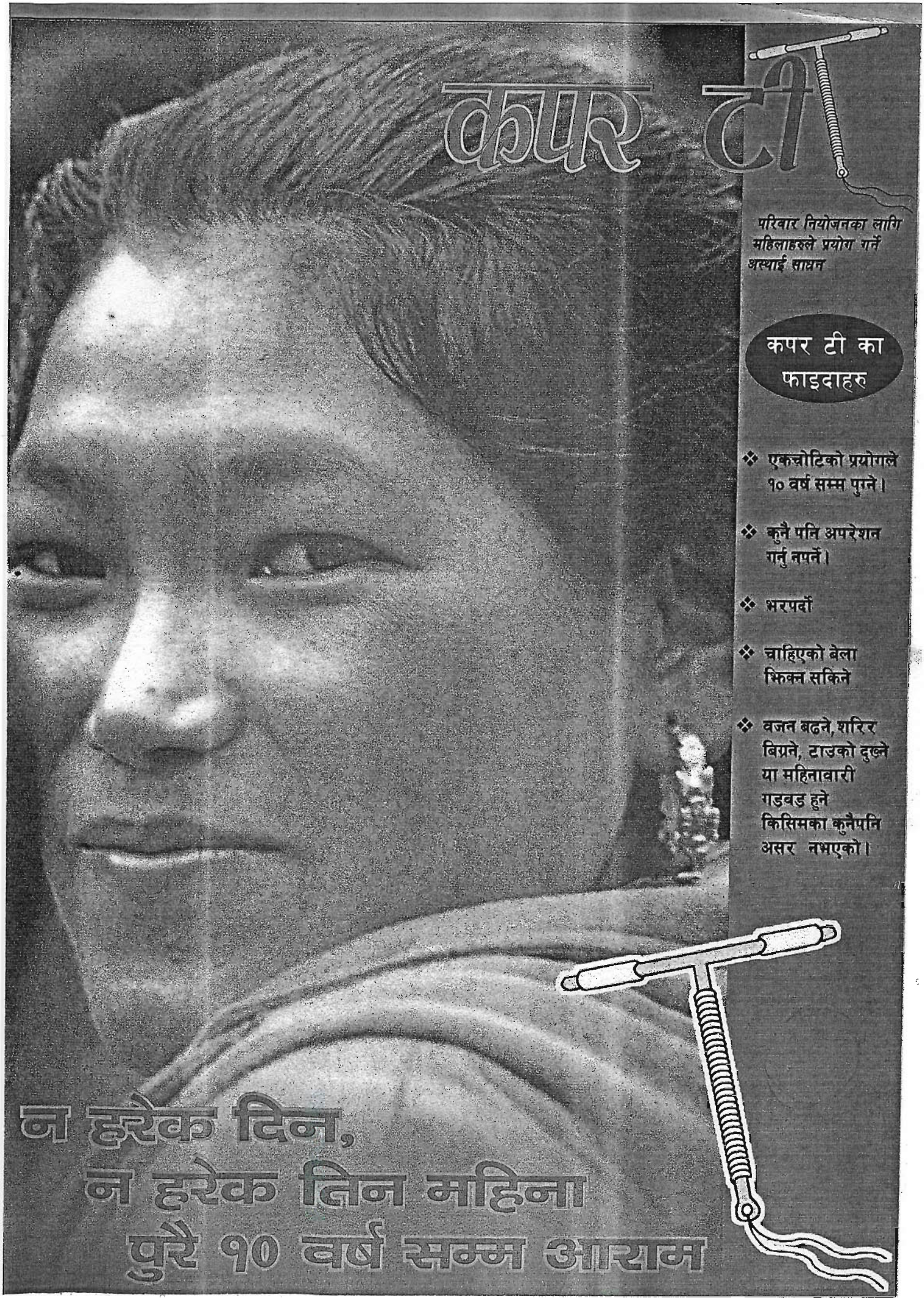
The themes and ideas gained from the qualitative research were utilised to design information, education and communication materials in collaboration with a marketing group based in Kathmandu. The research had mainly found out that most people in these districts had were not aware of IUD, and that there was an urgent need for more promotional activities. Since the majority of people come to know about contraceptives through radio and village promoters, the IUD program was disseminated mainly through these two channels. The promotional activities took place for two months in order to increase the awareness of the IUD among women in the study districts leading to recruitment of women into the study proper. The IEC materials that were developed had to be agreed to by the government. The government had its own department dealing with its own information, education and communication strategies and after meetings with members of this department the research materials were passed. The promotional activities were in four fold.

1. Radio:

A sixty-second radio sketch was produced and played on a daily basis on Kantipur FM Nepal-wide for 2 months from April 7th till June 7th, 2002 within the three study districts. Radio is commonly owned within most districts of Nepal so the opportunity to reach as wide an audience as possible was presented through this media.

2. Posters, Information Leaflets, and Flip Charts:

Posters, information leaflets, and Flip Charts were designed to appeal directly to women within the three districts, so they were culturally sensitive and adapted. The content of these materials were proof read and agreed upon by the IEC department of the His Majesty's Government (HMG). It was felt that to have the greatest impact the poster had to be appreciated by the local women and they also had to be distributed as widely as possible. Posters were placed in the local bazaars and handed out in as many villages as feasible


कपर टी
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❖ एकचोटिको प्रयोगले १० वर्ष सम्म पुग्ने।
❖ कुनै पनि अपरेशन गर्नु नपर्ने।
❖ भरपर्दो
❖ चाहिएको बेला फिकन सकिने
❖ वजन बढ्ने, शरिर बिग्रने, टाउको दुख्ने या महिनावारी गड्बड्ड हुने किसिमका कुनैपनि असर नभएको।
न हरेक दिन,
न हरेक तिन महिना
पुरै १० वर्ष सम्म आराम

3. Female Community Health Volunteers:

These women were chosen from the female community health volunteers used at the SPN clinics. They had previously been employed to go out into neighbouring villages, and other areas within the districts, to talk with about reproductive health issues to the village women. IEC based orientation tools such as flip charts about family planning and reproductive health and information leaflets about IUD were used to educate FCHVs. They were trained for two days on the IUD. They were given information on the IUD including how it worked, who could use it, how long it would last. The myths and rumours discovered in the qualitative research were used as a basis for describing the inaccurate information present about the IUD and then the FCHV were told the actual facts. This was essential so they could confidently go into the villages and answer most questions about the IUD as well as dispelling rumours at the same time.

4. Pharmaceutical Shops Visit:

Due to lack of health experts in Nepal women often seek advice from pharmaceutical shops. A number of pharmaceutical shops were visited in all three districts and informed about the IUD, its effectiveness, and our guarantee to provide follow-up services.

These promotional activities took place over the course of two months and it was during this period that clients were recruited into the study.

I held interviews with Mrs Kamala Thapa in December 2001 for the post of project manager; this person would be responsible for overseeing the study whilst I was out of the country. The project manager would report directly to me and would be stationed at SPN headquarters where he would receive local support. The project manager chosen was Mr Biraj Bista, he had a university degree and experience in data collection. I worked alongside him to explain the proposed study and what his job entailed and we visited the study sites together to meet with the clinic managers.

Three nurses were selected for IUD study from the districts where the study would be performed (one nurse from each district). They underwent training on IUD insertion, removal, counselling and problem solving. This training started on January 30, 2002 and ended on February 20, 2002. All training was based on the His Majesty Government National Health Training curriculum. After the completion of their training the nurses received a certificate of completion of IUD training, which allowed them to work within any family planning clinic in Nepal. The nurses then went back to their respective clinic where they were initially supervised, first directly then indirectly, by the doctors on site. When the doctors felt the nurses were fully competent they were allowed to work independently. Even though the nurses were fully trained in all aspects of family planning their main role was to insert and counsel clients requesting the IUD and enter them into the study. They were trained in completion of the questionnaires required for each recruited client.

After receiving the formal letter from the Family Health Division of the Department of Health allowing the study to begin on March 18th 2002, the study became operational from April 1st 2002 to March 31st, 2003.

Towards the end of the study period I considered that it was important to discover in more detail how women who had both continued with the IUD and those who had discontinued with it, felt about the method and the whole process of insertion and follow up. To this end I developed a question route and the project manager travelled to the districts to question some of the clients who had participated in the study. The clients were located and asked to participate in the discussions by the female community health volunteers. These discussions gave further insight into reasons for both continuation and discontinuation of the IUD.

During the analysis of the qualitative data I discovered that men had some influence on the uptake of the IUD and family planning by women. The IUD study itself revealed that some women were requesting removal of the IUD because of their husband's objections. I felt that in view of

the influence men appeared to have on women and their ability to utilise family planning then it would be ideal to investigate men's knowledge, attitude and practice towards family planning and reproductive health. I discussed this with Dr Ram Sharan Pathak who is an associate professor of the Central Department of Population Studies at Tribhuvan University, Kathmandu. Dr Pathak had been involved in an advisory capacity on the development and data processing of the Demographic and Health Survey (DHS) of Nepal in 2001. The DHS are carried in many developing countries in the world, the Nepal DHS 2001 is a robust and nationally representative survey sampling 8,726 women of reproductive age and 2,261men aged 15-59. I developed a questionnaire with the assistance of Dr Pathak and he and his research team at the Tribhuvan University performed the survey in three districts of Nepal. I analysed the raw data sent to me by Dr Pathak.

Research Timeline:

2002	**Activities**
January	Recruitment of Staff and development of IEC materials
February	Training of providers
March	IEC/Training of Promoters
April	IEC/Recruitment of clients (Follow up 7-14 days post insertion)
May	Recruitment of clients (Follow up 7-14 days post insertion)
June	Follow up on clients and data collection in regular intervals
July	"
August	Development of study questionnaire for male study
September	Male study carried out
October	Data analysis of male study
November	Qualitative research - Focus Group Discussion for IUD study
December	Qualitative research - Focus Group Discussion for IUD study
2003	
January	Data processing
February	Data processing and report writing
March	Report writing and preparation of the conclusion of study
April	Conclusion of the study
May	Conclusion of the study and dissemination of research findings

In summary, this research takes forward specific areas highlighted at the ICPD. The education of women, a fuller choice of family planning methods for women to allow them to make more

educated decisions about their family planning requirements, and to provide the women with high quality services, and full counselling. A benefit of providing a wider choice is that it leads to a higher continuation rate that ultimately leads to the reduction of unwanted pregnancies and unsafe abortions. With respect to men, key questions were men were becoming more involved in family planning decisions and reproductive health issues and, if this were the case, the factors underlying this greater involvement.

Three research studies are described in this thesis. The conduct of these studies was approved by the Family Health Division of the Ministry of Health of His Majesty's Government of Nepal. The work was undertaken according to the ethical guidelines of the 'Opportunities and Choices' reproductive health research programme of the university of Southampton, and in accordance with the operational policies of Sunualo Parivar Nepal.

Nepal

KATHMANDU

STUDY DISTRICTS

Literature Review

The History of Nepal Family Planning Programme

Nepal has one of the oldest and longest established family planning programmes in the world.

The Family Planning Association of Nepal (FPAN) started Nepal's first family planning

programme in 1959 [2]. The FPAN disseminated information about family planning from this early stage but actual services only became available in 1968 [3].

The Government, in the form of a delivery programme, supported these family planning services. The United Nations had made a Declaration on Population, which stated that family planning was a basic human right and an important factor in development planning [3]. The Nepalese Government following this Declaration adopted a family planning programme in 1965 in order to try and maintain a balance between population growth and economic growth.

The establishment of the Family Planning and Maternal – Child Health Board (FP/MCH) in 1968 saw the start of a national service delivery system [3,4]. This board was a semi-autonomous implementing agency working under the auspice of the Ministry of Health. Initially the national family planning programme was introduced only into the cities of the Kathmandu valleys [5]. As only 14.2% of Nepal's population is urban and the majority are living in rural areas, to deliver family planning services the programme had to develop ways of introducing the services into rural areas [6]. Nepal is topographically a very difficult country for links to the more rural and remote areas to be established. It has three distinct geographic areas, the mountains, the hills and the terai. The mountain belt stretches over to include the Himalayas; this terrain is sparsely populated with many areas impassable for a proportion of the year. The hills are more densely populated than the mountains but the country's infrastructure makes even these areas difficult to access. The terai is an area of flat land, which is densely populated; here the mainstay of income is from agriculture.

Nepal is divided into five development regions; these are Eastern, Central, Western, Mid-Western, Far-Western [2]. These five development regions are further divided into 14 zones, 75 districts and 4,021 panchayats. A village panchayat may comprise one or more villages, and each panchayat consists of 9 wards.

The establishment of the FP/MCH programme saw the start of formal provision of family planning services in Nepal with the aim being to reach as many of the rural and remote areas as possible. The structure of this program consisted of 4 levels: the central office, four regional offices (one in each development region), 40 district offices and 492 service centres both clinic and panchayat based [4]. It was the main role of both the district offices and clinic and panchayat based centres to provide family planning services. Health workers are based at both the district and clinic / panchayat level and these workers became the primary link between the FP/MCH program and the village population. Through home visits they established contacts with the villagers and once trust was gained they went on to educate the villagers about family planning and in so doing promote the services which they went on to deliver.

The delivery of services was mainly through the centres, where free oral contraceptives and condoms were always available. Also the provision of Depo-provera was catered for in selected centres and any centre whose staff included a medical doctor could provide both vasectomies and IUDs.

Then in the early 1970's the Nepalese Government started to look at an integrated FP/MCH programme [4]. The structure of the integrated programme differed from the original programme. It consisted of a central office, an operations branch with two field supervisors and two health inspectors, 48 district health offices and 298 health posts. The actual provision of family planning services was again the main responsibility of the district health offices and the health posts. Both the district health offices and the health posts within the integrated program had more ground staff i.e. front line staff.

In order to provide services outside the health post and reach the more inaccessible rural areas, village health workers (VHW) were employed. The health posts are subdivided into 4-6 areas referred to as Veks. Each of these Veks had a VHW assigned to it who worked under the supervision of the health post staff. In the high mountain areas the VHW was expected to visit

each household about twice a year, while this number of visits increases to six in the mid-mountain and terai areas.

As the years passed other ways of reaching the general population, informing them and providing them with family planning services were considered and implemented. In the early stages of the family planning programme in Nepal most services could only be accessed through static or permanently established clinics [7]. These were few in number and each clinic could only offer a very limited choice of family planning methods to potential clients. In answer to this, outreach service delivery systems were developed, referred to as the family planning *Sibir* or camps. The ideal was that these camps would make the provision of family planning services possible in previously remote and inaccessible areas. These camps went to areas where there was a demand for services but no static clinic had been established or could be foreseen as being established in the near future. For a limited time they stayed in the area until the local demand for family planning at that particular time was met.

The camps are now a strong feature of Nepal's family planning service and the number of clients attending these camps has increased significantly over the years since their introduction. The number of female sterilisations was minimal at the start, but over the years the use of laparoscopy and mini-laparotomy has been shown to be both safe and effective in the camp situation, to the extent where the number of female sterilisations far out-number vasectomies (15% : 6.3% DHS 2001). These camps are frequently seen as the only option for couples that wish to limit their childbearing but do not have the means to access a static site.

The organisation of the family planning services changed over the years in Nepal [3]. In 1975 under the National Planning Commission, the Population Policy Coordination Board was established. The Government in the same year moved forward with its acknowledgement of the need for family planning services when for the first time it explicitly set out demographic policies and targets and within these it emphasised the role of family planning. As the years passed the

Board was reorganised, in 1978 it became the National Commission on Population (NCP) and in 1982 it reorganised once more into an independent, politically strong support system for population and family planning programs. It worked with both private and public sectors where its primary responsibilities were to formulate appropriate policies and coordinate population and family planning related programs.

Further developments of the family planning services in Nepal meant that by the early 1980's there had been the establishment of 32 operating theatres at district and zone hospitals and several family planning clinics all with the ability to provide female and male sterilisations. The FPAN also organised sites for sterilisation, initially in three districts. It was apparent that female and male surgical contraception were becoming the most popular and most used forms of family planning in Nepal and the Government developed a long-term plan to provide sterilisation services throughout the year at static clinics to accommodate this increase [7].

Over the years there has been a change in the ways in which sterilisation is offered. The sites providing this service are divided into three categories: static sites, seasonal sites and mobile outreach sites [7]. The difference between them essentially lies in the timing of the provision of services. The static sites are available throughout the year for sterilisation, but as the name implies are fixed in one building meaning that the clients have the inconvenience of travelling to them. Seasonal sites provide services for a limited time at each site using existing facilities such as hospitals and clinics, which have fully equipped operating theatres. Mobile outreach sites on the other hand go out into the more remote areas, where they stay for a limited period of time and use facilities such as schools and health posts. These facilities can provide a basic building but the operating equipment has to be transported from main centres to these more remote areas.

In 1995 the Ministry of Population and Environment (MOPE) was established as a separate Ministry for population related activities, indicating a strong government commitment to population

programmes. This ministry was responsible for formulating and implementing population policies, plans and programs as well as monitoring and evaluating such programs. The Ministry was therefore responsible for implementing programmes of action recommended by the International Conference on Population Development (ICPD 1994) and taking the national implementation in a different direction to the previous focus on population control.

A number of five year development programmes have been running since 1970 with the most recent beginning in January 2002. His Majesty's Government of Nepal receives help from a number of donor agencies, one of the largest contributors being UNFPA (8). HMG of Nepal also works alongside a number of non –government organisations (NGOs), including Sunualo Parivar Nepal, the Nepalese partner of Marie Stopes International. These government and NGO partnerships have strategic aims aligned with the principles of the ICPD. All these agencies work in close consultation to formulate programmes, within these programmes there is development of specialised activities aimed at particular target groups. Special attention is being placed to increase awareness of the needs of young people. In Nepal adolescents comprise a fifth of the total population and a fifth of women aged between 15 – 19 years are pregnant or already mothers. Half of them do not receive adequate obstetric care and this leads to 19% of maternal death occurring in this group. The adolescent component of the program endorses the distribution of contraception to unmarried adolescents and emphasises education regarding adolescent reproductive health.

The ideal of the 5 year development programme is to aim towards a decentralised reproductive health programme that will increase the utilisation of quality reproductive health services by women, men and adolescents whilst also increasing awareness of reproductive health risks and benefits. This latter initiative has the goal of bringing about behavioural changes regarding safer sex and reproductive practices.

The use of contraception in Nepal is very low in world terms and the Nepalese Government, in

keeping with its programme goals, is trying to increase the uptake throughout the country. Its use of mobile outreach sites for surgical contraception has been proved to be successful in making potential clients more aware of its availability and therefore increasing its utilisation [3]. The reason for its success can in a large part be attributed to the increase in knowledge of the procedure among much of the population. The increase in uptake of Depo-Provera, a long acting injectable contraceptive, has been attributed also to the increase in knowledge of its use [9]. This has been achieved by ensuring that providers are fully trained in its action, use and provision and by making it widely available and easily accessible through local pharmacies.

Increasing knowledge among the population about different forms of contraception can lead to an increase in their use [10]. If the providers can be fully trained in the counselling and provision of the different forms of contraception then this has the potential to increase general knowledge and increase utilisation and continuation of family planning methods. Increasing the accessibility of methods of contraception will also be likely to increase the uptake of those methods within a population [10,11].

The government has responded to this knowledge by introducing the Comprehensive Family Planning Training Course. Health workers are instructed on a complete range of essential family planning information and trained in the skills that are necessary to provide a high quality service to the client. In order to do this the trainers themselves use standardised materials that are all up to date and meet national medical standards. Before the trainees offer services to clients they will have been trained on anatomically correct models on which they will have achieved competency. The government has ensured that these training courses emphasise counselling skills and include an extensive infection prevention component linked to technical skills.

The face of family planning in Nepal is changing with time. However, the population have contraceptive needs that are still not being met. There are a number of factors encompassing religion, family, finance and social standing that influence the prevalence of contraceptive use.

The government and other providers are slowly finding ways of addressing these issues, but many remain deep-seated among the community.

The challenge for the family planning services in Nepal is now to strengthen and expand the provision of good quality services on a regular basis to meet increasing demands currently or in the future [9]

The increasing unmet need for contraception in Nepal.

Women with unmet need for contraception are defined as being currently married, fecund, aged 15 – 49 years, not pregnant and stating that they do not wish to have any more children, but despite this are not using a contraceptive method. From the last Demographic and Health Survey of Nepal in 2001, the unmet need stood at 27.8% of currently married women. 16.4% of this comprised women wanting to limit their families and 11.4% were those who wanted to space their families [6]. The unmet need for spacing is higher among younger women because they have not yet completed their families, whereas among older women who have completed their families there is a higher unmet need for limiting methods of contraception.

The ideal and actual family size are markers for unmet need, the greater the difference between the two values the higher the unmet need. It has been argued that in countries where contraception has become increasingly available and acceptable, such as Nepal, couples give serious consideration to their proposed family size [12]. In Nepal the majority of women consider three or less to be an ideal number of children, which indicates that a small family size is increasingly seen as desirable [13,14].

The attitudes of the Nepalese people towards reproductive health and contraception have changed, but behaviour has not changed along with changing attitudes. Contraceptive use is increasing, but not quickly enough to keep fertility in line with changing reproductive attitudes [13,15,16]. So despite there being a widespread acceptance that a smaller family size would be

ideal, there still remain a substantial number of unplanned births throughout the national community.

Throughout Nepal there are misconceptions about contraception that can be attributed to a serious lack of available information and education of the general population. This leads to a palpable fear of modern methods of contraception, which includes both sterilisation and temporary methods. This fear lends itself to an atmosphere of indecision and inaction with regard to the use of contraception.

Couples really want to limit their family size but the fear of side effects and therefore health consequences lead to the decision not to use contraception. The major industry in Nepal is subsistence agriculture, which involves mainly manual labour. The fear associated with family planning methods is that the side effects will have a negative effect on the ability of a family to sustain itself [15]. This results in couples going beyond their desired family size and not using family planning facilities even when they are physically accessible [17]. Even when individuals use the services it is common that they will not return for additional services, advice or information if they have a perceived problem.

Nepal continues to have a high total fertility rate, which stands at 4.1 births. There has been very limited success in making contraceptive services available throughout the country but especially for the least educated. At present Nepal has one of the lower rates for contraceptive use in the world. 99.5% of currently married women in Nepal know of at least one family planning method but only 53.1% of these women report that they have ever used one [6].

There is a distinction between the fertility needs of couples living in an urban area and those living in a rural area The difference between the wanted and actual fertility rates was almost twice as high among rural as urban couples [13]. In rural areas the organisation of subsistence agriculture has been family based. In older age groups the fertility was generally higher among

those who had larger holdings of land suggesting that children may still be valuable as labour [18]. Over time there has slowly been erosion of the family base. In recent years most people in Nepal have found there to be growing opportunities for wage employment. They have more free time in which to enjoy new leisure activities and more and more people are moving away from extended family communities in the rural areas into the more nuclear family units in the urban areas [19]. With this move it was believed that the way in which the older members of the community influenced the younger members, especially in terms of marriage and labour, would change [16]. Younger members gain more independence and along with this more autonomy. They are exposed to new ideas and values; this may have the benefit of showing that there could be more to the future than having a large family.

Nepali urban areas are exemplified by Kathmandu. As the capital city it exhibits many of the classic features of urbanisation. These include wage labour, availability of education, widespread literacy, modern health facilities, consumption of manufactured goods, mass communications, and opportunities for socio-economic mobility. It has eliminated the need for the extended family to be the basic unit of production. Along with all these features it carries the burden of inflation and low wages. This urban economy is associated with high costs for large families [16].

In general in Nepal, children are only seen as capable of increasing the family's productive capacity when they can be employed within the family itself [15,19]. This may still hold some weight in the rural areas, but in urban areas it is wage employment and not subsistence farming that provides income and commodities for the family. Therefore children are not used for labour in the urban districts and in consequence are not seen as economically valuable to their parents whilst growing up. Indeed most children in these urban areas contribute virtually nothing to the family's income, instead accounting for a large proportion of the household's expenditure. Children can account for between 33 –38% of the monthly expenditure.

If these children were in a rural setting they may contribute to the family's income, but the

perception within the urban population is that the adults would not return to a village life and therefore neither would their children be likely to in the future. Due to this shift from the extended rural family to the nuclear urban family, the parents now have more responsibility to equip their children with the education and skills they will need to continue on in the city [16]. As a consequence, parents have to make this provision through their own income. This all leads to the fact that raising children in an urban setting is becoming increasingly more expensive and one of the ways in which to reduce these outgoings is to reduce family size and limit childbearing [15].

Thus, the reasons for unmet need in urban areas are economic in conjunction with lack of knowledge of contraceptive methods. In rural areas the reasons for unmet need differ in some respects. One of the main underlying reasons is the fear of side effects from the family planning methods, which could interfere with their livelihood and existence.

Overall rural Nepalese see the use of contraception as hazardous and although they have a significant knowledge of the contraceptives available, each method has perceived risks that seem to outweigh any benefits it may possess. Temporary methods have potentially too high a health risk and permanent methods, such as surgical sterilisation, carry the probability of rendering the couple infertile and unable to replace any children who may unfortunately die.

It is perceived that even the costs of recuperation after a sterilisation operation, in terms of having a good diet and rest time off work, are too high to bear where this time loss equates to loss of income and subsistence that can be ill afforded.

These perceived losses due to contraception have to be placed against the comparatively low costs of raising children in a rural area where food does not have to be bought and the children seldom have any formal education, but instead are used as labourers in the family work of subsistence farming. In this context it is doubtful that the use of contraception will increase in the rural setting or if it does it may be a slow process.

How is the use of contraceptives is influenced?

Contraceptive side effects

As discussed above there is an impression held by a large majority of the population that contraceptive methods, whether permanent or temporary, have adverse health effects, which make their use hazardous [16].These beliefs have grown from an environment where there is a paucity of accurate information about family planning, but many myths and rumours fuelled by hearsay. Couples living within such a society then find it hard to make informed decisions about family planning methods and it seems inevitable that a proportion will therefore make no decision at all [17].

The perceived and actual adverse health effects of contraceptives contribute to unmet need as they discourage women, who would benefit from using family planning methods, from doing so [20]. The concerns about side effects come from a variety of sources. These include the experiences of the woman herself, the experiences of friends and family and more often than not from rumours that have been told and retold within communities, becoming distorted with time. These rumours and myths have such an effect that most women will quote such a story and use it as a way to explain why they will not use a particular method of contraceptive even though they have never tried it themselves [10].

For the women of Nepal, there are two main adverse effects associated with contraceptive use. Firstly, the actual physical side effects that comes from contraceptive use and secondly, the belief that contraceptives will render couples infertile, thus denying them the chance to replace any children that may die. When the foundation of a society is based on strenuous agricultural labour, then physical side effects that may interfere with this work are viewed as very risky. This is the case in Nepal where 86% of the population live in rural areas and gain their income and living from subsistence farming [6]. The overwhelming fear is that these side effects may compromise

their ability to earn a living.

The side effects most commonly associated with the use of contraceptives are excessive bleeding leading to weakness, dizziness, and weight loss, which are all debilitating. Already the health status of many of these rural people is compromised owing to living conditions which are less than ideal, with poor nutrition and hard work. The indirect costs associated with use of contraceptive methods, whether permanent or temporary, are perceived as large and can account for the low uptake of family planning [21]. When work is an absolute requirement, and any change in a woman's health status affect her ability to do a full day's work, and so the cost of contraceptive use would be high. Even after a sterilisation operation the cost of providing a nutritious diet and time off for recuperation can stop some couples considering this as an option.

In Hindu society, the excessive or irregular bleeding that can occur with the use of some forms of contraception, can be a disadvantage. Hindus believe that a woman is polluted during menstruation and childbirth, and she is deemed untouchable. Due to this interpretation a woman will be secluded from her family and friends during menstruation, childbirth and in the postpartum period. Therefore if the family planning method that a woman chooses increases the amount and duration of her menstruation or causes bleeding to occur between menses, then the time she is secluded will increase and may cause her to reconsider the use of that particular method [17].

A great concern of Nepalese couples, and other couples around the world, is that by using contraception they will become infertile. In Nepal the infant mortality rate is high, with many families experiencing the loss of one or more of their children [6]. It is in this light that the concerns must be viewed. If their chances of losing a child are high then they will not want to consider using family planning methods, which they fear, carry a risk to their future reproductive capacity.

Sterilisation is a permanent form of contraception and it means that couples choosing it are

limiting their families and do not have the chance to replace children that die. Therefore sterilisation is used when a couple believe they have completed their family, but more importantly have the desired number of sons or more, to ensure the survival of at least one son. Sterilisation is used towards the latter part of a woman's reproductive life and the tendency is that no other form of temporary contraceptive is used in the interim, to space the family. Temporary methods, such as the pill, IUD, and depo-provera are also believed to reduce a woman's reproductive capacity. In a culture where children are considered of paramount importance, a method of contraception which is assumed to reduce a couple's long term chance of conceiving will be viewed with suspicion. This means that temporary methods have a low uptake in Nepal and in the majority of cases, where they are used, will not be started until after the first child is born, or the birth of their first son. Sterilisation is widely known throughout Nepal and the basic patterns of the contraceptive mix has changed very little over the past two decades with sterilisation, both female and male, making up the majority of contraception used [3].

These beliefs are strongly held in Nepalese culture and are borne from a lack of knowledge about family planning. People are poorly educated by the providers of family planning and end up feeling concerned because they experience unexplained side effects from the contraceptives they use. This leads to a sense of ambivalence connected with the future use of family planning and increases the negative views of contraception which are then shared within communities

Provider bias

The rational approach to health promotion is that information given by a health professional will bring about a positive change in health behaviour [22]. A positive change in terms of fertility regulation would involve individuals and couples armed with adequate knowledge and means making decisions regarding family planning that would benefit them as individuals and improve the welfare of their family. The imparting of information about family planning methods is the responsibility of both clinic and outreach staff. Increasing the knowledge of the population is an

essential condition for increasing that the uptake of contraception. There are many misconceptions that are held by the people of Nepal with respect to family planning and it is the task of the family planning team to dispel the myths surrounding the subject by giving out correct information.

Previous research has indicated that family planning team members, whether based in clinics or in the outreach sites, hold certain beliefs about their clients and about contraceptive methods. These beliefs mean that team members treat distinct sections of society in different ways.

Poor people expect inferior treatment from family planning clinic staff and they get it, but despite this they are reluctant to complain [15]. Potential clients are afraid to use clinics and develop tactics to help them receive adequate care and information from the staff. The schemes they employ include travelling to clinics with other people to offset costs, taking someone with them, either a friend or relative who has used contraception before, to act as an intermediary. They also identify providers from their own ethnic background, especially those that speak the same dialect. The fact that lower class Nepalese people feel they do not possess the necessary skills to manipulate the system means they are prone not to use it [16].

Clients feel they cannot engage in useful dialogue with staff and therefore cannot gain the appropriate information and advice needed to make informed choices. Thus, it is the quality of the interaction between staff and clients that is a factor in the under use of family planning methods. The poor quality of services provided for the lower classes means that negative perceptions arise and are then disseminated to relatives and neighbours. This causes a "vicious circle" effect, where potential clients listen to negative messages and choose not to use the services.

Providers can also set their own rules about whom to give contraception to, such as the woman having to be of a certain age or to already have a certain number of children [15]. This may be done by the health professional because he/ she may be genuinely concerned about causing

infertility [23]

When clinic staff are observed in their work setting, there are certain trends that have been observed. When clients enter the clinic setting the tendency is for the clients and providers to fall into a traditional, hierarchical pattern of interaction. The clinic staff have been institutionalised and automatically assume an air of authority [24].

Providers were assessed on their treatment of the different classes of Nepalese people in terms of the accuracy and completeness of the family planning information, and on their attitude and bias towards the clients. It was found that providers spent more time and imparted more information to the upper classes than they did to the lower classes. Providers held a low estimation of the lower class, uneducated clients' intelligence and ended up "talking down" to them. Providers felt the need to dominate the lower class clients and only offer them as much information as the provider thought necessary. Sometimes this was done because of the good intentions of the staff who had a sincere concern for the client. The advice being offered was different in relation to experiences in the lives of the staff. In other instances, it was not concern that prompted the provider to talk to the client as they did, but a belief that they were superior and that the client would not be able to take in the appropriate information. It is thought by the providers in these circumstances that clients are best told exactly what family planning method they need and not offered an alternative. This leaves the client with the impression that there is only one form of contraception that they can use and if it is not suitable there is no alternative. Counselling at the time of acceptance of a method helps women and couples make informed choices and ultimately means that the odds of discontinuation are lowered [24]. The way the providers interact with the lower class clients goes against the standards set for good provision of family planning. It is considered that a good attitude and a lack of bias will produce a desirable outcome; that the clients will be able to make a fully informed, free decision about the form of contraceptive that is best for them. There is a significant positive effect of women's perceptions of service quality on both adoption and continuation of contraceptive methods [51] and their decision

to initiate and continue to practice contraception may depend on the quality of care that the woman receives i.e. the choice of methods offered, the information communicated to her and her personal treatment [25]. Providers sometimes have limited and poor knowledge of family planning themselves along with ingrained beliefs that they impart to clients thus discouraging them from using a method that may be appropriate for them [3,26]

In outreach posts where the sterilisation camps are held, a different form of bias is at work. The most common form of family planning method by far in Nepal is sterilisation [6]. This is a widely known method of contraception across all age ranges, whereas in other countries there is a tendency for younger, low parity women to know more about the temporary methods than older, high parity women. This does not hold true in Nepal. Younger women in Nepal were no more likely than the older women to know about temporary methods and their use for spacing families. So even though over the years more contraceptive methods have become available in Nepal and they are now more accessible than ever, the uptake of temporary methods remains low whilst sterilisation continues to dominate [3].

This strong emphasis on sterilisation has been backed by the government [7]. Voluntary sterilisation camps of Nepal are run in a specific way. It is the task of motivators and providers (field workers) in the areas where the camps will go to recruit women and men to come along and be sterilised. Their tasks should also include informing potential clients about all forms of contraception so they can make an informed choice, but the motivators and providers spent a disproportionate amount of time telling potential clients about sterilisation at the expense of temporary methods.

Field workers confine their activities within a limited radius from their own homes. They do not make any extra effort to reach villagers living in distant areas; instead "family planning" is most probably promoted mainly among those who could be potential acceptors of sterilisation and particularly those who live near the field-worker's place of residence.

The government run a scheme whereby field workers are rewarded with money every time they recruit someone to be sterilised. The more clients they recruit the higher the reward and the greater respect they receive from their supervisor. Supervisors reward field-workers who they consider to be especially effective. No such incentive is associated with recruiting clients to use reversible methods of contraception. Therefore, as the field-workers tend to be the main point of contact between potential clients and the provision of contraceptives, and they are biased towards sterilisation, the uptake of reversible methods is bound to remain low.

The family planning programme's history of focussing on sterilisation probably means that couples who wished to use family planning for spacing births have been unable to do so because of their lack of awareness about appropriate methods. Sterilisation procedures are being carried out at younger and younger ages, due to women and couples' lack of awareness of alternative methods. This has led to high rates of regret [6,7,27]. It is not imperative that the emphasis remains on sterilisation in order to achieve future programme aims within Nepal. If enough attention was given to providing accurate information to those couples who wish to use contraception for spacing instead of limiting their family, a whole new section of the population could be reached. This would result in an increase in the use of reversible contraceptives with an associated increase in contraceptive prevalence and continued improvement in continuation rates. Another subsection of the female population can also be provided with family planning advice. These are women who have just entered their post-natal period. Women counselled at this particular time are shown to be more likely to choose and continue with a method of contraception longer than those women in their post-natal period who were not provided with specific information [22].

Knowledge and education.

The low uptake of family planning methods, particularly those of a temporary nature, is compounded by a gross lack of accurate, generally available information within Nepal. Lack of

knowledge is an important factor in non-use. Lack of knowledge covers women who have never heard of a method to others who may not know how to use them or where to obtain them [10]. The population must be educated fully on the different choices available to them so as to make informed decisions. Given such an emphasis on education, social and economic benefits could be anticipated [3].

The use of contraception is positively related to the level of education that a woman has [3,28]. There are higher levels of awareness associated with educational attainment, non-agricultural employment, urban residence, higher parity and higher age [2]. As the level of education increases the number of children born to a woman decreases [13]. In
Nepal, there are two groups of women who are adversely affected because of this.
These groups are women in rural areas and uneducated women; these groups together comprise the majority of the country's female population and these adverse conditions frequently coexist.

These are the women needing to be targeted with information, education and social marketing of family planning. Also, accessibility of reversible methods of contraception must be improved. Information is one of the most powerful tools for behaviour change [29]. In Nepal 98% of women do know of at least one method of contraception, but even then the fact that women are aware that methods do exist is not enough. Many women do not take up contraception because they do not know enough about it, and those that do take it up discontinue its use because they have not been counselled properly about side effects. Continuation and satisfaction with the method used are higher among those women who received counselling about the potential side effects either at the time of acceptance or during a follow up visit. The mediating role of education is to allow women to take a more balanced view of risks and benefits, making individual choices while feeling in control of the process rather than passive recipients of instructions from an expert.

Availability and Accessibility

There is a strong positive association with the availability and accessibility of family planning

methods, uptake and use [2,11]. It is known that for each additional method that becomes widely available in a country, the contraceptive prevalence rate will increase by 3.3% [30]. Increasing a person's choice when it comes to family planning methods means that there is a greater likelihood that a suitable contraceptive will be found. If a person is happy with their choice they are much more likely to continue using it. High rates of discontinuation in Nepal adds to the unmet need and this can be offset by increasing the available method mix [16].

As discussed above, by ensuring men and women have information and access to the widest possible range of safe and effective family planning methods allows for a free and informed choice [11]. Nepal is topographically a challenging country to move around in. Most people in Nepal live in the rural districts, which are divided between the mountains, the hills and the terai. Whilst 49% of the population live within the terai, a 44% live in the hills and 7% in the mountains [6]. Making family planning services accessible to these people is a particularly difficult task.

The terai is an area of flat agricultural land that has modest transportation facilities and good communication resources. The terai is the only distinct geographical area of Nepal that receives sterilisation camps, as the terrain in the hills and mountains would not accommodate such camps. The government has also made special efforts to establish several village family planning centres in the terai region.

The further a person has to travel to get to a family planning service the less likely it is that they will go [2]. In Nepal, those who live within two hours of an outlet are almost twice as likely to use effective contraception as those who have longer travelling times [5,10]. As well as the distances involved it is the terrain, which makes journeying through this country difficult. In Nepal, family planning workers are posted in village panchayats, which can encompass two to four villages [3]. Nepalese villages are spread over a wide area and in order for a person to travel from one end of the panchayat to the other they would typically need to climb many hills and pass over mountain peaks and even cross a river at some point. These journeys can be made with difficulty in the dry

season, but when the monsoon season arrives (May to August) most of the routes become impassable so family planning services cannot be accessed at all. The monsoon rains affect the terai also, even though here there are modest transportation facilities. Some areas within the terai have poor roads or tracks, connecting them to the main towns. These roads and tracks can be covered or washed away by heavy rains.

Mobile outreach camps, offering sterilisation were the government's way of trying to deal with this problem. Since sterilisation is a one- off procedure that offers permanent contraception, does not need follow up, and does not require a constant supply of stock, and neither the user nor provider has to worry about compliance, then there were specific programmatic advantages.

Outreach camps are only available in the dry season, so that accessing areas is not a problem; this also takes into account the legitimate belief of the population that infection will be more common if operations are carried out in the wet season [7]. As already discussed, the camps only serve the terai region; the landscape of the hills and mountains make the delivery of these services near impossible. This means that a large number of eligible couples in these two regions will never be able to access these services. Overall the people of the terai have a greater possibility of accessing family planning services and these have a much more varied supply of contraceptive methods, when compared to the people of both the hills and mountains. This would suggest that the populace of the hills and mountains have a more significant unmet need.

The media have played a role in transmitting family planning messages to the Nepalese people. Radio achieves a greater coverage than television, because it is only the major cities and towns where television is readily available. The possession of a radio is much more widespread. This said, there are still disparities between those who get to hear and see these messages. Urban, educated women will be more exposed to the messages. 48% of urban women have heard a message regarding family planning compared with just 8% of rural women, and when exposure is looked at in terms of education a larger discrepancy appears. Only 7% of women with no

education admitted to hearing or viewing a family planning message compared to 60% of women who had attained a secondary leaving certificate [6].

Media have made an impact in terms of coverage but all failing in the way they convey the family planning messages. Couples may hear the messages but do not comprehend the implications they carry in terms of their own fertility regulation. Nepal's population consists of a large number of different ethnic groups, the majority of which have their own dialect and indeed there are several communities within Nepal that cannot speak or understand Nepalese. If a message is only sent in Nepalese then there are communities which will fail to understand the message at all.

Another reason media may not be making the necessary impact is that the field-workers are not reinforcing the same messages. Field workers are the main point of contact between communities and the family planning services. It is personal contact between the provider of the service and the potential client that improves the uptake of family planning. The media can initiate contact but the success or failure that follows is dependent upon this relationship of trust.

Son preference

Ideal family size has decreased over the years, with an ideal of three children per family, but the total fertility rate remains at 4.1 [13-14,31]. Knowledge of family planning methods is extremely high with 98.4% of currently married women being able to name at least one method but only 35% of women having ever used a modern method [6].

Why is the contraceptive prevalence rate so low when knowledge is high and the desire for a small family is widespread? One part of the answer may lie in the historical, cultural, social and religious background of the country, which places a higher value on sons than it does on daughters.

In some communities sons are highly prized; the birth of a son is an occasion for celebration,

whereas a new daughter is almost a cause for condolences [31]. When times are difficult for the family it is the sons who receive preferential treatment, they would attend school and be given better food and clothing [32].

The securing of support during old age is a major concern for Nepalese people [31]. The government has no scheme in place to provide funding for older people and most have low incomes. Even those with middle incomes have no means by which to save for the future. The reason for this is that the cost of living is higher in the city and larger towns than in the rural communities [19]. The only way people can foresee financial security is through their progeny, especially the male heirs. Daughters are seen as ultimately belonging to their future husband's family and so providing no long term economic support to their parents, who therefore rely on their sons for support.

In Nepal, inheritance laws and cultural norms that govern post marital residence and economic exchanges between parents and their sons and daughters provide a solid underpinning for the cultural bias towards sons. Daughters need to be provided for by their parents and are therefore perceived as a luxury and an expense especially in the context of marriage where a dowry has to be supplied. Parents feel they have to constantly provide and support their daughter until she is married and she can give them nothing in return, unlike a son. A son can inherit from his parents and can provide them with accommodation and financial support in their old age [16]. Sex segregation of tasks within a household can result in male and female children being considered differentially valuable and expensive, which may increase further the value placed on sons and increase demand for male children [32]

Sons therefore have an obligation to provide for their parents by offering them security in their old age and by performing religious rituals at their deaths and death anniversaries. Daughters are only around to give emotional support to parents but nothing material [16,32].

The status of a female within a family and securing support in old age are the two main drivers to bearing sons. As a direct consequence there is a relationship between the uptake and use of contraceptives and the number of sons that a couple have had. The greater the number of sons, the greater the likelihood of contraceptive use. The earlier the sons are born the higher the likelihood that contraception will be started at an earlier stage in a woman's reproductive career.

Nepalese society bears a strong resemblance to Northern Indian culture. Both are Hindu societies and the Terai region of Nepal lies close to Northern India. Many women in North Indian culture have reduced contact with their natal kin once married and so move to a situation where they come under the influence of their husband's kin [32]. In the context of Hindu society it is believed that the first duty of a married woman is to become a mother. Childbearing is fundamental in defining a woman's identity, confirming her worth and establishing her position in the household and in her husband's kin group [16-17]. A woman's family position is precarious and highly dependent on producing male heirs. A woman's acceptance by her husband and her status in society hinges on her ability to bear children. It is a fear of many Nepalese women that their husband would take another wife if they could not produce male heirs. Status and security for women in these strongly patriarchal societies can be realized only through achieving motherhood and husbands are more likely to wish to exceed the family size they initially desired in order to have sons [14].

It is of note that the rural population shows a stronger son preference than their counterparts in urban areas which may in part be due to urban couples and especially urban women believing that daughters are more valuable than sons for avoiding loneliness [31-32].

Research has shown a definite relationship between the number of living sons and the acceptance of a family planning method, whether temporary or permanent [7,14,17]. Of couples who have two living children, the proportion of those wanting no more children who have one son is two to three times higher than the proportion among those with no sons. Couples with two or

more living sons are much more likely to want no more children than those couples with only one son. Couples who have their sons first are thus more likely to limit childbearing and use contraception than those who have daughters first.

Among current contraceptive users in Nepal the number of living sons is higher than the number of living daughters for all users of contraception, and most couples will have had at least one son before they start using family planning [31]. The proportions of those women / couples who had ever used family planning methods or who were currently using them increased substantially with the number of living sons. Virtually no family planning is seen in families with no sons [4].

A strong preference for children of one sex can counteract social trends towards fertility declines because many families that have achieved what they felt was their ideal family size will continue childbearing until they achieve the actual number of their preferred sex [14]. Only cultural changes that lead away from male children being more highly valued than female children will ultimately contribute to a decline in fertility. This decline can be seen more readily in urban rather than rural areas, but at present the majority of Nepal's population (86%) live in rural areas.

Husband, kin and community values.

Nepal is a patriarchal society where women are not accorded the same respect as men. Women marry young, move into their husband's house and become part of their husband's family [32]. As an adolescent they move from the influence of their own family to the authority of their husband, and mother-in-law, without having established their own autonomy.

In such a society, when a woman's and man's opinion on family size differ it is generally the man who will have greatest influence on the final decision [20]. Women in Nepal tend not to become involved in matters outside the home. A woman will even find it difficult to talk freely about family planning outside the home, as she will be seen as morally degraded and her loyalty to her husband will be questioned [31]. Some women find it equally difficult to communicate with their

husbands about family planning, as do women in many developing countries [10,33]. It is in this climate that the husband's authority becomes paramount. Husbands and extended families put considerable emphasis on the bearing of sons [31]. The more children they have, especially sons, the higher their status in the community. Even uneducated men, if they produce male progeny, can hold esteemed positions within a village. Their opinions will be sought, and their ideas will be listened to. Husbands may be more inclined to exceed the desired family size in order to have sons despite the wishes of their wives [17].

A woman has to balance her wants and needs against those of her husband and her husband's family. Women tend to want fewer children than men because they bear the cost. This cost is related to health and emotional stress. The more children a woman has and the closer the children are in terms of age, the greater the chance that the woman will suffer. Maternal morbidity and mortality are high in communities where there is high fertility and minimal spacing. Maternal mortality accounts for 27% of all deaths of women aged between 15 – 49 [13]. The woman in her role as mother is also the one who, when necessary, has to deny her children basic necessities such as food. Fathers' tend to spend little time at home thus leaving their wife to deal with any problems associated with the children.

Despite these factors women still have more children than they want, and this is in part due to their husband's and his kin's desires [14]. Acceptance of a woman by her husband and society depends on her ability to bear children [32]. It seems to be easier and more satisfactory at home and among their peers, if women continue to bear children that are not necessarily wanted, and not to use family planning until they have not had one or more sons. Ultimately the woman is expected to fulfil her husband's desire for children, whether she wants them or not. This leads to a situation where lower levels of contraceptive use prevail and higher fertility ensues. The level of a husband's education has been linked to level of fertility. As male education increases, the level of fertility declines [18].

The husband carries authority within the household, but it is not only the husband who influences a woman's decision about family planning; in-laws exert some influence. When a Nepalese woman marries she moves in with her husband, but her husband may still reside in his parents' house. From the moment she moves into their house, her in-laws will have their own opinions about childbearing and family size known. In Nepal, childbearing is central in defining a woman's identity, affirming her worth and establishing her position in the household and in her husband's kin group [16].

There are several examples given by women in Nepal about the influence of in-laws on family planning. Fathers-in-law actually refuse to let their sons and daughters-in-law use contraception, and there are reports of fathers-in-law pulling their son's wife from vehicles that are going to sterilisation camps. Speaking to a woman in Nepal can be difficult without the mother-in-law being present, especially in high caste families. The mother-in-law can make the difference between the woman having an easy or a difficult time in her husband's family. If a woman has her mother-in-law's support it can ensure that she keeps her status within the household, that she can be accompanied on visits to the family planning clinic, that she can take time off work to recuperate from an operation, and that she can receive a share of food to maintain good health.

Both the husband and his family's influence can have an impact on a woman's autonomy. It is clear that the greater a woman's autonomy, the better able she is to take control of her own life, which includes regulating her own fertility. As already mentioned the more influence the husband has over his wife the more likely she is to exceed the number of children she originally desired.

Indicators of female autonomy have been developed for research use. These include; freedom of movement and association of adolescent and adult females, post marital residence and behaviour that does not inhibit contact between a woman and her own family, the ability of females to inherit or otherwise acquire, retain and dispose of property, and finally that the woman has some independent control of her own sexuality. If a woman can access information and then

have the ability to use this information to make decisions about her own concerns e.g. contraception, then she can exert control over her life [32].

Her own family can take control out of a woman's hands, as well. When parents make a choice of husband for their daughter it is likely that she will marry early on in her reproductive life. Rural and urban women in Nepal, on average, give birth to their first child while they are still adolescents [6]. Adolescent fertility is a major social and health concern. Mothers from the extreme end of the reproductive age range are more likely to suffer serious complications during their pregnancy and childbirth. In countries where the age at marriage is higher, the birth of the first child tends to be postponed, and this is reflected in an overall decrease in fertility and a fall in morbidity and mortality.

There are community issues surrounding fertility in Nepal. It has tended to be the case that people would stay within the village community throughout life. They would be part of an extended family and adopt their values when it came to matters such as marriage and childbearing [19]. Fertility generally is higher among those who have a larger holding of land, suggesting that children are valued for their contribution of labour when working the land [15,18]. The extended family is still a strong concept in Nepal, but there is a move now for people to leave their villages and live in the larger towns and cities. The move to larger centres provides people with the opportunity to earn individual wages and not work in subsistence agriculture. Living in cities and towns also exposes these people to experiences they have never known before and can inspire them to try and achieve goals they had never thought were possible. This means that people are more inclined to want a smaller family because it fits in with the way of life in the city much better.

Changes are occurring within rural communities, which are still strongholds for larger families which are used as a means to help with farming, the change is towards a desire for smaller family sizes. Nepal has received a great deal of foreign assistance aimed at improving the social and economic well being of the Nepalese people, including local level development projects. One

such project is the Small Farmers Development Program (SFDP) [19]. Under this project a group of farmers are given credit to assist with agricultural productivity, but all the farmers are held jointly liable for paying back the loan. The project provides the community with medical care and family planning services. The SFDP is developed in such a way that peer pressure is brought to bear on individuals so that they will limit their family size. It is thought that the larger the family is, the more money will have to be spent on their upkeep thus jeopardising the member's ability to repay the loan. Under such a project the trend will be towards smaller family size.

A further community value helps restrict fertility at the upper end of woman's reproductive life. It is still traditional for the parents to share the same household as their son and his wife. Women in Nepal tend to become grandmothers at an early age due to the early age of marriage and age when they give birth to their first child. Nepalese culture dictates that it is unacceptable or dishonourable for a woman to continue childbearing when she becomes a grandmother. In a country where the contraceptive prevalence rates are low then women must abstain from sexual intercourse once they become grandmothers. Once a son and his wife live with his parents, childbearing follows shortly afterwards, therefore the mother-in-law can be viewed as a grandmother almost from the point her daughter-in-law moves into the household, and from this it follows that her childbearing days are over [34-35].

Nepal has a strong cultural heritage that remains among a large proportion of the population. Therefore the influences of community, husbands and family can have a substantial impact on a woman's fertility. Even though women want smaller families, at present these cultural influences dictate that they will continue to have families that exceed the desired size. These influences also give rise to a lower contraceptive uptake rate and hence to higher fertility.

Any interventions aimed at women to improve their use of family planning must take into account the degree of influence they possess within the household [22]. When men are provided with information about reproductive issues they are likely to be supportive of their partner's family

planning aspiration [36].

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The Intrauterine Device (IUD)

The intrauterine device (IUD) is a device placed directly within the uterus where it interferes with a woman's fecundability.

World Use

The IUD is the most widely used reversible contraceptive method in the world (1). A large proportion of this use comes from China, which appears to have a particular relationship with the IUD. There are a number of other countries where the IUD is the most common form of reversible contraception used including Vietnam, Norway, Mexico and Peru, and there are other countries where the use of the IUD is low and declining including Kenya, El Salvador, Nepal, Sri Lanka and the USA.

China made a great effort to control its rapid population growth in an attempt to help drive the country towards modernisation. To do this the Government imposed restrictions upon reproduction relating to the number, timing and spacing of children that a couple could have. In order to enforce this, couples were offered a basic choice between the IUD for spacing their family and sterilisation to limit their family. IUD users now constitute 85% of the total users of reversible methods. This initiative provided China with a contraceptive prevalence rate of 83% and a birth rate that was reduced from 43 per 1000 in 1963 to 18.2 per 1000 in 1992. This effectively brought the total fertility rate down from more than six to 1.8-1.9, below replacement levels (2-3). The great success in reducing the fertility rate was gained at the expense of choice for couples in China and was based on coercion.

Among those other countries where the IUD is the most popular reversible method of contraception, there are a number of reasons for this high uptake.

1 Offering postpartum insertions (4)
2 Higher use for spacing (5)
3 Higher use for older women
4 Lower discontinuation rate for older women
5 Lack of knowledge of other methods (6)

6 Poor access and availability of other methods (6)

Among the countries where use is low and declining there are a number of reasons for its decline:

1 Myths and rumours
2 Provider bias
3 Lack of provider training
4 Lack of female providers
5 Poor publicity
6 Lack of availability and access

IUD devices

The IUD is a very safe, effective and inexpensive method of contraception that has a life span ranging from 3 to 12 years. It can be used equally effectively for spacing or limiting as it is equally as effective as a form of contraception, and because it does not increase the time for return of fertility after its removal it has no disadvantages for those wishing to space their family. Over its life course it becomes one of the most cost-effective methods available. There are a number of different types of IUD. One of the first types introduced was the inert plastic device. One of these devices was the Dalkon shield. This particular device has numerous threads attached to it and these threads were found to increase significantly the number of women who developed pelvic inflammatory disease as they acted as a route of upward migration of bacteria. Due to the increased prevalence of PID in women using the Dalkon shield the device was withdrawn from the market in 1975. It was this withdrawal that accounts for the low popularity of the IUD in the USA, where the newer IUDs also seem to be similarly met with suspicion.

The next device introduced was the copper IUD. The introduction of copper into the device increased its effectiveness as a method of contraception. There are a variety of copper devices with a range of both shapes and amount of copper. The least amount of copper found on an IUD

is 200mm^2 and the most is 380mm^2. It has been proved that the effectiveness of the device improves significantly when the amount of copper is greater than 300mm^2, devices with a lower concentration than this can only be used for a shorter period of time i.e. 3 years or less and are less effective. Studies have shown a five-fold decrease in pregnancy rates when the copper content increases from 200 to 350 mm^2 (2.2 vs 0.44 per 100 women years) (7). The ' Gold Standard' of IUDs is the T-Safe Cu380A device, which is T shaped and contains 380mm^2 of copper - all other IUDs are compared with this device. A new copper device has been introduced in the past few years. This is the Copper Fix (Gynefix) device and is unlike the other copper IUD's in that, instead of having a T shaped appearance, it is actually a thread containing six sleeves of copper which hangs down into the uterine cavity from a knot embedded in the fundal myometrium. The premise behind this device was that because it hangs free within the cavity unlike the T shaped devices, which are wedged into the cavity, it would cause less pain and bleeding. It was also promoted as a device that was better suited for nulliparous women due to the reduced bleeding and pain. Unfortunately, the device was shown to have an increased expulsion rate in comparison to the T shaped devices without actually reducing the amount of pain or bleeding a woman suffered (8).

An even more recent introduced intrauterine device is the levonorgestrel-releasing intrauterine system (LNG-IUS). This is a T shaped device that holds on its stem 52 mg of levonorgestrel. It is an extremely effective form of contraception and its effectiveness can be equated with that of female sterilisation.

Each of the three intrauterine devices works in different ways to prevent pregnancy.
The inert devices work by impeding implantation of a fertilised ovum.
The copper devices work through the release of copper ions that disrupt the efficacy and survival of the sperm, so in essence preventing fertilisation of an ovum.
The LNG-IUS works locally within the uterine cavity to cause atrophy of the endometrium so implantation cannot take place. It also thickens the cervical mucus to impede sperm transferring

into the uterine cavity and it can stop ovulation in some women.

Copper IUDs can be inserted at various times in a woman's reproductive life. They are a very effective (>99%) form of emergency contraception. Insertion is also possible immediately after a first or second trimester abortion, immediately postnatally or at 4 weeks postnatal [9]. It can be inserted at any time in a woman's menstrual cycle as long as there has been no risk of pregnancy within the cycle. The T-Safe Cu380A device is the most effective and therefore the Gold Standard of IUDs with a failure rate of 0.6-0.8 pregnancies per 100 women in the first 12 months of use and has the lowest cumulative pregnancy rate (2.2 per 100 women after 8 years) (10).

The LNG-IUS is a very effective form of contraception that can be equated with female sterilisation. The failure rate of the LNG-IUS is 0.18 per 100 woman years. The cumulative pregnancy rate at 5 years is 1 per 100 women compared with 1.9 per 100 women after 10 years for sterilisation. The LNG-IUS has added benefits through its action to atrophy the endometrium; this actually causes menstrual blood loss to reduce by 90% at the end of 12 months in the majority of women (11). The LNG-IUS is licenced for use as a contraceptive for up to five years, a method of controlling menorrhagia for up to five years and the progestogenic component of hormone replacement therapy for up to four years (12)

The IUD therefore appears to be a very good choice of contraception for a number of women. There are very few contraindications to its use and it could be used worldwide. For a number of reasons not all women have access to the method at present.

Duration of Use

Copper IUD's have a licenced use for between 3 and 8 years, with the T-Safe Cu 380 providing 8 years of licenced use. The exception to this rule is that any woman having a copper IUD inserted after the age of 40 can continue with its use until she passes through the menopause, the average age of women going through the menopause in the UK is 51 years. The copper IUD has

shown to be effective as a contraceptive in these women despite extending beyond its licenced use and this is due to the woman's naturally declining fertility.

The LNG-IUS has a licenced use for five years as a contraceptive and a four year licenced use as the progestogenic portion of HRT. The exception again is in women who have the LNG-IUS inserted after the age of 45 at which stage she can continue with its use for seven years.

Contraindications for the use of the IUD

There are very few absolute contraindications to the use of the IUD as stated by the World Health Organisation's Medical Eligibility Criteria (WHOMEC).

Absolute Contraindications:

- Pregnancy
- Puerperal sepsis
- Immediate post-septic abortion
- Distorted uterine cavity
- Unexplained vaginal bleeding
- Malignant gestational trophoblastic disease
- Cervical cancer -- awaiting treatment
- Endometrial cancer
- Current or recent (within three months) pelvic inflammatory disease
- Pelvic tuberculosis

Barriers to the use of the IUD

Providers

Owing to the requirement that a woman must have an internal examination before having the IUD inserted, it has mainly been seen as a physician's job to provide this service. In developing countries this can restrict the number of women who can access IUD services. In many developing countries much of the population live in a rural area, and these rural areas tend to

have either poor or non-existent health facilities. Many physicians who work in developing countries tend to work within the urban districts (13). One intervention that could increase accessibility of the IUD to rural women is the introduction of paramedics i.e. nurses, midwives, auxiliaries trained in the provision of the device. A number of efforts in different countries have aimed at enabling paramedical staff to provide IUD services. Studies have been performed in Turkey, the Philippines, Iran, Colombia and the US, investigating paramedic IUD provision. Several potential advantages are associated with this approach. Firstly, they are more numerous than physicians especially in developing countries. Secondly, they tend to live and work in rural settings whereas many physicians work only in the urban centres. Thirdly, their social status allows them a more empathic relationship with their clients. Finally, many paramedics are female and many clients feel more comfortable having a pelvic examination (required for insertion of an IUD) performed by a woman. Most physicians in developing countries tend to be male (14).

Proponents of such training programmes argue that certain basic skills can be learned thoroughly in a short period of time. All the evidence from the studies to date indicates no difference in continuation or complication rates in women who have had the IUD inserted either by a physician or a paramedic (15-17).

Another approach is the use of motivators who are women who have had the IUD inserted. They are used by family planning services to reach the more rural and remote areas and teach them about the method from a positive aspect. In Sri Lanka where the use of the IUD had declined sharply the Family Health Bureau of the Ministry of Health recruited satisfied users of the IUD to work alongside trained midwives. The results suggested that the number of new acceptors of the IUD was higher in the groups where there was both a midwife and satisfied user when compared to midwives alone. The satisfied users or motivators were influential in helping to convince friends, relatives and neighbours to accept the IUD (18).

Evidence for provider bias as a barrier to the uptake of the IUD by potential clients is available

from many settings. Provider bias can be viewed as the omission of information about the IUD, perpetuating myths and rumours, lack of training and lack of experience which leads to lack of confidence that can make the provider not feel able to offer the IUD as a method of contraception. Studies have shown that providers far from dispelling rumours actually reinforce them or do not provide adequate information to dispel rumours. Providers also do not routinely initiate discussion, other temporary and reversible methods such as the pill and injection were mentioned more frequently than the IUD, and explained more fully. The providers felt that they did not have enough time to discuss or provide IUDs and did not feel confident in their ability to provide it. The lack of confidence was related to a lack of experience (19). Providers can also place restrictions on the woman that can limit her ability to use the IUD as a chosen method of contraception. These restrictions include the established fertility of a woman, in some service settings the woman is required to already have up to five children before having an IUD inserted (20). Improving the training of providers and at the same time increasing the demand for the IUD would ensure trained providers can gain and maintain their experience. This could potentially have a beneficial effect on IUD uptake.

Discontinuation

The mechanism of action of the copper IUD influences endometrial thickness. Copper ions can cause an inflammatory reaction in the endometrium which means it becomes thicker than usual prior to menstruation. This increased thickness results in heavier, prolonged and painful menstrual periods. These side effects of menorrhagia and dysmenorrhea are common causes of discontinuation of the IUD. Women who are not thoroughly counselled about these possible side effects are more likely to discontinue with the IUD than their counselled counterparts (21). Another concern that surrounds the IUD is the risk of infection, particularly pelvic inflammatory disease (PID) and the use of the IUD in HIV positive women. The risk of infertility with use of the IUD is seen as a real risk in parts of the world. All of these factors can have the effect of increasing discontinuation or dissuading women from considering the IUD as a method of contraception.

Studies have shown that among women discontinuing with the IUD the main reason tends to be unacceptable side effects. These side effects are mainly bleeding alone or bleeding and pain that disrupts the woman's life to such an extent that she has it removed (22-23). Menstrual abnormalities, including spotting and light bleeding or heavy or longer menstrual periods, are more common in the first 3-6 months of IUD use than subsequently (24).

Other reasons for removal include personal reasons and expulsion. Expulsion affects approximately 2 per 100 women who have the IUD fitted and is the most common cause for the IUD to fail as a method of contraception (25). Age and type of device have an effect on expulsion rates. Women less than 20 years old have significantly higher expulsion rates than women 30-34 years old and those women aged 35 years or older (8.2%, 2.3% , 1.8% respectively) (26). The Copper Fix (Gynefix) device has been shown to have a higher expulsion rate than the T shaped devices.

Personal reasons encompass removal for a planned pregnancy, husband's objection, wishing to discontinue with contraception or switching methods. Certain factors have been found to be associated with discontinuation for personal reasons. Women discontinuing for personal reasons are more likely to be married or in a consensual union, have on average fewer years of completed education and are more likely to have had fewer children and thus want additional children. Women living in rural areas were more likely to discontinue for personal reasons when compared with women living in urban areas (23).

All the reasons for discontinuing, medical, personal or expulsion, indicate that specific counselling regarding these factors could improve the continuation rates for the use of the IUD. Ensuring a woman has full knowledge of the possible side effects, and that her spouse also is fully informed, will arm the woman with knowledge that could prepare her better for these eventualities and render her better able to deal with them.

Ectopic

There has been concern in the past that the IUD will increase the woman's risk of having an ectopic pregnancy but research has proved that the IUD will actually reduce the woman's chance of having an ectopic pregnancy when compared with sexually active women not using any form of contraception. The reduction is in the region of >90% (27) This is the case with both the LNG-IUS and the IUD and there is no contraindication for using the IUD /LNG-IUS in women with a previous history of ectopic pregnancy (10).

Infection and HIV

The Dalkon shield was first released in the US in 1971. This intrauterine device had ten filaments attached to the end of the device that started in the uterine cavity passed through the cervical canal and ended in the vagina. These filaments were found to be a potential source of infection (28) and indeed a significant number of women who used the Dalkon Shield developed PID, and some of fatal (29-30). This was significance when compared to other intrauterine devices and this caused the Dalkon Shield to be withdrawn from the market in 1975. Even though the Dalkon Shield was withdrawn there was still felt to be an unacceptable level of association between the IUD and PID. This association caused a decline in the use of the IUD, especially in the US where the problem still remains. Recent research though has shown that although there is a slightly increased risk of uterine infection, this risk only lasts for 20 days after insertion after which the risk goes back to the normal background risk that is applicable to any woman (31-32). The risk of infection is not decreased with the use of prophylactic antibiotics so this is a practice that is not recommended. To reduce these risks further a woman needs to be assessed for her sexually transmitted infection (STI) risk. A woman who is in a monogamous relationship and has not had multiple sexual partners is at a lower risk, but even a woman who is considered at a higher risk can choose the IUD. Such an individual should be counselled about her potential risks and advised to use barrier methods of contraception at the same time.

The use of the IUD in HIV positive women has been an area of concern, especially in a worldwide population with an increasing prevalence of HIV positive women. The WHOMEC (World Health Organisation Medical Eligibility Criteria) was recommending that the IUD should not be used in women who are HIV positive but this advice was based on theoretical concerns regarding increased rates of PID and HIV transmission. Restricting this device to this particular population denies many women who require good reliable contraception. Many women with HIV require contraception to avoid pregnancy and so avoid the risk of vertical transmission to a newborn.

Much of the original evidence was based on African cohort studies. Recent studies though have shown that HIV status did not affect rates of PID following IUD insertion (33). Other prospective studies did not demonstrate increases in viral shedding or any increase in female-to-male transmission (34). In view of the more recent research the Clinical Effectiveness Unit of the Faculty of Family Planning and Reproductive Health considers that the IUD can be used in HIV positive women in the UK, with the proviso that STI testing is performed prior to insertion and risk assessment in undertaken. If this recommendation is extended to a wider audience this could increase the choice of methods available to this vulnerable group so increasing contraceptive prevalence and reducing fertility and vertical transmission.

Follow up

The provision of follow up for a woman who has accepted the IUD as her chosen method of contraception is extremely important. It ensures that any problems can be dealt with promptly and in so doing will help reduce discontinuation. A balance has to be reached regarding the number of follow up visits, no follow up can deter a woman from choosing the IUD but equally too many follow ups can also deter a woman as she will have to make a special effort to return on these extra occasions. The WHOSPR recommend that a woman should come for follow up 3-6 weeks after insertion, preferably after the first menstrual period, then to return if she has any specific problems or wishes to have the IUD removed or changed, or if she wants to switch methods (24). Research performed in Mexico looked at the effect of reducing the number of IUD revisits from

four to two. It was shown that the increased number of revisits entailed costs to the clients and to providers whilst providing little extra medical benefit. Reducing the number of visits resulted in a substantial saving (35). Another study highlighted that if women are told to return to the clinic frequently for check ups the number of revisits rapidly overtakes the number of first visits leading to clinic overcrowding. Medical personnel are then spending much of their time caring for satisfied users where this could be spent counselling and caring for potential new acceptors. A high proportion of women who make the revisits would not need to do so, because of their satisfaction with the method, if they had not been given an appointment

Carefully structured follow up is vital to the success of the IUD service to ensure a woman knows that there will be continuity of care, but arrangements have to be balanced to ensure good care for users whilst allowing providers more time to concentrate on potential new acceptors.

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Barriers to the uptake of the IUD in rural Nepal: A conceptual framework.

Introduction

Nepal has a well established family planning programme; from its first roots in 1958 it has expanded to cover a large proportion of the country. Despite this long history Nepal has made

very slow progress towards its goal of providing family planning for all. Thapa showed that even though contraceptive prevalence has increased it has not reached the level anticipated by the National Commission on Population of Nepal [1]. The NCP set a target in the early 1980's to achieve a total fertility rate of 2.5 per woman by the end of the century but in the 2001 Demographic Health Survey the total fertility rate was 4.1. Thapa showed that the method mix had not changed dramatically with a heavy reliance on sterilisation. Even after four decades of service the contraceptive prevalence rate stands at only 37.6% of married women (2). These are some of the lowest figures in the Asia (Table 1).

Table 1: Contraceptive Prevalence Rates from South Asian Countries.

Year of DHS survey	Total Fertility Rate	Contraceptive Prevalence Rate (All methods)	Contraceptive Prevalence Rate (modern methods)
Bangladesh 99/00	3.3	50.5	41.0
India 98/99	2.8	45.2	40.2
Pakistan 90/91	4.9	11.4	8.7
Sri Lanka 87	2.7	58.4	38.8
Nepal 01	4.1	37.6	38.8

There has been limited progress to reorientation of the service in accordance with the principles of the ICPD. In Nepal there is a desire for smaller families but this has not translated successfully into an increased contraceptive use and a decreased fertility rate. Schuler and Goldstein identified that there was a mismatch between stated fertility intentions and fertility behaviour with a higher proportion of married women in urban Nepal who stated they did not want additional children than were actually practising contraception [3]. This unmet need for contraception stands at 27.8%, which comprises 11.4% for spacing methods and 16.4% for limiting methods.

Many reasons for the under-use of family planning have been postulated and researched. Stash and Leone have demonstrated a preference for one sex, usually sons, leads to reduced contraceptive use due to continued childbearing [4-5], while Schuler (1985) explain that biases on behalf of the providers of family planning services can affect contraceptive uptake [6]. The provider bias may actually influence the amount of negative impressions about the services that are current within Nepal and lead to a decline in service use. These negative impressions spread through local networks and can infiltrate whole communities quickly.

Bongaarts found that as travel time increases to a source of family planning services, use of contraception falls so travel time is negatively associated with access to and utilisation of family planning outlets [7]. In Nepal the physical terrain is a major barrier to movement within the country, making the provision of family planning services to certain districts in Nepal near impossible and therefore extensive travel times to service outlets are experienced by many Nepalese. Poor road networks, lack of health facilities and under provision within health facilities makes it difficult for the people of Nepal to access family planning services, let alone obtain the family planning service they desire.

The Government of Nepal has, over the past two to three decades, tried to increase contraceptive services, and this has mainly been achieved through the provision of sterilisation camps or *sibirs*. These camps move from district to district in the dry cooler season making available this surgical procedure. Each year thousands of women and some men take advantage of the service and become sterilised. This has led to sterilisation becoming the most popular method of contraception in Nepal. Stash has shown that due to its popularity and the current high awareness of it as a method of contraception, sterilisation has now almost become equated to family planning and as such, couples regard family planning as permanent [8]. As a consequence, the majority of Nepalese couples do not consider using a temporary method of contraception; only once couples have achieved their desired family size will they adopt family

planning, the majority in the form of sterilisation.

Rai described a contraceptive social marketing programme conducted in Nepal, using selected pharmacies to promote Depo-Provera [9]. This is a three monthly injection, which acts as a reversible contraceptive. Pharmacies in Nepal are to be found in most villages where they offer supplies of a variety of family planning methods and also advice about their use. The proportion of the method mix that Depo-Provera held rose from 9.5% to 24% over the course of 10 years between 1991 and 2001(2). Depo-Provera has now become the most popular temporary method of family planning in Nepal. The impact of the social marketing programme is difficult to gauge but it may have had some impact on increasing the profile and so the uptake of Depo-Provera.

In Nepal there is a need for the Government to provide a sustainable family planning programme. At present the national programme functions with donor assistance. With the rise in popularity of Depo-Provera the goal of a sustainable service moves further out of reach since Depo-Provera has one of the highest costs per couple year of protection (CYP) of all the reversible methods of family planning. As the IUD has the lowest cost per couple year's protection (CYP) there is interest as it is seen as a possible solution to creating a sustainable service. Currently a change in strategy in a number of countries' family planning programmes is taking place and Nepal is no exception. Nepal takes its place alongside countries such as Kenya, Ghana and El Salvador where Ministries of Health seek explanations for the low use of the IUD within their countries and approaches to make it more available.

The IUD is a safe and cost-effective method of contraception and has one of the lowest failure rates of all temporary methods. Through improving the method mix by reintroducing the IUD, couples will have a greater choice of family planning methods. The IUD offers an alternative to sterilisation providing long-term reversible contraception that can be used by couples who wish to limit their families without adopting a permanent method. When surgery is undertaken because no alternatives are available resulting in permanent contraception, then a substantial rate of

regret is found, from 12% to 27% [10-11]. The IUD allows for a wider choice for women and couples, which are linked to greater satisfaction and greater continuation whilst allowing for an alternative to potentially risky surgery which could reduce post sterilisation regret.

The uptake of the IUD within Nepal at present is very low (0.4%) (2) Women who use it are typically from the central, urban province of Nepal, between the ages of 25-34, have achieved a school leaving certificate and have between 1 and 2 children. The IUD's proportion of the method mix has fallen over the last 25 years from 3.4% to 1.0%. A study was conducted by the Family Health Division of the Ministry of Health in Nepal, in 1997, exploring the reasons behind the low and falling use of the IUD in Nepal [12]. The study was conducted in central urbanised areas of Nepal, mainly in the Kathmandu valley and it specifically examined issues related to information, education and communication surrounding the IUD. Katz investigated reasons for the low use of the IUD in El Salvador and found that a number of reasons exist [13]. Reluctance of providers to discuss the IUD as an option was a major hindrance and this was coupled with fear of the method among potential users; this combination produced a low level of use (2%).

The aims of the present study were to

1. Investigate the perceived barriers to the uptake of the IUD in Nepal.
2. Provide data on which to base information, education and communication (IEC) materials.

The settings were identified so as to:

1. Enable comparison with the FHD study
2. Assess the differences in low use areas.
3. Assess the influence of urbanisation.

The study was performed in rural eastern Nepal so as to discover any differences from the FHD study and to investigate perceptions in a low use area. The eastern areas have an extremely low

use compared to the central areas (0.2% compared to 0.7%) and so the barriers to use may differ. The central areas are more urbanised so it was realised that there may be factors that influence people in the central areas which do not have any impact in the eastern areas. It was anticipated that the results from the study would be used to create an IEC campaign to raise awareness, which would present scope for increased use of the IUD.

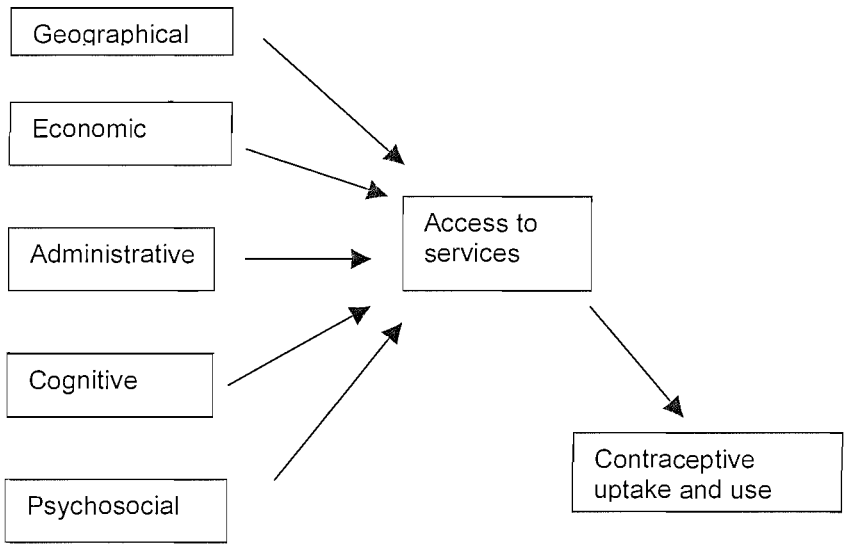
Research Objective

The study was designed to investigate perceptions of the IUD in three rural districts of Nepal from the perspective of potential users. The objective was to understand women's perceptions and attitudes towards the IUD, to obtain views about availability of the method, and to understand specific problems and fears related to this method. The information gained about attitudes and beliefs of the groups were to be utilised to create an information, education and communication campaign to raise awareness of the IUD.

Bertrand's conceptual framework (figure 1) describes barriers to the uptake of family planning methods [14]. It comprises three distinct arms including access, quality of care and medical barriers. According to findings of the Family Health Division of the Ministry of Health in Nepal (FHD), the most prominent barrier to uptake of the IUD was access to services. This led to further exploration of access issues in the present study

In designing the study the following conceptual framework was considered .

Figure 1: Bertrands Conceptual Framework of Access



Geographical or physical accessibility is the extent to which family planning service delivery and supply points are located so that a large proportion of the target population can reach them with an acceptable level of effort.

Economic accessibility is the extent to which costs of reaching service delivery points or supply points and obtaining contraceptive services and supplies are within the economic means of a large majority of the target population. Economic barriers affect contraceptive use both by discouraging potential clients from seeking services and by making contraceptive continuation difficult.

Administrative accessibility represents the extent to which unnecessary rules and regulations that inhibit contraceptive choice and use are eliminated e.g. including restricted clinic hours for family planning services or limitations on distribution of contraceptives during clinic hours or other services. Medical barriers can be viewed as a subset or special class of administrative barrier.

Cognitive accessibility denotes the extent to which potential clients are aware of locations of

service or supply points and of services available at these locations.

Psychosocial accessibility represents the extent to which potential clients are unconstrained by psychological, attitudinal or social factors in seeking out family planning services.

The Bertrand conceptual framework was used in conjunction with the analysed data from the focus groups to detect comparisons between the themes emerging from the raw data and the arms of the framework. As discussed above access appeared to be a major barrier to use of the IUD so as the themes emerged from the focus group discussion data they were compared with the access barriers from the Bertrand framework. As the themes emerged it became clear that the barriers to the use of the IUD in rural Nepal fitted this framework well but what also emerged was that there were certain aspects of barriers to use of the IUD in Nepal that did not fit completely. This led to new barriers evolving from the data that pertained specifically to rural Nepal. a topic guide / question route was produced for qualitative research.

Three districts were chosen from the Eastern development region namely Jhapa, Morang and Ilam, These three districts are adjacent to each other, share common borders and occupy the far south-east corner of Nepal. The three districts planned to be the sites of a future study investigating the continuation and acceptability of the IUD in rural Nepal that would be conducted through the clinics of Sunaulo Parivar Nepal (Nepalese affiliate of Marie Stopes International). The development region chosen has population characteristics that differed from the population characteristics of the central province where the FHD study was conducted, but it shares similar characteristics with some of the other development regions of Nepal, especially the Western development region (Tables 2-4).

Characteristics of the regions are as follows:

Table 2: Use of the IUD per district (percentage distribution of currently married women) Nepal DHS 2001

Development Region	IUD
Eastern	0.2
Central	0.7
Western	0.4
Mid Western	0.1
Far western	0.2

Table 3: Total fertility rates by development region

Nepal DHS 2001

Development Region	Total Fertility Rate
Eastern	3.8
Central	4.3
Western	3.5
Mid Western	4.7
Far Western	4.7

Table 4: Educational level of women in development regions (percent distribution of the de facto female household population). Nepal DHS 2001

Development Region	No Education	Completed Primary	Completed Secondary	Greater than secondary
Eastern	55.5	4.9	2.4	1.1
Central	65.1	3.0	2.8	1.5
Western	53.8	5.3	2.3	1.1
Mid western	64.4	3.4	1.5	0.7

Far Western	66.5	3.0	0.9	0.2

Part of the study aim was to identify themes with which to develop IEC materials to increase awareness of the IUD through different media, including radio. It was therefore important to understand if the Eastern region was more or less exposed to this medium than the remainder of the country (Table 5).

Table 5: Percentage of women listening to radio every day.

Nepal DHS 2001

Development Region	Percent of women
Eastern	48.3
Central	28.5
Western	46.1
Mid Western	41.0
Far Western	29.2

Morang and Jhapa are districts located in the Terai region. The Terai is a band of flat, mainly agricultural land lying just to the north of India and has relatively good transport links. Ilam occupies the Hill region. This region lies to the north of the Terai and its transport links are not as efficient as in the Terai. The mainstays of livelihood in the Hills are agriculture and small business. There are differences between the Terai and the Hill regions. The current use of the IUD in the Hill region is 0.8% compared to 0.0% in the Terai. The Hill region has a much broader

mix of contraceptive use with no one method dominating, whilst the Terai has its contraceptive mix dominated by female sterilisation followed by Depo-Provera. This heavy reliance on sterilisation in the Terai highlights the higher regret rate found there compared to the Hills. In the Terai the long term reversible methods of contraception account for a small proportion of the method mix (Tables 6-7).

Table 6: Percent distribution of currently married women by contraceptive method currently used in the Eastern development region. Nepal DHS 2001

	Female sterilisation	Male sterilisation	Pill	IUD	Injectables	Condoms
Eastern Hills	5.3	4.9	4.0	0.8	8.2	3.4
Eastern Terai	23.3	3.1	2.3	0.0	10.0	2.9

Table 7: Percentage of currently married women who are sterilised or husbands are sterilised who regret operation in Eastern Hills and Terai Nepal DHS 2001

Development Region	Sterilisation Regret
Eastern Hills	2.0
Eastern Terai	8.4

Research Methodology

Focus group discussions (FGD) were considered to be the most appropriate form of qualitative

research for this study. This method would elicit a breadth of attitudes surrounding the IUD. As the research was exploratory the information yielded by the focus groups would generate insights into the women's perceptions of the IUD arising from group discussion.

The participants were from villages that could access family planning services. As the research would be used to create IEC tools to increase awareness of the IUD, the participants had to be eligible to use it as a method of contraception. The inclusion criteria for the FGD participants were: They should be female, they should be married (as the vast majority of unmarried women in Nepal do not use any form of contraception), of reproductive age i.e. 15-49, have at least one child and did not wish to extend their family for at least another year. As awareness of the IUD is so low, the women in the FGD were required to have some previous knowledge of the IUD whether just having heard of it as a method or whether actually having used it. If women had been included who were not aware of the IUD the essential information required would not have been elicited.

The participants were chosen purposively by the researchers from specific reference points, which were the local pharmacies and family planning clinics. The potential participants were recruited using a sift questionnaire to ensure they fulfilled the inclusion characteristics and this questionnaire was also used to gather socio-demographic information on the participants. The interviewers all had experience of carrying out interviews and were employed by the research group. Pre-test interviews were carried out in Kathmandu in order to ensure the interviewers were well acquainted with the question route. The refusal rate for women was highest in Ilam with over 30% refusing to participate in the discussions but in Jhapa and Morang the acceptance rate was higher with almost 80% of women approached accepting. The characteristics of the women entering the discussions were representative of the districts they lived in when compared with the data from the DHS.

Nine group discussions were held in total, three in each of the districts. The groups were not

stratified by age or education but by district, the stratification by district which was considered to be the most important because it was essential to gain information on similarities and differences in perceptions and attitudes concerning the IUD between the districts, especially in the light of the contraceptive differences in the two regions, Terai and hills. The IEC materials that would be produced from the findings of the group discussions were intended to reach the widest audience as possible so stratifying by age and education was not felt to be as important as district stratification in this study. Each group was made up of between 8 and 11 women. The discussions were carried out in quiet, private rooms, mainly in rooms at the local family planning clinics within the villages / towns. The women were not offered monetary incentives, but were offered refreshments during their participation. Each FGD had a broad spectrum of women to ensure as wide a breadth of views and perceptions as possible. To ensure that family hierarchies did not become a barrier to participation no two members of the same family were included in the same FGD. This was identified through the sift questionnaire. To ensure women with different educational backgrounds felt at ease to speak within the groups, the moderator ensured that all women were included in the discussions. This was done by "drawing out" reticent participants and guiding dominant ones so that the fullest possible exchange of views could take place.

Before each focus group discussion started, the moderator reviewed the purpose of the study with the participants and asked for permission to record the discussions, which was not denied in any group. The moderator started the groups by having a general conversation with the women, in order to make them feel at ease with the other participants. The question route (Appendix A) contained general questions about family planning and then focussed more on issues surrounding the IUD. The issues were explored were: the barriers to the use of the IUD, any misinformation about it as a contraceptive, the general understanding of how it works as a family planning method, and husbands' involvement in the whole process of family planning.

All interviews were conducted, recorded, and transcribed. The moderator transcribed the focus group discussions verbatim then translated these into English. In view of the fact that the study

was exploratory in nature and therefore started with no real appreciation of the knowledge, attitudes and behaviour of the Nepalese community towards the IUD, data driven thematic analysis was employed. The transcripts were read and dividing the data into themes developed a coding scheme, these facilitated data retrieval for further analysis. A set of key themes (Appendix B) was identified and the whole data set was indexed according to these themes. The themes emerged from the data along with the research objectives. The coding was done manually.

Reliability of the data and codes was established by standardising the interview protocol using the same question route, same moderator and same observer in all nine settings. This allowed a consistency of judgement over the different settings and times, in the hope of ensuring that by using a single method of observation that it would yield unvarying measurements. To increase the reliability of the coding, two raters observed the raw, translated data independently and then met to discuss the results and agree on the coding.

The validity of the work was ensured by starting with a theoretical framework previously described. Validity was addressed by comparing research results obtained in the present study with the research outputs from the Family Health Division report and research performed in similar rural contexts in other countries and by looking again at the original conceptual framework. The interpretation of the raw data by themes and coding identified results that were in part consistent with research previously performed.

Results

The main themes emerging from analysis are discussed below.

The women in the focus groups were chosen because they wished to delay further child bearing. The IUD is a form of contraception that is reversible and so allows women to delay further childbearing for up to 12 years. It was considered important to understand the reasons behind the desire to space or limit family size and then to explore via the conceptual framework the barriers that are preventing these stated desires and wishes being translated into use of the IUD.

I: Fertility control in the past

The most frequent themes drawn out from the analysis regarding fertility limitation were mainly centred on the benefits of a smaller family. Smaller families were not an option in years gone by and the women stated that control of family size was in the 'lap of the gods' and not in their own hands.

"Is this the old time and to say that God gave and he will look after. At that time people used to give birth to a dozen children". (Morang 1)

"So the old people of old days say how much god gives we should take, but if I did so I would have to face the same fate as them". (Morang 3)

II: Family size

Many villagers link the poverty of the people to large family size. The amount of land families have is an important factor in the ability to look after the children of the family and the quotes show that land size is not increasing with family size and so the ability to look after children is under threat.

"We don't have land or money, giving birth to a large number of children, what can we do to survive? Then if we observe a problem people used to tell we have to take child as per wish of god in the area". (Ilam 1)

"What to do having more children? We have to educate them, land doesn't increase. Hence we should have few. What to do with increase in population". (Jhapa 2)

In the groups it appeared that the desire for smaller families was contributed to by a number of factors. Smaller families were seen to equate to better health, improved wealth and better education, and all of these were seen to be factors in improving quality of life.

"If there are many children, one has to face many problems, if two or three it is good, for this we need family planning". (Morang 2)

"Not to have pregnant, we have to pay attention to have desired children. It's about stopping giving birth after having your desired number of children". (Ilam 2)

"I do not know exactly, but I think it is useful to have a small family of your desire. It is necessary for birth control and to give birth to number of children you think is required". (Jhapa 3)

IIa: Better health.

The women in the groups recognised the fact that using family planning methods would enable them to have smaller families and they linked this with improving not just their health but that of their whole family.

"We need it, when we lack such thing we would have more children and become weak. It is better to use birth spacing methods than to have permanent family planning. We can educate and feed our children and live satisfied lives if we have few children". (Ilam 2)

"Family planning is used to maintain a small family, to reduce population, for the health of ones family and for the development of the country". (Ilam 1)

"Giving birth to too many children makes the child and the mother weak therefore family planning is good". (Morang 1)

"Family planning is necessary to have a happy family. It is necessary to make ones health better". (Jhapa 3)

IIb: Improved wealth.

It was widely recognised by the women that reducing family size would allow for a greater

accumulation of wealth or the ability to spend more on each household member leading to an improved lifestyle for the whole family.

"We should fear more economic burden if we had more children so I started using contraception. I think it is better and I have so far been using this". (Morang 1)

"To operate and run a household and family, educate children and allow them to grow up we need family planning". (Ilam 3)

"If we have more children we also have to bring them up, educate them, feed them, meet their needs. Hence to have few is good". (Jhapa 3)

IIc: Better education

The women knew that education was important for their children's' future, by having smaller families the chances of all their children being able to receive formal education would be improved.

"We have to give birth to only wanted children, otherwise we have to face the problems of feeding, clothing and educating them". (Morang 3)

"We need it (family planning). We can't better educate children if we have more but if we have few we can". (Ilam 1)

"It is necessary to run household. It is necessary to nurture, and send children to school". (Morang 1)

The quotations above indicate that women in the FGD felt that limiting family size was a positive step for most families, improving their overall standard of living and improving the chances of their offspring through improved wealth, health and education.

This part of the analysis was informed by the 'access' conceptual framework of Bertrand and certain branches, which have been expanded following new insights gained through these discussions.

III. Geographical.

The women in the FGD felt that the IUD was available only in distant clinics whereas the short-term methods were available much closer to home. Depo-Provera together with the other short-term methods was seen by the women to be extremely easy to obtain from sources close at hand. The IUD was only available to these women if they are prepared to travel fairly substantial distances. To contemplate travelling these distances the women had to be determined that the IUD was the best possible option for them. Women highlighted that short-term methods are so easily available within an easy to reach distance making the IUD an option they do not consider viable.

"These contraceptives were found near so there is no need to go far" (Morang 3)

"There's a problem in adopting the IUD, rather injection does not have a problem, just come here and get injected". (Ilam 2)

"It's easy to adopt injection, we don't have to go out. We have to go far to adopt the IUD, that's the reason." (Jhapa 2)

"There is easy availability of other methods but for IUD we have to cover a long distance (Biratnagar)." (Morang 2)

"Find depo is alright because it is available in each village and easy to use." (Jhapa 1)

The geographical distance from home village to IUD source is a major access barrier. Women state that the distance makes the IUD an uninteresting option and so one that is not seriously considered.

"The place to avail Copper-T is far so there is no interest". (Morang 3)

"We have to cover a long distance to get the IUD."

"The place to get and put in the IUD is very far, so there is no interest about IUD." (Jhapa 2)

The women show through these comments that because short term methods do not require trained health professionals to provide them they can therefore be obtained through pharmacies and through community health volunteers who make rounds of their nearby villages.

"Depo is not available at the village but they come to the ward every month so it is easy to adopt". (Ilam 1)

IV: Economic

Cost is a real factor in restricting access to the IUD and many of the women preferred to go to a nearby facility, be it health post or pharmacy, and use whatever they had in stock. Many of the women are in families that struggle economically they would rather compromise on their contraceptive choice than their ability to generate income to care for their family.

"We don't have such an arrangement here, we have to go to Ilam for this. Many people can't afford it due to the hand to mouth problem". (Ilam 3)

"It takes Rs.1000 to remove it." (Ilam 2)

"Have to go to Biratnagar to remove it and have to pay Rs. 1000." (Morang 3)

"The IUD is not easy to wear and remove and there is no facility in nearby places for it, it costs too much and it is time consuming, since it is a big issue I feel scared." (Jhapa 1)

Comparisons of cost made by the women ensure that the IUD is viewed as an expensive commodity. The perception of the women is more favourable towards the short-term methods and therefore the IUD becomes less favourable than other short-term methods.

"Depo is cheaper than IUD." (Jhapa 2)

"It has been 12 years and my sister is not able to remove it because she cannot pay for it." (Jhapa 3)

"Financially it is difficult. Everybody isn't able to pay high money for the IUD." (Morang 2)

V: Administrative

This represents the extent to which unnecessary rules and regulations inhibit choice and use. Medical barriers can also be seen as a special class of administrative access and include restricted clinic hours or limitations on the distribution of contraceptives.

Women were aware that the provision of the IUD within their areas was poor or non-existent. They stated that supplies of the IUD were poor and may not be available on a regular basis thus making it difficult to access. However they did acknowledge that should circumstances change making the IUD became easily available on a reliable basis with experienced staff then they considered that it would be utilised.

"We have many methods, but we have them today and then they fall short tomorrow. What to do? What I am using I will use until I die". (Morang 1)

"We don't get it here. Mostly we have to engage in farming and we can't get out of our location. Whatever is available here is what we use. If there is a drastic change in the situation that is another thing". (Jhapa 2)

"People will definitely adopt it if there is proper arrangement to place the IUD available, people will adopt it and be confident for some years but those people who provide it must be experienced". (Ilam 3)

VI: Cognitive

In the rural settings of Nepal where these FGD took place it became obvious that women had

little knowledge of the IUD and the use of it as a method was very poor.

"There is no practice of IUD here, people don't know about it so how can one adopt it?" (Morang 3)

"I have heard about it (IUD) but I don't know what it is, how it is used?" (Morang 2)

"Don't know. I have heard about it (IUD) in the Radio, but I don't know about its utility". (Jhapa 3)

"I don't know anyone who has used it (IUD)". (Ilam 2)

"I don't know of anyone who has used it." (Jhapa 1)

"I don't know anything about the IUD, where to go to get it and how to use it." (Jhapa 2)

It is apparent through the comments made by some women that Depo-Provera is widely known but it is acknowledged that promotion of the one method has increased it popularity and if the IUD was promoted in a similar form then it may become more popular.

"I haven't heard about IUD, I have only heard about Depo". (Morang 3)

"May be because the IUD has had less promotion and Depo had more promotion so everybody is after it (depo)." (Ilam 2)

VII: Psychosocial

One of the most often mentioned barriers to the uptake and use of the IUD is the psychosocial barrier. This barrier can be further expanded into separate forms that encompass spousal dynamics, extended family, misinformation and embarrassment.

V!!a: Husbands

The women in our groups illustrate through their comments that husbands in Nepal can act as a serious barrier to the uptake of the IUD, either through inaction, lack of discussion, or where their own desires of family composition do not match that of their wife's, the husband's desires appear to take precedence.

Some of the women expressed their concern that the IUD is unavailable to them if they do not discuss with their husband and if they should consider using the IUD without his knowledge then the consequences could be fairly serious

"If I don't ask my husband, he will kill me. If I do my wish he will throw me out of the house." (Jhapa 1)

"How can we use the IUD without their agreement." (Morang 3)

Apathy or patronising behaviour on the part of the husband acts as a barrier because the women feel they have no support in their decision to use family planning. This is the other side of the coin from men having the final decision. Mutual decision making leads to a higher contraceptive uptake and continuation, and the actions of some of the husbands of the women in our group did not foster a conducive atmosphere enabling discussion.

"He shows no interest." (Morang 2)

"Once I had severe bleeding, he told me to go to clinic and get some help from there. How can I say that he is concerned in this matter?" (Ilam 3)

"In the times when I have side effects, he says satirical things because I had sought advice in family planning matters." (Jhapa 1)

"If it is that necessary, he comes; otherwise he does not. He is perturbed when I am sick." (Jhapa 3)

The women expressed concerns that when their husbands took unilateral decisions to be in charge of family planning, problems arose. It is apparent that the atmosphere is not one to allow negotiation and some women stated there were instances where men forgot to use condoms thus leaving the women exposed to the risk of pregnancy.

"Generally he uses temporary method, but when he is drunk he

does not care. Men in our society are selfish." (Jhapa 2)

"No not exactly. He said why to use such injections rather he will face himself what could have happened. He is secured in other time but while drunken he does not care about anything." (Ilam 1)

Women mentioned that son preference does influence the use of the IUD, as indeed in some circumstances does the preference for a daughter. When the husband desires an extension to the family because of a preference it tends to be his desires that become realised.

"There are no religious restrictions in our society. In some villages there are incidences due to the expectation of a male-child. They say they need 'son'." (Jhapa 3)

"If I have two sons, my husband asks for another child, a daughter. But we should think for ourselves. Only his desire does not work for this, I should discuss it with him. If we don't reach agreement, a quarrel might be possible on a negligible matter." (Morang 3)

VIIb: Family

Women highlighted that the older members of the family do exert influence even about issues surrounding family planning.

"Elders say that temporary methods have many side effects, so they ask not to use those methods." (Ilam 2)

"When I fall sick, elders scold and say that it is due to the temporary methods used. I feel scared." (Morang 1)

"I feel shy. I think males might say something that is why I feel shy. I feel shy with my mother in law and father in law." (Jhapa 3)

"If people know that you are using, then they will of course say nasty things like –she is so shameless, being a female she has no shame." (Morang 2)

VIIc: Uncertainty and fear

Most of the women in our groups had never used the IUD and did not know of many other women who had used it, but they still seemed to be aware of perceived problems surrounding the IUD. These problems were raising fears in the women and appeared to exert enough influence so that the women would not consider using the IUD. One issue that seemed to raise much uncertainty and fear about the IUD was the fact that it had to be placed internally to work, the fear of the IUD being inside their body appeared to be a major hindrance towards the possibility of it being used as a method of family planning.

"If depo is used once, it works for 3 months and since you don't have periods you feel comfortable and at ease. I feel scared about the IUD as I have seen its shape and heard that it is put in uterus and there are chances of problem regarding string." (Morang 3)

"Feel scared as it is placed in uterus." (Jhapa 1)

"It has to be kept for too long in the uterus and possibility of dissociation of string." (Ilam 3)

"It is said that those with two or three babies should not use IUD." (Morang 2)

"My daughter in law had used it (IUD) and she died because of uterus damage." (Ilam 1)

Some women groups mentioned that the adverse effects were the reasons behind poor uptake of the IUD and these adverse effects actually did dissuade some women from considering the IUD as a method of family planning.

"Most of the people have not used it and those who are using have faced bad effects." (Morang 1)

"I didn't use it after hearing from others about its bad effect that you might die as excess blood can be lost." (Jhapa 2)

VIId: Myths and rumours

Myths and rumours are further extensions to the fears and uncertainties, whereas fear and uncertainty come from real issues, myths and rumours are either complete falsehoods or much exaggerated responses to adverse effects. Myths and rumours have similar effects to fear and uncertainty in that they can actively dissuade women from considering the IUD as a possible contraceptive that they would consider. The issue of the IUD causing cancer was expressed frequently in all districts.

"I have heard that it causes cancer and it has side effects too." (Ilam 3)

"The IUD causes an ulcer in the uterus." (Morang 2)

"People say that there is a possibility of having uterus cancer." (Jhapa 2)

Other rumours and myths were expressed. There is a real fear because the IUD is placed internally that it will over time move through the body and not remain in the uterus.

"The IUD gives you stomach ache after two years and I heard it shifts to the heart too." (Morang 3)

A very real fear for many women is the fact that the IUD can cause infertility and this is shown by a comment passed in the discussion. A method that is believed to be a cause of infertility is viewed very sceptically when considering which methods to use and can have a very detrimental effect on uptake.

"It works for a long term and problem occur when you want to have babies." (Jhapa 1)

Many of the myths and rumours surround the fact that the IUD is a method that has to be placed in the uterus in order to work. Expulsion is a problem encountered by a very small number of users but the women claimed that the IUD would simply fall out of the uterus so therefore was not safe to use and that it could cause discomfort on walking and working.

"They say the copper T would not stay in the uterus after having

two or three babies." (Jhapa 3)

"More bleeding, stomach ache, difficult to eat, it pricks while walking." (Morang 2)

VIIe: Embarrassment

An internal examination is required before a woman can accept and have the IUD inserted. This physical examination was a cause of embarrassment to many of the women in the groups. Added to this is the perception that most providers of the IUD are male. This is fair in view of the fact that most doctors are male in Nepal. The IUD is set apart from other methods of family planning by this one factor; none of the other methods require an internal examination.

"I feel shy and scared because it has to be kept in uterus". (Ilam 1)

"I feel shy but there are no other social and family restrictions." (Jhapa 3)

"Another thing women feel shyness because it is placed in the uterus (IUD), so I think they are not using it." (Morang 2)

"We don't have to feel shy to use injection, but many people are not using copper-T due to shyness." (Morang 3)

Women did point out that if there were more female doctors or female providers then the issue of embarrassment would not be such an important issue and the physical examination would not be perceived as a barrier to uptake.

"It is difficult to adopt IUD because of health reason and method of using. I feel shy. If the lady who administers IUD is a doctor, then it is good." (Ilam 3)

Discussion

Exploring the focus group discussions through the starting point of the Bertrand framework it

becomes clear that many of the barriers to access in the framework apply to the uptake of the IUD in rural Eastern Nepal, but there are other barriers to access discovered through the focus group discussions including family, myths and rumours, fears and uncertainties, and embarrassment.

Although the discussions were limited to three eastern districts, these districts share a number of characteristics with other districts of Nepal especially the Western district. This may indicate that the barriers discovered in the Eastern districts could apply to the Western districts and these two districts make up a large proportion of the country.

90% of the population of Nepal live in rural areas where the mainstay of sustenance is agriculture. A large number of children were desired in the past to help work the land, creating a higher productivity. As the population of Nepal grew, the amount of land each person had access to, declined, and with this decline came a need for smaller families because the land each person had could not cater for larger families. The very high rise in the value of land has made its purchase by villagers practically impossible. Those families who had good land are now only moderately well off, because as generations mature, inheritance customs continually divide large estates between several sons, thus more sons mean less land for each (15). Social changes have occurred in Nepal where families are moving away from the norm of an extended family to a more nuclear family. In such situations each family now has a limited income on which to survive where previously they could rely on the extended family (3,16). Both these situations have highlighted the need for smaller families in Nepal to allow an improved quality of life.

The only previous research investigating low use of the IUD in Nepal had been performed on behalf of the Family Health Division of the Department of Health. This research was performed mainly in the urbanised central districts and used focus group methodology and information collected from District Health Officers, District Public Health Officers and Family Planning Health Professionals via semi structured questionnaires. The main findings of this study were that there

was a paucity of trained health professionals to provide IUD services and those that had been trained were transferred to other facilities. By transferring the trained professionals IUD users had to travel further for care and it discouraged potential acceptors from taking up the method. In combination with this the study revealed that many health facilities did not have sufficient equipment, therefore the trained professional could not provide the service and also lost the ability to use their skills so id not feel confident enough to provide the services when supplies arrived. In some locations in the study the IUD acceptors had no follow up arranged. So the main findings from the study were on the supply side but it was also found that there were a low number of women who were aware of the IUD and that a number of myths and rumours surrounded its use. The study concluded that in order to expand IUD services new information, education and communication tools were required and that at least two staff members were to be trained in each clinic to ensure that there would always be a service provider. Added to this the supply side of materials needed to be improved. The present study was performed in a different location to the FHD study. It found some common themes such as inadequate knowledge and myths and rumours, but whereas access did not seem to be an issue in the central districts it did appear to be a large problem in the eastern rural districts where the present study was performed. Both studies revealed that there is a lack of knowledge and awareness regarding the IUD that needs to be addressed but the present study expanded the findings on reasons for poor access. Supply issues were not a concern in the present study. It would appear that there may be differences between urban and rural populations in terms of supply and demand. The present study focuses on the demand side and the barriers to creating a larger demand whereas the FHD study focuses on supply as the reason for poor uptake. Both aspects probably play a part in poor uptake in all districts but the key is to discover which aspect is more prominent in each district and focus attention to that.

From the focus group discussions smaller families are now desired because they equate to better health, wealth and education. It is known that having smaller families and spacing of families are important factors in reducing maternal and child, mortality and morbidity. Yet despite the

sentiments elicited from the women, the data show that contraceptive use although increasing is not matching the stated desires. The IUD is the least known method and one of the most poorly used. What barriers are there stopping women considering it as their choice of family planning? By discovering the barriers moves can be made to disassemble them and provide a better environment for IUD uptake.

A prerequisite for the acceptance of family planning is that women and couples can access the services and methods. The range of methods available for those who can access services has an effect on the acceptance and continuation of contraception. Levels of contraceptive use have a strong positive association with the availability of family planning services. Tuladhar showed that as family planning becomes available on a wider basis in Nepal the knowledge and use of contraceptive methods increases [17]. Bongaarts stated that by improving the density of service points there will be a significant effect on knowledge and use of contraceptives in areas where large proportions of women live far from a source [7]. The wider the scope of available methods means a greater choice and this means individuals or couples are able to make choices that advance their well being or satisfaction. If the choice is not available, this advancement cannot occur, as people are unable to choose the methods that best suit their needs or preferences. Methods chosen in a limited environment often do not suit individuals or couples and this can lead to levels of dissatisfaction that translate into high discontinuation rates. Once discontinuation has happened it is unlikely that any method switching will occur due to the restricted range of methods available, the ability to switch to a method that is better suited to that individual or couple can lead on to long term contraceptive use.

Geographically the physical terrain of Nepal means that, the provision of services to all close to their homes in Nepal is near impossible. Having outlets supplying the IUD that are geographically easily accessible would increase both the uptake and continuation of it as a method of contraception. The women in the discussion groups stated that the short term methods of contraception such as the pill, injectables and condoms were more easily available to them in

terms of geographical distance. Only women prepared to travel to distant clinics would be able to access IUD services, and that this distance made the IUD an unsuitable option even when the IUD may be well suited for the individual woman. The women discussed that in remoter areas these short-term methods were available to them because health volunteers would bring a supply on a regular basis. The IUD cannot be made available in these remoter areas on a regular basis due to the need for a trained health provider.

The majority of the participants of the focus group discussions are from a rural setting and agricultural background. Many of the women discussed the cost of accessing the IUD. In real terms the travel costs were expensive especially when the women knew that short-term methods were available much closer at hand so negating travel costs. Agricultural work for these women is physically hard and time consuming and accessing IUD services from distant clinics means sacrificing a days This is not a realistic option as the resources are not available to replace this lost wage. Taking travel costs and lost wages into account the decision to use an IUD becomes daunting for the women and when the perceived cost of the IUD is then factored in the option to use an IUD seems unrealistic for many of the women in the group. The short term methods appeared to cost less when in reality in economic terms the IUD is a very cheap method of contraception in the long term but can be more expensive in the short term; this is because its life span is much longer than the short term methods. Short-term methods are inexpensive as one off applications, but over time the costs would rise in comparison to the IUD.

The provision of the IUD requires trained health professionals, either medical or paramedical. Lack of trained health professionals to man outlets that could provide the IUD is a major hindrance to its uptake. The lack of these trained health professionals was apparent to many in the groups. The women though were positive about the potential for using the IUD if in the future the situation changed where trained providers could travel to areas more accessible to the women. At that point the IUD would become a more viable option.

Geography, economy and administration of the IUD in rural Eastern Nepal appear closely linked. Geography incurs a cost in terms of travel and lost wages and impedes the ability to administer IUD services to a wider and larger proportion of the female reproductive population.
The awareness of family planning methods is very high in Nepal, with over 98% of women being able to name at least one method of contraception (2), but the awareness of the IUD is much lower than other methods. Awareness does not equate to knowledge and actual knowledge about the IUD is poor.

Cognition is a very real barrier to the uptake of the IUD: the women in the groups did lack a basic knowledge of the IUD. Knowledge in this context means how the IUD works, its side effects and benefits and duration of use. In order for women to adopt the IUD they must first be aware of it as a method that they could choose and as importantly they must have some understanding of how the method works. Without adequate knowledge about the IUD women cannot really consider using it as a method. Information has been described as one of the most powerful instruments of change and information poverty is a considerable impediment to better health [18-19]. Knowledge can be created by current users of the method spreading information about the IUD to other potential users as has been the case with other methods of family planning. Stash found that even if the news is not entirely positive, couples prefer a method about which a great deal is known [8]. Female sterilisation remains the dominant method of choice even among the youngest women. Positive feedback from others prompted other women to undergo sterilisation operations.

In order to create a positive change in peoples' attitudes towards the IUD then well developed approaches to techniques of promoting it as a method of family planning are required, thus increasing both knowledge and awareness. The lack of opportunities to access information for themselves made women in our groups wary of considering methods. A major step would be to have in place a strategy that allows men and women to procure information as they need it. This will be a difficult task as Nepal has such a widely spread populace. In Nepal at present both the government and NGOs employ local women from villages and towns surrounding family planning

outlets, who are trained on certain methods of contraception that the Government or NGOs wish to promote at certain times e.g. voluntary surgical sterilisation. Bongaarts found that a programme's success can be attributed largely to the presence of such women as guarantors of contraceptives i.e. female family planning volunteers [7]. Such a programme acts directly to supply knowledge about and access to contraceptives, while also mitigating the psychological and cultural barriers to use. These women are not necessarily well educated but are prominent members of their communities. By training local women an effective network is organised where information can be spread more efficiently and more rapidly than through other forms of media transfer such as newspapers, radio, leaflets and posters. Bolam performed a randomised controlled study in Nepal that showed an increase in the use of family planning at six months after a post natal check in women that had received individual counselling [20]. Maibach and Murphy indicated that interactions within families, peer groups or communities are some of the keys to successful health promotion [21]. The focus groups highlighted the situation where one particular method, Depo-Provera, had been promoted and so its awareness and uptake had increased and this was compared to the IUD where no such promotion had taken place. The lack of promotion meant the women had little knowledge of it as a method and as referred to earlier Stash has shown how women and men would prefer to use a method they have at least some knowledge of.

Psychosocial barriers appear to be a major hindrance to uptake of the IUD and it may be that these barriers play the main part in reducing use. Psychosocial barriers in this setting cover issues of family, including husbands, fear and uncertainty which is then linked closely to myths and rumours and finally the embarrassment involved in the physical examination required for IUD provision.

Karki found that the whole idea of family planning is a very sensitive matter in Nepalese society, particularly among women [15]. When a woman talks openly about family planning she is seen as morally degraded and her fidelity to her husband becomes suspect. Husbands can hinder women's ability to obtain all methods of family planning in a number of ways. The focus groups

highlighted a number of ways in which their husbands hindered their ability to access services. These included apathy, the husband's own desires regarding family size, son and daughter preference, lack of discussion and irresponsibility. In Nepal, limited contact with health professionals means men have restricted accurate knowledge about contraceptives and lack of encouragement can breed apathy, which perpetuates the present divide between men and women regarding family planning. Without the active involvement of men and dissemination of information to them, the situation may change little in the future. In such a setting as Nepal where the husband has the ultimate decision with respect to contraception, there is this urgent requirement to incorporate men into the whole issue of family planning. Nepal needs to develop programmes aimed at couples as the primary element and encourage the participation of men of all ages.

Becker reviewed many studies looking at the issue of couple communication and one of the main themes indicated that involving men in the process of family planning results in greater acceptance and higher continuation of contraception [22]. Kimuna and Adamchak indicate that the reduction in Kenya's fertility rate is partially due to the increased involvement of men in fertility and family planning decision-making [23]. Men become versed in the benefits of all methods and understand the potential side effects. Men who have this understanding help their wives' cope with any adversities due to the methods until the effects have passed, thus ensuring a greater continuance of the chosen method. Imparting knowledge to the men has the added benefit of dislodging the myths and rumours that are rife.

In south Nepal kinship influences are strong, very similar to influences seen in North India and it has been shown by Stash that women's involvement in decisions about their own fertility is subject to the powerful influences of husbands and senior kin [4]. Schuler found that in Nepalese society childbearing is central in defining a woman's identity, affirming her worth, and establishing her position in the household and in her husband's kin group [3]. The focus groups in the present study highlighted that in the rural south of Nepal kinship issues play a role in the acceptance or

other wise of family planning methods, including the IUD. Elder kin hold a power in families that can influence whether a woman or a couple chooses an appropriate method of contraception. Some elders offer no emotional support and indeed cause emotional stress to women who are wishing to consider or to use family planning and this can have a detrimental effect. Stash found that a mother-in-law's support insures that a woman can maintain her status within the household, that she can be accompanied on visits to the clinic, that she can take time off work to recuperate from an operation, and that she can receive an allotment of food favourable to maintaining good health [8]. Women in south Nepal still have to contend with these kinship issues when wishing to use family planning, the difference between a supportive kin and an unsupportive kin could be the difference between family planning use or non-use.

Thapa found that misperception, misinformation, and fear of or actual adverse effects are major impediments to continued use of family planning or no use at all [1]. Fear and uncertainties surround the IUD and are linked with myths and rumours about the method. Schuler and Stash highlighted that many fears and uncertainties arise due to worries that side effects of family planning might compromise the ability of women to earn a living and they perceive a potential for sizeable indirect costs associated with illness and loss of work [3-4,6,8]. The focus groups highlighted numerous issues, which created fear and uncertainty within the women, these issues made the women consider the IUD to be a method that they would not automatically choose and in some cases it actually dissuaded the women from considering it as a method at all. Certain issues raised by the women resembled myths and rumours, that is to say issues that have no basis in truth Myths and rumours arise from exaggerated side effects and hearsay, myths and rumours are difficult to suppress if a limited number of women are using the method. Women who have been satisfied with the method would be able to generate positive images of the IUD and pass on accurate information about it as a method of family planning. The use of female community health volunteers and mass media to increase awareness of the IUD may alleviate some fears by providing accurate information. A marked impact could be seen though through satisfied users spreading news about the IUD and the service provided as they perceived it. The

women demonstrate this when discussing Depo-Provera which is very popular in their areas (and throughout Nepal), word of mouth and promotion have allowed this method to swell in use and it may be that a similar pattern could be seen for the IUD once more women start to use it as a method of contraception and are satisfied.

Bongaarts found that many women dislike the physical examinations (often performed by male providers) required for IUD insertions [7]. These physical examinations cause embarrassment for women. By ensuring that more female providers will be available to provide IUD services this barrier of embarrassment could be reduced because women feel more at ease in such circumstances.

Limitations of Study

The focus group discussions were not highly stratified, so it may be that if older members of the groups had over-riding views that the younger members did not hold, the younger members may not have been able to express their views because of hierarchical problems.

The three districts of Nepal chosen are closely located and it may be that locations elsewhere hold different views regarding the IUD.

By not including women who have yet to have children the study may be neglecting a variety of views on the IUD which are not held by parous women.

Conclusion.

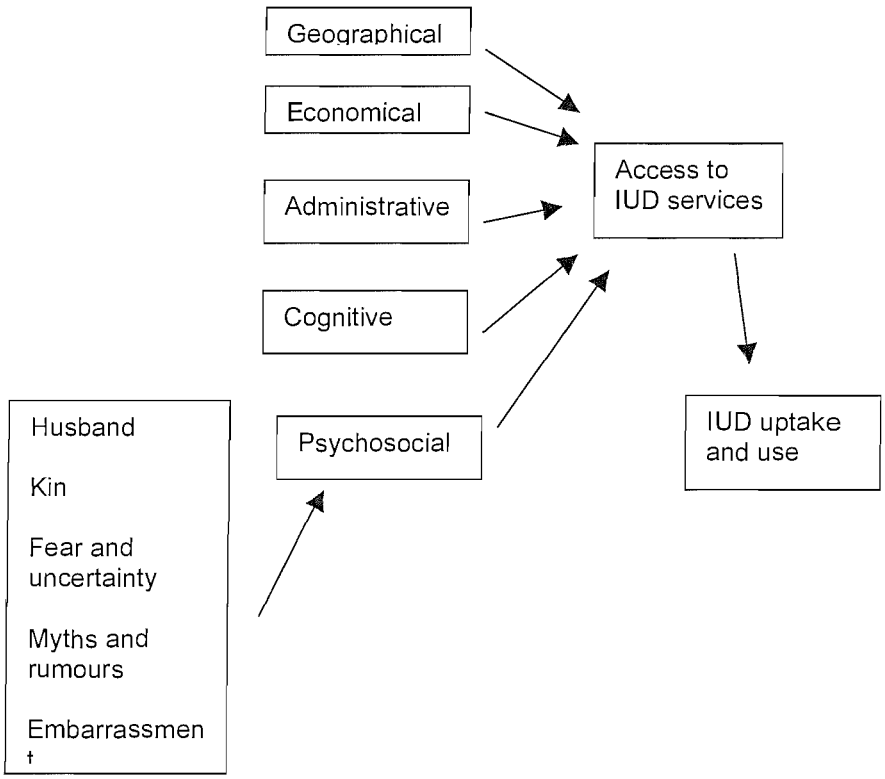
This study has found a strong link between accessibility issues and the use of the IUD in rural Eastern Nepal. This study fits the Bertrand framework of access but it has highlighted certain separate issues not completely covered by the framework.

The IUD is only one of many methods of contraception but its provision and use raise issues pertinent only to this particular method. The psychosocial branch of the Bertrand framework can be expanded with other barriers identified in this study, the barriers identified applied to the IUD but many of the barriers could apply to other forms of contraception.

The influence of husbands and kin can act as a deterrent to the uptake of the IUD. Due to its low use among the rural Nepalese women there can be identified an air of uncertainty and fear surrounding the IUD and these two factors can be linked to the myths and rumours that surround the IUD. Peculiar to the IUD is the embarrassment barrier, the provision of which requires an internal examination, and this causes concern among the Nepalese women in the study especially when the service is perceived to be male led.

This study has identified these further divisions of the psychosocial barrier to the uptake of the IUD within the accessibility framework. By doing so it may allow an added dimension for organisations trying to increase the uptake of the IUD. These barriers could allow a more focussed approach that could be aimed at dismantling the barriers in order to increase use. The research has shown that Bertrand's framework stands within the context of the IUD in Nepal, but the research has expanded the psychosocial component of the framework and it adds weight to the importance of this barrier within the range of constraints to uptake of the IUD (Figure 2).

Figure 2: Conceptual framework of barriers to the uptake of the IUD in rural Nepal.



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Appendix A

Question Route for FGD in Nepal

General knowledge about contraception

1. Do you think there is a need to use family planning methods?

2. What do you know about contraception?
   Probe: What methods do you know?
   How do the methods work?

3. How did you get to know about contraception?
   Probe: How did you go about getting advice?
   Where can contraceptive methods be obtained?

Specific Information about IUD

4. How many of you have heard of IUDs in order to prevent pregnancy?
   Probe: What have you heard?
   Who did you hear about IUDs from?

5. Do you know anyone who may use IUDs to prevent pregnancy?
   Probe: What are the problems associated with using the IUD as a contraceptive?
   Why do you think some women do not use the IUD as a contraceptive?
   Do you feel women should be concerned about the side effects of the IUD?

6. If we wanted to offer IUDs to women who want to prevent pregnancy or delay the time when they next become pregnant, what do you think they should know about the IUD?
   Probe: How best can family planning services get their message over to the general public about the IUD?

7. Do you feel the IUD has any benefits over sterilisation?
   Probe: Does sterilisation have benefits over the IUD?

Health Seeking Behaviour and Cost

8. What is the attitude of your husbands' towards contraception?
   Probe: Would your husband accompany you to a family planning clinic?
   Do you feel men have any problems with their wife using the

IUD?

9. Do you feel there are any restrictions to the use of contraception here in Nepal?
   Probe: Do you feel there are any restrictions to the use of the IUD in particular in Nepal?
10. How much would you be willing to pay per year for the IUD?
   Probe: Would you be prepared to pay more under certain circumstances i.e. more time with provider, if the clinic was clean, if seen quickly and privately?

Appendix B

Minor Thematic Code	Description	Code	Description
Know	Any reference to knowledge of family planning	Prev Preg	That family planning prevents pregnancy
		Des Child	Allows to have only desired children
		BetLif	Allows for better lifestyle
		Posmeth	Correct information on how family planning methods works
		Negmeth	Incorrect information on how family planning methods works
		Advmeth	Advantages of methods
		Disadvmeth	Disadvantages of methods
Methods	Knowledge of specific methods of family planning	M De	Dep-Provera
		M Pi	Pill
		M St	Sterilisation
		M No	Norplant
		M IUD	IUD
		M Co	Condoms
		Fail	Reasons for failure of methods
Firstheard	Where first heard of family planning methods	H Fa	Family
		H Fr	Friends
		HHus	Husband
		H Do	Doctor
		H Ho	Hospital
		H VHW	VHW
		H Ra	Radio
		H TV	TV
		H Lf	Leaflet
Firstobtain	Where did they first obtain the family planning method	O Do	Doctor
		O VHW	Voluntary Health Worker
		O Ph	Pharmacist
		O Cl	Clinic
		O Sh	Shop
		O HP	Health Post

RM	Any reference to rumours or myths surrounding family planning	**Canc**	Causes cancer
		Drop out	IUD drop out easily
		Death	Family planning methods cause death
		Infert	Family planning methods cause infertility
Problems	Any problems associated with family planning methods	**Pr Ac**	Accessibility of family planning services
		Pr Av	Availability of family planning services
		Pr SE	Side effects experienced due to family planning methods
		Pr Pub	Lack of publicity
		Pr FF	Suggest friends/family not to use
		Pr SP	Lack of service provider
IIUD	Information to be imparted about IUD	**FU**	Provision of follow up
		Adv	Advantages of IUD
		Disadv	Disadvantages of IUD
		Years	Number of years work
		Where	Where to go to have IUD inserted
		How works	How the IUD works
Ad Mes	Any reference to messages required to promote IUD	**Photo**	Photo required for promotion
		Map	Map required to direct to services
		Nurse	Picture of nurse required
		FDoc	Picture of female doctor
		IUDpict	Picture of IUD required
Ad Med	Any references to media routes through which to advertise IUD	**Rad**	Radio
		TV	Television
		Pamp	Pamphlets
		Friends	Friends
		FDoctor	Female doctors
		FHV	Women volunteers
		Newsp	Newspaper
		Post	posters
		Ad Il	How to advertise the IUD to illiterate people
IUDCamp	Any reference to IUD Camp		
Husb	Husband's influence and how it affects family	**Satis**	Desire to satisfy husband

	planning use		
		Argu	Arguments arising from family planning
		Sugg	Husband's suggestion to use of family planning methods
		Disc	Discussion between husband and wife regarding family planning
		Accom	Whether husband accompanies wife to family planning clinic
		Secret	Secret use of family planning methods by wife
		Agree	Agreement of husband required for use of family planning.
		SP	Son preference
		IFS	Ideal family size
Influout	Influences from outside the family unit that affect the use of family planning	**GW**	References to family size being due to God's Will
		CC N	Cost of contraception at present
		CC F	Willingness to pay for contraception in the future.
		B IL	In-laws acting as barriers to the uptake of family planning
		B S	Shyness / physical barrier of IUD process

The uptake and continuation of the IUD in three rural districts of Nepal: A prospective study.

Introduction

Despite a long history of service provision contraceptive prevalence in Nepal remains low at 37.8% and the total fertility rate is 4.1. Among users of family planning, the method mix is dominated by female sterilisation (42%) and Depo-Provera (24%) [1]. The intrauterine device provides an effective, safe and low cost contraceptive option [2-3] but at the present time in Nepal only accounts for 1.2% of the method mix [1]. Increasing the uptake of the IUD has the potential to increase the contraceptive prevalence rate (CPR) and provide more sustainable family planning programs (FPP).

Increasing method choice has consistently been shown in research to increase the CPR [4,5]. It has been shown that by just adding one method to a choice of methods available is associated with an increase of about 12 percentage points in the practice of contraception [6]. The IUD is not yet a choice for many in Nepal, this is related to a number of factors including access and availability, quality of care and provider bias [7].

Quality of care and quality of services are important components in determining uptake. It has been indicated that service points may exist but may be of poor quality or such limited behaviour that clients do not perceive them as a realistic source of care [8]. In other regions it has been shown that a standardised protocol for the provision of services increases the quality of care [9]. To provide the IUD in Nepal requires a high level of standardised quality of care and this includes increasing and maintaining provider training. Provider training is important in order to increase confidence among providers in their ability to offer full IUD services and thus reduce provider bias. Provider bias has been shown to be a limiting factor in the uptake of the IUD by potential clients (2).

Sustainable FPP are important for developing countries where the need to increase CPR has to be set against the rising costs of providing these family planning services. Sustainable FPP are important in trying to meet the goal of client centred family planning based on informed choice

whilst meeting the ICPD agenda rather than a population centred agenda. The IUD is one of the most cost effective contraceptive methods available and many countries with limited resources to purchase contraceptives, including Nepal, are paying more attention to the IUD (2,7) as a way towards a sustainable but expanding service.

The present study was designed to assess the acceptability of the IUD to clients of Sunaulo Parivar Nepal (MSI Nepalese partner) when providing a quality service. Previous qualitative research [10] had identified barriers to the uptake of the IUD in rural Nepal and the themes from this research were utilised to construct information, education and communication (IEC) tools to promote the IUD and recruit clients into the study. Provider training for the IUD was given prior to clients being recruited in order to offer a quality service whilst reducing provider bias.

The primary outcome measure was the proportion of women opting to continue with the IUD. Secondary outcome measures were occurrence of adverse effects, and analysis of socio-demographic variables, and the effectiveness of promotional activities.

Background

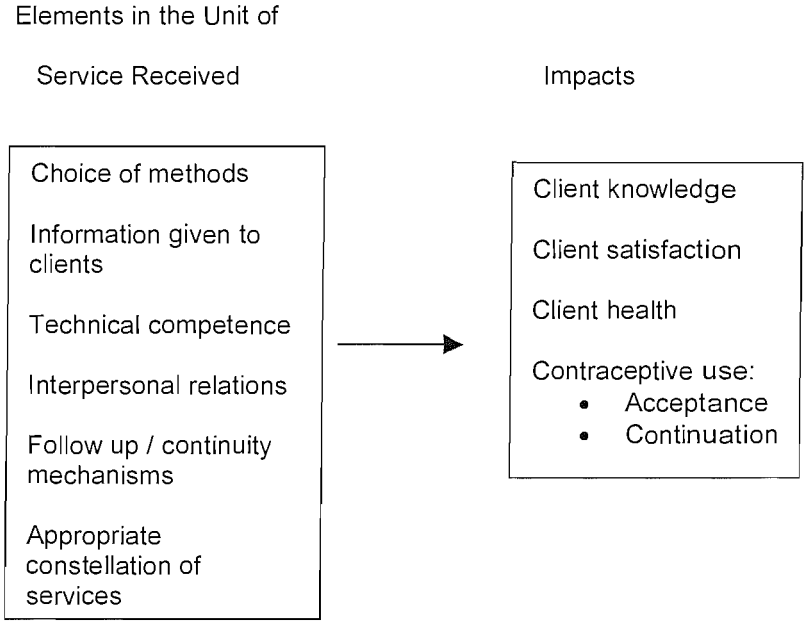
A key issue in family planning research has been the understanding of the quality of services and its relation to uptake and continuation of family planning.

A quality of care framework was originally designed by Bruce, demonstrating that poor quality of care acts as a barrier to contraceptive use and to continuation of methods [11]. High quality of care is a vital determinant in contraceptive use but quality of care is very difficult to quantify and many previous studies have used different markers such as number of users of contraception. The framework described by Bruce is meant to provide an ordered point of departure from which to develop a description of the service unit and define its quality. The six elements contribute to the users perception of quality of care, and it is the perception that defines whether that individual will continue to access the service or look elsewhere. In the present study the ideal was to provide the six elements to the best of our capacity to try and give the client a perception of high

quality which would translate into continued IUD use or switching to alternative methods should she discontinue.

The quality of care framework includes six factors which influence the perceived quality of care and can restrict use and continuation (Figure 1). The six factors are: choice of methods; information given to clients; technical competence; interpersonal relations; continuity and follow up and; appropriate constellation of services. By applying a quality of care framework to the study design it was hoped that the continuation rate of the IUD would be high, and among those clients wishing to discontinue with the IUD for whatever reason, that the level of switching to alternative methods would also be substantial.

Figure 1; Bruce's Quality of Care Framework [11]



Each of these factors was considered in the design and setting for the study.

A) Choice of methods

The availability of multiple methods improves contraceptive prevalence and continuation of use. Although our study focussed on the IUD, each client entering the study was counselled on the full range of contraceptives available to her at the clinic. The counselling took place just prior to insertion of the IUD and at the time of removal of the IUD should it be requested. This would encourage the clients who found the IUD did not suit them to consider an alternative contraceptive thus affording them protection.

B) Information given to clients

If clinical methods are explained sufficiently and their potential side effects appreciated then users are more likely to continue with use. Unanticipated or unmanaged side effects lead to disappointed clients and result in discontinuation. Well trained paramedical staff are equally as able as physicians (if not better) in communicating with clients about their health needs, taking health histories and identifying clients with relative or absolute contra-indications.

Evidence of the importance of providing written as well as oral information has been gained from small scale studies, people remember messages better if the spoken word is reinforced by written or pictorial messages.

All the clients in the study were seen and counselled by nurses fully trained in the provision of the IUD. These nurses counselled the women about all the possible side effects, how long they may last, the treatment they could use to counteract side effects and each client was assured that she could return at any point for reassurance, advice, treatment or the removal of the IUD should they desire it.

Each client went away with a leaflet in Nepalese explaining in detail about the IUD reinforcing the information given during counselling.

C) Technical competence

Clients lack the ability to fully evaluate clinical competence but they do bear the consequences of poor technique in the form of unnecessary pain, infection and other serious side effects. Competency based training enables providers without medical degrees to provide important services in this field.

The nurses providing the IUD services in the study underwent a government approved training course prior to the study starting. Before the nurses were allowed to work independently they underwent further clinical supervision in the clinics to ensure they were competent, confident and comfortable in the provision of the IUD.

D) Interpersonal relations

The degree to which this is comprehended may strongly influence clients in their own choices, satisfaction with the services and the probability of a return visit.

To try and ensure that clients are satisfied with IUD services and to encourage follow up, a dedicated IUD nurse was provided. She became a constant point of reference for clients and this meant any problems they encountered or enquiries they may have could be directed to her.

E) Continuity and follow up.

Continuity and follow up are essential components of long term contraceptive use.

To try and improve continuation rates of the IUD the nurses thoroughly counselled clients about possible side effects and the potential solution to these side effects. Follow up appointments were made for all clients but the clients were assured that they could return at any point before or after that appointment if they required advice or treatment. The timing and frequency of appointments took into account women's work and domestic responsibilities.

To try and encourage contraceptive continuation in those clients requesting removal of the IUD for whatever reason, further counselling about their contraceptive options was given at time of removal.

F) Appropriate constellation of services.

The appropriate constellation of services is one that responds to client's health perceptions and concepts, rather than inflexible medical demarcations of where a need begins and where it ends. Medical barriers restricting use of the IUD were minimised for these clients and they had the flexibility of returning at any time they wished.

It will be noted that these quality standards are assured through the management of Sunualo Parivar Nepal (the Marie Stopes Nepalese International Affiliate)

The study was performed in three districts occupying the south-eastern corner of the country. All three districts are mainly rural in character. The innate characteristics of the study districts are comparable to the characteristics of the other districts of Nepal. The awareness of the IUD is similar throughout Nepal, but the level of awareness is the lowest of all the modern methods (Table 1).

Table 1: Awareness of modern methods as a percentage of the population (DHS 2001)

Method of family planning	Awareness of method within the population (%)
IUD	54.4%
Depo-Provera	97.3%
Pill	93.2%
Condom	90.8%
Female sterilisation	99.1%
Male sterilisation	98.2%
Implants	79.6%

Current use of the IUD in the Eastern regions matches all other regions with the exception of the central region (which includes Kathmandu). The present level of use stands at 0.2 in the eastern region, with the other regions having between 0.1 and 0.4.

The Eastern region has a slightly better education profile than the central, mid-western and far-

western regions, but is comparable to western regions and the fertility rates are slightly lower in the eastern region compared to the other regions except the western with which it is again comparable.

The three districts in our study all shared borders and occupied the far south-east corner of Nepal. The three districts shared some similarities and some differences. It was important to have these differences in order to establish if these factors influenced the barriers perceived in the two regions i.e. hills and terai. Ilam is situated in the Eastern Hills whilst Jhapa and Morang are both found in the terai

All three districts border India which allows for good communication and transport routes and influences from India, such as media programming. The hills and terai regions differ though in other aspects. The current use of the IUD in the hills is 0.8 compared to 0.0 in the Terai. In fact the hills have a much broader mix of contraceptive use with no one method dominating, the terai on the other hand has it is contraceptive mix dominated by female sterilisation (55%) followed by the use of Depo-Provera (23.8%). This heavy reliance on sterilisation in the terai highlights the high sterilisation regret found there when compared to the hills (8.4% vs. 2.0%). In the terai because the long term reversible methods of contraceptives account for only 1.2% of the method mix, this would suggest that these methods are not seen as a viable alternative to sterilisation. The education profile of the hills is moderately better than that of the terai.

Research Objectives

The objectives of the study were to investigate firstly whether the use of information, education and communication tools to increase awareness of the IUD in the study districts would bring about an increase in the uptake of the method over the study period. Secondly, to identify client and contextual factors associated with continuation of the IUD, and switching to alternative methods should the IUD be discontinued.

Research Methodology

Previous qualitative research had been carried out to identify barriers to the uptake of the IUD. Themes from this research were drawn upon to design IEC tools to increase awareness of the IUD. Three different media were used. Radio was chosen as this would have the widest audience and was anticipated to reach greater numbers than could be reached through other methods. The tool used for radio was a sixty second sketch which highlighted the positive messages about the IUD whilst debunking myths and rumours. This sketch was played on a daily basis nationally. Posters were employed. These posters were in colour and showed a woman of local ethnicity, and carried positive messages about the IUD and information about where it could be accessed. 5000 posters were produced and placed in areas where many people would be exposed to them, such as village centres and markets. The final method of IEC was to employ female community health volunteers (FCHV). These women had previously been employed by family planning and reproductive health clinics to raise awareness of other reproductive health services. These women were local to the area and went into their own villages and neighbouring villages to raise awareness. The level of awareness of the IUD is poor and this was reflected within the group of female community health volunteers. Therefore a two day intensive training course was given to all the FCHV in the three districts on the issues surrounding the IUD. The purpose of the training was to ensure that the FCHV were equipped with all the essential correct information about the IUD so they could impart this to potential users and could also dispel any rumours that these potential users had heard about.

The IEC initiative was carried out for two months to increase awareness of the IUD and highlighted its advantages. Only during the two months of the IEC initiative were clients recruited into the study.

Before any client could be considered for the study she had to give her verbal informed consent. Verbal consent was considered appropriate in this setting of low literacy. The purpose of the study was described in detail to each client and it was explained that she could withdraw her

consent at any time during the study period.

The trained nurses filled out four questionnaires (Appendix A) for each client. These were pregnancy exclusion questionnaire, a sexually transmitted infection screening questionnaire, a questionnaire designed to gain socio-demographic information, previous menstrual history and previous contraceptive use. The final questionnaire was completed after the clinical examination and insertion process to detail the required clinical information.

Each client was initially screened by questionnaire about pregnancy risk. If pregnancy could not be excluded by the questionnaire then a pregnancy test was performed and the client was excluded from the study. The initial questionnaire included a sexually transmitted infection screen to enable the exclusion of clients at potentially high risk of STI. Clients excluded at this stage were offered advice, treatment and alternative contraception.

Clients who were included in the study after the initial screening questionnaires had socio-demographic details noted on a further questionnaire with additional information about menstrual history's well as previous and current use of contraception.

Each client then had a copper T 380a intrauterine device inserted. The nurse performing the insertion then completed a final questionnaire on clinical findings following standard clinic protocols noting the ease of introduction of the IUD and the requirement for analgesia during the insertion process.

The nurse gave each client a follow up date that was within 4 to 6 weeks of the insertion. The follow ups were all performed in the clinic due to the need for a further physical examination under sterile conditions. This follows a routine IUD protocol; this time would normally encompass the occurrence of the next menstrual period which can occasionally cause expulsion of the device without the client being aware and thus losing contraceptive protection. This follow up thus allows

the nurse to check that the IUD is still in-situ and deal with any side effects or problems that the clients are experiencing. The nurse completed a follow up questionnaire for this first return visit and subsequent visits. Further follow ups were given at three monthly intervals to collect data on physical symptoms being experienced by the client.

For three months prior to the study starting and during the whole 12 month study period the numbers of new acceptors of the IUD in the study clinics were collected as a baseline. All other Sunaulo Parivar Nepal Clinics in Nepal had the number of new acceptors of the IUD recorded over the same time period in order to enable a comparison between the study clinics where IEC interventions were taking place and the non-study clinics where no IEC interventions were taking place. This would provide indicative data on the impact of the IEC interventions on IUD uptake.

The data were cleaned and entered into SPSS for windows version 10 and variables of interest were cross tabulated. Associations were tested for significance with chi square tests where appropriate.

Results

Characteristics of clients

During the recruitment stage 332 clients requested IUD insertion. Ages ranged from 17 to 41 years and all clients were married. Clients who were between the ages of 25 and 29 made up over one third of the study population and over 80% of the clients were between the ages of 20 and 34. Clients recruited into the study had between 1 and 7 children but those with 2or3 children made up almost three quarters of the sample (73.8%)

Nearly one third of the study population had received no formal education (30.5%) The characteristics of clients are shown in table 2.

Table 2: Socio-demographic characteristics of women accepting the IUD.

Characteristic	%
Parity (n = 332)	
0	0.3
1	10.5
2-3	73.8
>4	15.4
District (n=332)	
Ilam	13.9
Morang	17.5
Jhapa	68.7
Age (n=332)	
<20	2.1
20-24	21.1
25-29	34.6
30-34	25.4
>35	16.8
Education (n=332)	
None	30.5
1-6	23.2
7-12	40.4
>13	5.7
Contraceptive Use (n=332)	
Ever Use	76.0
Recent Use (past three months)	50.3
Recent Use of Contraception (n=167)	
Oral Contraception	27.2
Injectables	52.4
Barriers	23.4
IUD	0.6
Implants	2.4

With regard to previous use of contraception, 254 had ever used a method, Depo-Provera being the most popular with 192 clients having previously used it. Only five clients had previously used the IUD. However, recent use of contraception was less common; only half of the clients had used any form of contraception within the last three months (Table 3).

Table 3: Numbers and percentages of whole study sample who have ever used or recently (within the last three months) used contraception by method.

	Ilam (n=46)		Morang (n=58)		Jhapa (n=228)		Total (n=332)	
	n	%	n	%	n	%	n	%
Ever Use of Contraception	40	87.0	20	34.5	194	85.1	254	76.5
Pill	9	19.6	5	8.6	76	33.3	90	27.1
Depo-Provera	30	65.2	13	22.4	149	65.4	192	57.8
Condom	5	10.9	2	3.4	78	34.2	85	25.6
IUD	0	0.0	1	1.7	4	1.8	5	1.5
Norplant	2	4.3	0	0.0	10	4.4	12	3.6
Recent Use of Contraception	35	76.1	9	15.5	123	53.9	167	50.3
Pill	8	17.4	1	1.7	36	15.8	45	13.6
Depo-Provera	22	47.8	7	12.1	58	25.4	87	26.2
Condom	3	6.5	1	1.7	35	15.4	39	11.7
IUD	0	0.0	1	1.7	0	0.0	1	0.3
Norplant	1	2.2	0	0.0	3	1.3	4	1.2

The most common route of referral for IUD insertion in all districts was via the female community health volunteers. They were most effective in Ilam, bringing in over 80% of the clients in that particular district. Radio had no or minimal effect in Ilam and Morang but in Jhapa 70 clients (30.7%) came for IUD insertion after hearing the radio sketch. Although posters were widely distributed their effect was extremely limited with only seven clients in the whole study population citing this as the main reason for deciding to have the IUD inserted. All seven clients came from Jhapa, so posters had no effect in either Ilam or Morang (Table 4).

Table 4: Route of Referral

	Ilam (n=46)		Morang (n = 58)		Jhapa (n=228)		Total (n=332)	
	n	%	n	%	n	%	n	%
Female Community Health Volunteers	37	80.4	35	60.3	88	38.6	160	48.2
Radio	0	0.0	1	1.7	70	30.7	71	21.4
Posters	0	0.0	0	0.0	7	3.1	7	2.1
Friends / Family	3	6.5	5	8.6	25	11.0	33	9.9
Health Professionals	3	6.5	17	29.3	35	15.4	55	16.6
Pharmacies / District Health Officer	3	6.5	0	0.0	3	1.3	6	1.8

The majority of insertions were reported as uncomplicated (85.2%) with only one failed attempt at insertion. Only 19 clients required the use of analgesia for the insertion process (5.8%).

Main Outcome: Continuation.

Follow up data were available for 228 of the 332 clients (68.7%) and of these 40 clients requested that the device be removed. Subsequently eight of these 40 clients requested to have the IUD reinserted and continued with the device for the remainder of the study period. Of those clients who had discontinued the IUD at the end of the study, 57.1% had done so within the first three months and 85.7% had discontinued by 6 months.

Expulsion of the IUD, either partial or complete, affected four clients. Two of these clients had another IUD reinserted and continued with it for the duration of the study whilst the other two clients changed to alternative contraception.

One IUD was removed due to a rash appearing over the client's body which disappeared after removal.

One pregnancy was documented with the IUD in-situ during the study period; this client had the IUD removed, went on to have an abortion and had an IUD inserted post abortion.

Overall the continuation rate is estimated at 84.6% of the follow up population over 12 months.

Adverse effects and requests for removal.

Reasons for requesting removal were either adverse effects or personal reasons. In all, nineteen clients requested removal for either, bleeding, pain or both symptoms concurrently. Four clients requested removal due to experiencing vaginal discharge, and one of these clients experienced pain alongside the vaginal discharge. Three clients' husbands had vasectomies performed during the study period so the clients no longer required the IUD.

Husbands had influence on five further clients, three had the IUD removed because their husbands insisted and two had it removed because their husbands were leaving town for a number of years due to work commitments (Table 5).

Table 5: Reasons for discontinuation

Reason for Removal	Percentage of all discontinuers per reason	Number
Bleeding	31.4	11
Pain	11.4	4
Bleeding and Pain	11.4	4
Vaginal Discharge	8.6	3
Vaginal Discharge and Pain	2.9	1
Weakness	2.9	1
Husband's Insistence	8.6	3
Permanent contraception	8.6	3
Husband leaving town for a number of years	5.7	2
Allergic Reaction	2.9	1
Expulsion	5.7	2

Client's experience of care

All the clients reported received counselling prior to insertion. Of those who had the device removed, two clients did not require contraception because their husbands had left town for a number of years (Table 6).

Table 6: Methods of contraception chosen by discontinuers of the IUD.

Alternative contraception	*Number choosing new method*	*Percentage of clients switching to new method*
Pill	10	27.8
Condoms	9	25.0
Depo-Provera	5	13.9
Vasectomy	3	8.3
Female Sterilisation	1	2.8
No method	1	2.8
Not sure	5	13.9
Not required	2	5.6

Of the clients who required contraception for protection against unwanted pregnancy 82.3% chose an alternative method of contraception.

By the end of the follow up period, 81% of clients interviewed at follow up reported no adverse effects from the IUD and 96% stated they would be happy to recommend the IUD to others. Availability of follow up services was rated as very important by almost all clients (99%). Indeed, 85% of the women stated they would not have accepted the IUD if follow up was not available.

Statistical associations with discontinuation.

Factors associated with continuation of the IUD were assessed and the following results were obtained (Table 7).

Table 7: Statistical associations with discontinuation of the IUD.

Variable	Chi Square	P value
a. Pain	7.42	0.006
b. Bleeding	16.14	0.000
c. Vaginal discharge	3.11	0.078
Number of symptoms experienced	21.78	0.000
Analgesia required for insertion process	5.96	0.015
Nature of menstruation prior to IUD insertion	7.04	0.030
Happiness of husband with IUD, post insertion	18.74	0.000
Use of analgesia for pain associated with IUD	4.92	0.026

Analgesia used was non steroidal anti-inflammatorys in the form of brufen.

Those clients who experienced pain or bleeding were *more likely* to discontinue than clients who experienced no side effects after the IUD had been inserted. The occurrence of vaginal discharge following insertion was not a significant factor in discontinuation of the IUD. As the number of symptoms a client experienced increased, i.e. if she experienced pain and bleeding rather than just pain, the more significant was her chance of discontinuation.

Clients who had required the use of analgesia during the IUD insertion process were significantly *more likely* to discontinue compared to clients that needed no such intervention.

Clients who required analgesia when they experienced pain due to the presence of the IUD were significantly *more likely* to discontinue with the IUD than those clients who experienced pain but did not feel the need to use analgesia to combat it.

Clients who described their menstrual periods as being light, as opposed to moderate or heavy, prior to the insertion of the IUD were significantly *more likely* to discontinue with the IUD than clients who described their menstrual periods as moderate or heavy pre-insertion.

Clients who reported that their husband was not happy that the IUD had been inserted were significantly *more likely* to discontinue with the IUD compared to their counterparts who stated that their husbands were content with the IUD as a chosen form of contraception.

When comparing clients with different socio-economic characteristics no significant associations were discovered when looking at the district a client originated from, her age, the level of education she had received, the number of children she had had, and her economic status as assessed by asset score.

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Comparison between study clinics and non-study clinics.

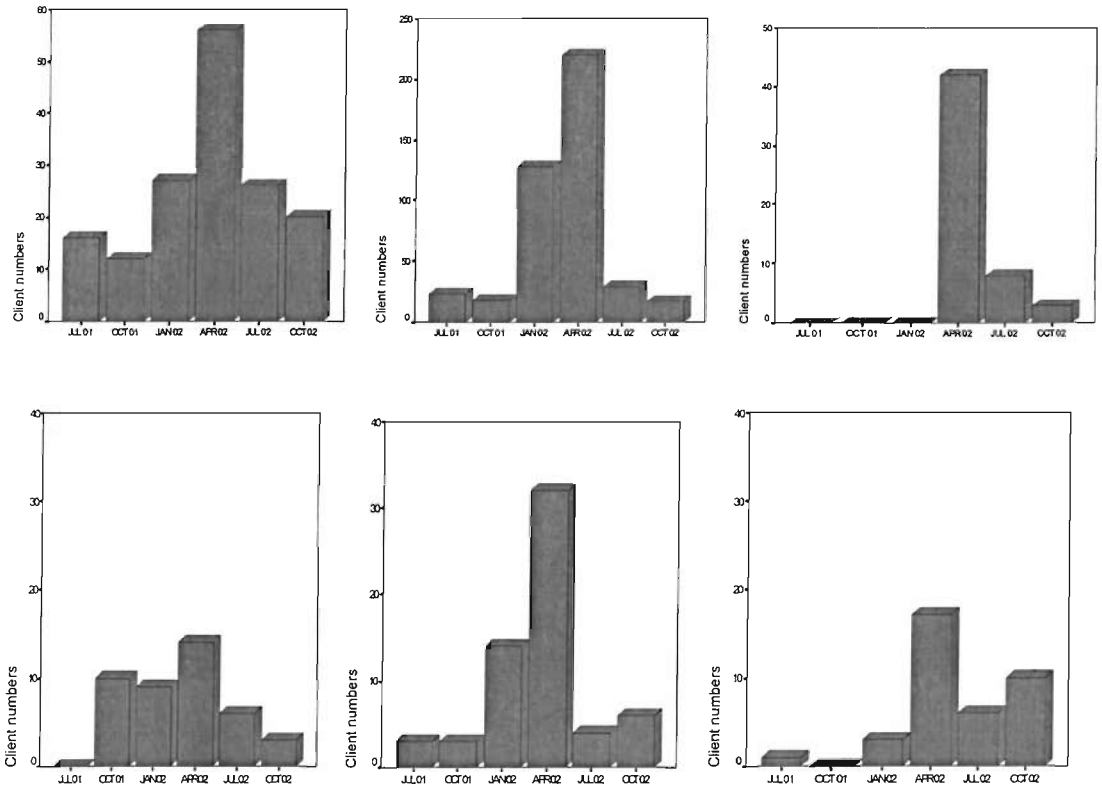
There was an increase in the number of clients requesting the IUD in the study clinics (Figure 2). This was ascertained by collating data on the number of IUD acceptors in the three months prior to the start of the study and the number of new acceptors during the recruitment period and by collating numbers for the whole study period. In the study clinics the number of clients requesting the IUD was highest during the period of information, education and communication activities. Once these activities ceased the numbers fell.

The radio component of the IEC campaign was heard nationally and the impact of this specific intervention can be seen in other 'non intervention' clinics with a slight increase in the number of new acceptors of the IUD at the time of the information, education and communication activities,

but not to the same extent as in the intervention clinics.

Figure 2: Comparison of clinic numbers between intervention clinics (upper figures) and non-intervention clinics (lower figures).

Morang Clinic Jhapa Clinic Ilam Clinic



Bhatrapur Clinic Narangaarth Clinic Banke Clinic

Nb. Y axis scales are different for each clinic

Discussion

This study has shown the experience of the three districts documented indicates substantial untapped potential for intrauterine contraception in Nepal.

Information Campaigns

In order to tap the potential of increasing new acceptors of the IUD, the first step has to be to increase the awareness of the method. In the present study the female community health volunteers (FCHV) had marked impact in recruiting women to have the IUD inserted and this was followed in impact by radio broadcasting. Mass media and community activities each have an important and perhaps synergistic role in increasing awareness and use of the IUD.

A study carried out in Cameroon used mass media and community activities for three months to promote family planning. Women who had been exposed to the messages contributed to the large majority of the overall increase in contraceptive use and the proportion that started using a new method was almost three times as high among women exposed to the campaign as those who were not [12]. A study investigating the use of radio promotion in The Gambia found that the proportion of modern method users increased and new acceptors who had heard the radio promotions were more likely than those who had not to have been motivated by the campaign elements [13].

The first study discussed above [12] found that the campaign did lead to an increase in the number of new clients coming to the clinics but much of this increase was at the start of the campaign. The spike in client flow was promptly followed by a decline in the mean number of clients which led the researchers to conclude that appropriately organised and sustained community mobilisation efforts are necessary to build on and consolidate gains achieved through the media. This conclusion was also found in another study using mass media, print materials and various promotional activities to educate men and women on the health benefits of modern

contraceptive methods in Tanzania. In this study as the number of media sources concerning family planning a woman was exposed to increased, the likelihood of her using a modern method of contraception increased significantly, indicating that multiple media sources are complementary and reinforcing rather then duplicative. To have a greater and more prolonged increase in acceptance, exposure to family planning messages from a number of sources needs to be maintained over months and even years [14].

The findings of the present study, undertaken in very different sociocultural conditions, are consistent with the findings in these three reports. A large increase in new acceptors was recorded due almost exclusively to the information, education and communication campaign, but the number of new acceptors was sustained only as long as the promotional activities were taking place and declined substantially following the cessation of the activities. The largest number of new acceptors in our study came from the district of Jhapa where radio and female community health volunteers had an almost equal influence on uptake. Women who were exposed to a greater number of media messages were more likely to consider using the IUD. In order to sustain the increase in use of the IUD within these three districts of Nepal the IEC campaign needs to be in place for a much longer period of time so that the positive messages about the IUD can flow into the consciousness of the communities leading to increased awareness, discussion and acceptance.

Continuation

Continuation is a mark of satisfaction with a method of contraception and has a number of components including the quality of the service providing the particular method, the choice of methods and the side effect profile of the method. A high continuation rate would indicate a high level of satisfaction and the present study found a continuation rate of 84.6%.

Previous research carried out investigating the factors that influenced the continuation of the IUD in South India showed that the IUD is the most popular reversible method of contraception but has a low rate of continuation [15]. The researchers used follow up studies of family planning

acceptors at intervals since 1986 and compared their continuation rates with other Indian and Asian research into the IUD. The continuation rates ranged from a low of 52% in India to a high of 90% in Indonesia. Our continuation rate compared to the latter. The continuation of the IUD was determined by a number of factors including the level of motivation of the new acceptor, the experience of side effects and the quality of service. It was found that if health functionaries were reported as instrumental in motivating the woman to accept the IUD then the odds of continuation are higher by 74% at three months than those who reported self or others as the motivator.

The results of the present study did not find this association: there was no difference between the route by which the woman came to accept the IUD i.e. female community health volunteers, radio, posters, family and friends and, health professionals and the rate of discontinuation. Similarly, in the Indian study there was an increase in the rate of continuation for women who received counselling, premedical check-ups and follow-up in the Indian research. The researchers considered that through the provision of thorough pre-insertion counselling, medical examinations and appropriate follow up the clients in the present study were fully informed and therefore more satisfied with the quality of care leading to a good continuation rate.

Client characteristics of women that discontinue with the IUD were studies in a multi-centre trial from a number of developing countries [15]. The overall discontinuation rate was 13.3%, comparable with the present study results but three factors were discovered to influence discontinuation. There were differences between Africa and Asia, differences by age and by religion. The present research did not highlight any of these factors as being associated with IUD discontinuation. In contrast important factors here were the side effect profile associated with the use of the IUD, the use of analgesia for the insertion process or to reduce pain felt as a side effect of IUD use, and finally the agreement or otherwise of the husband with regard to his wife using the IUD as a form of contraception.

The present findings indicate that measures could be taken to influence discontinuation,

especially via thorough counselling with special emphasis on these factors so as to allay women's fears regarding the IUD. Male involvement is an important factor that needs careful consideration in a patriarchal society such as Nepal.

Male Involvement

Men play an important role in family planning decision making either through direct or indirect actions and women in male dominated societies can have their choices influenced by men. The present study showed a significant association between a husband's acceptance of the IUD and its continuation. Although assumptions cannot be made from associations with one variable it does highlight that male involvement may have an impact on the uptake of the IUD in Nepal and it emphasises the need for further research in this area. Other studies have investigated the links between men's attitudes and the uptake of family planning by women.

A review of couple studies identified a number of issues surrounding family planning and fertility decision-making between men and women [17]. Key findings were that when family planning and sexual health education was provided to both the husband and wife there was a higher acceptance rate of contraception and a lower rate of discontinuation. Many developing countries are male-dominated and the review identified that men are the ultimate decision-makers with regards to the couples' fertility. In order to improve the continuation rate the influence of men in the direction of discontinuation must be lessened. To do this it may be important to involve men during promotional activities; by targeting information at men as well as women. Male participation can start from the early stages and this could be a vehicle for increased uptake and continuation of the IUD.

Switching

Switching of contraceptive methods by women and men over their reproductive life course leads to a higher overall continuation of contraceptive use. Switching means that individuals and couples have a choice of methods from which to choose that allows them to pick the method best

suited to them at that time. A limited choice is associated with discontinuation rate.

Current users of contraception when given fuller information and orientation to methods indicate that they would consider switching contraceptive methods to one that would suit them better. Long-term contraceptive use can be achieved by switching of contraceptive methods. One paper identified work where nurses were trained in counselling and the clients of these nurses were more satisfied with the method and service than clients of untrained nurses' [11]. Future switching is an important part of counselling. In the present study the nurses underwent specific training towards the provision of the IUD including counselling techniques. The nurses backed up the information they gave during the counselling session with leaflets on the IUD for the clients and family members to take home and digest. The follow up rate was adequate for a rural area and the continuation rate was high, but one of the important findings was the switching of methods by the clients who discontinued with the IUD for whatever reason. The majority of clients (75%), having received initial counselling and further counselling at the time of IUD removal, decided to use another form of contraception that suited them better. Thorough counselling, including full range of contraceptive choices, may lead to an initial moderate rate of discontinuation of the first method of contraception but will ultimately lead to a higher continuation of contraceptive use.

Limitations of the Study

The women were offered the IUD free of charge which would not normally be the case at Sunualo Parvivar Nepal, although it is the case through Government clinics and Family planning Association of Nepal (FPAN). This study could not therefore assess the importance of cost to the client as a factor influencing uptake. Outside of the boundaries of the study the cost of the IUD as a one off method may be too high for the clients and they may otherwise choose another method that they felt more affordable.

The female community health volunteers (FCHV) were offered incentives for each client they

introduced into the study, as is normal practice in government sterilisation programmes. These incentives would drive the FCHV to bring clients into the study who may not have done so under their own volition. This is more of a limitation if the study was investigating uptake of the IUD but the specific outcome being investigated was continuation of the method once it was accepted.

Those clients that were lost to follow up may have had a completely different experience with the IUD than the clients who were followed up, and were not available for interview.

Conclusion

The study has illustrated that providing a high quality service delivery for the IUD can lead to a high continuation rate, high satisfaction with the method, and a high rate of switching to other methods for those women discontinuing with IUD.

The IUD is a safe, reliable and cost effective method of contraception; it may provide an answer to the family planning programmes in Nepal when searching for approaches to increase contraceptive choice and availability. Many components are required to enable increased use of the IUD; promoting awareness, trained health professionals providing thorough counselling and follow up and the involvement of men.

Within the three study districts of Nepal the IUD proved to be an acceptable method of contraception with a high level of satisfaction. Important findings were that demographic and socio-economic variables were not a constraint on continuation with the IUD. The implication is that the findings from this study could be scaled up on a national level where similar impact could be anticipated. This has important policy implications for family planning programmes in Nepal trying to expand their services and at the same time remain sustainable.

Appendix A

Forms used for study participants by the health professionals.

Form A - *Exclusion criteria*

District:

Date:

Exact Time:

Name:
Address:
Client number:
Intake number;

If the woman is or has any of the following then she cannot have the IUD fitted.

		Yes	No
1	Is she pregnant?	1	2

If she is not sure then ask her the following questions.

		Yes	No
1	Have you given birth in the past 4 weeks?	1	2
2	Are you less than 6 months post partum and fully breastfeeding and free from menstrual bleeding since you had your child?	1	2
1	Did your last menstrual period start within the past 7 days?	1	2
2	Have you had a miscarriage or abortion in the past 7 days?	1	2
3	Have you abstained from sexual intercourse since your last menses?	1	2
4	Have you been using a reliable contraceptive method consistently and correctly?	1	2

**If she answered NO to any of the questions, pregnancy cannot be ruled out. Therefore she should be advised against using the IUD until her menses start or she uses a pregnancy test.

1 Has the woman suffered from pelvic inflammatory disease, sexually transmitted infections or purulent cervicitis in the past three months?

Yes	No
1	2

If the woman is not sure then ask her the following questions.

Do you have any of the following conditions?	Yes	No
a) Itching or irritation around the vagina	1	2
b) Discharge which is not your nature	1	2
c) Fishy smelling discharge	1	2
d) Green or yellow discharge	1	2
e) Sores on your genitals	1	2

**If the woman answers yes to any of the above questions she should be considered to have an infection for which she should be examined and treated. She should also be advised against having the IUD fitted until the infection is treated.

3. Has she had bleeding between her periods or after sexual intercourse?

Yes	No
1	2

4. Does she suffer with pelvic pain constantly and for a prolonged period of time?

Yes	No
1	2

5. Does she knowingly have cancer of the cervix, endometrium or ovaries?

Yes	No
1	2

6. Did she suffer with an infection of the uterus after childbirth within the last three months?

Yes	No
1	2

7. Does she suffer with a condition known as malignant gestational trophoblstic disease?

Yes	No
1	2

8. Does she have TB of the pelvis?

Yes	No
1	2

9. Is she allergic to copper?

Yes	No
1	2

Form B - *Risk assessment for Sexually Transmitted Disease.*

1. Does your sexual partner currently have any symptoms below?

	Yes	No
a) Urethral discharge	1	2
b) Pain on passing urine	1	2
c) Open sores anywhere in the Genital area	1	2

2. Did your sexual partner have any symptoms below in the past? If yes, what year?

	Yes	No
a) Urethral discharge	1	2
b) Pain on passing urine	1	2
c) Open sores anywhere in the Genital area	1	2

3. Is there a possibility that her sexual partner has recently had sexual intercourse with someone else?

Yes	1
No	2

4. Has she recently started a new sexual relationship?

Yes	1
No	2

**If the answer to any of the questions above is yes, then she must be advised about her increased risk of developing a sexually transmitted disease and advised accordingly.

Form C

District:

Date:

Name:
Address:
Client number:

Admission record

Question number	Questions and filters	Response categories		Skip to
1	In what month or year were you born?	Year DK		
2	How old were you at your last birthday?	Age in completed years		
3	Have you ever attended school?	Yes .....1 No 2	>	Go to 6
4	For how many years did you attend school?	Years.....		
5	What was the highest level of school you attended?	Pre-school ..... 1 Primary ..... 2 High school ..... 3 College 4		
6	Are you married?	Yes .....1 No 2	>	Go to 9
7	Are you involved with a man?	Yes ..... 1 No 2	>	Go to 9
8	Are you living with this man?	Yes ..... 1 No 2		
9	Does the household in which you live have any of the following?	Yes No Electricity 1 2 Piped water 1 2 Radio 1 2 Latrine 1 2 Land 1 2		
10	Have you ever been pregnant?	Yes ..... 1 No 2	>	Go to 14
11	How many times?	Number		
12	How many live births have you	No. of livebirths		

	ever had?			
13	When was your last child born?	Month and year		
14	Did you see your normal monthly period this month?	Yes ..... 1 No 2		
15	How much bleeding do you have with your period?	Yes No Heavy 1 2 Moderate 1 2 Light 1 2		
16	Do you have any pain during your period?	Yes ..... 1 No 2	>	Go to 18
17	Does this pain ever stop you carrying out your every day activities?	Yes ..... 1 No 2		
18	Do you have any pain during sexual intercourse?	Yes ..... 1 No 2		
19	Have you ever used any form of contraception before?	Yes ..... 1 No 2	>	Go to 23
20	Pill Depoprovera Condom IUD Norplant	Yes No 1 2 1 2 1 2 1 2 1 2		
21	Have you used any contraception in the past three months?	Yes 1 No 2	>	Go to 23
22	Pill Depoprovera Condom IUD Norplant	Yes No 1 2 1 2 1 2 1 2 1 2		
23	Do you suffer from any major medical or gynaecological diseases?	Yes 1 No 2	>	Go to end
24	Please name these diseases?	Name of condition		

Form D – *Clinical Examination*

1. Does she have cervicitis? Yes 1
   No 2

2. Does she have a vaginal discharge? Yes 1 Please describe_____
   _____
   No 2

3. Is the uterus:

   A. Anteverted 1
   Retroverted 2
   Midposition 3

   B. Normal 1
   Larger 2
   Smaller 3

   C. Regular 1
   Irregular 2
   Fibroids 3

4. Was the insertion of the sound:

   Easy 1
   Difficult 2
   Failed 3

   Reasons for failed insertion: Please specify
   _____
   _____

5. Sound length_____ Cms.

6. Was the insertion of Copper T IUD:

   Easy 1
   Difficult 2
   Failed 3

7. Did you use any analgesia

   Yes 1
   No 2

If yes please specify type used_____

Form E – *Copper T 380a (IUD) research follow up*

District:
Client return date:
Date called for follow up:
Time:
Name:
Address:
Client number:
Intake number:

1) Reason for visit:

Follow up	1
Pain	2
Bleeding	3
Discharge	4
Pregnancy	5
IUD removal	6
Other	7 (Please specify) _____

2) Has the client noticed any pain

1	2
Yes	No

Skip to question 3 if the answer is no, If Yes ask the following question,
a) where
b) how long did it last
c) did she require medicine to ease it

3) Has the client noticed any abnormal bleeding?

1	2
Yes	No

Skip to question 4 if the answer is no, if Yes ask the following question,
a) did the abnormal bleeding occur at the time of period or in between period

1	2
during period	inbetween period

b) How many days did it last for?
c) was the bleeding heavier than normal or lighter than normal?

1	2	3
Heavy	Light	Normal

4) Has the client noticed if the IUD has been expelled?

1	2
Yes	No

5) Has the client noticed any abnormal vaginal discharge?

2	2
Yes	No

Skip to question 6 if the answer is no, if Yes ask the following question,
a) how long did it last for?
b) was if offensive smelling?

1	2

Yes No

c) what colour was it?

6) Is the client asking for IUD to be removed?

3 2

Yes No

If yes, why_____

7) If she had it removed did the client change to another form of contraception?

4 2

Yes No

If yes, what_____

Follow up examination

1) Is the thread visible?

2 2

Yes No

If thread not visible, what action was taken?_____

2) Does client have PID/STI/STD?

1 2

Yes No

If yes, what treatment was given?_____

3) Was the removal of IUD easy or difficult?

1 2

Easy Difficult

If difficult, explain why _____

4) Date of removal _____

Any other remarks _____

_____

Final questionnaire

District:
Name:
Address:
Family Size:
Male:
Female:
Religion:

Q1) Do you have the IUD fitted?

1	2
Yes	No

If no, go to Q3.

Q2) Do you have any problem/s with IUD?

None	1
Bleeding	2
Pain in the lower abdomen	3
Discharge other than blood	4
Other_____	5

Q3) Why did you take out the IUD?

Bleeding	1
Pain in the lower abdomen	2
Discharge other than blood	3
Husband told me to take it out	4
Prefer other FP method	
Name_____	5
Other	6

Q4) Was follow-up important to you?

1	2
Yes	No

Q5) Will you have put IUD if there was no follow up provided for you?

1	2
Yes	No

Q6) Is your husband aware that you have put the IUD?

1	2
Yes	No

If no, go to Q8

Q7) Is your husband happy that you have put the IUD?

1	2
Yes	No

Q8) Would you recommend IUD to other women?

1	2
Yes	No

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Changing attitudes towards family planning and reproductive health: The younger generations of men in Nepal

Introduction

Men play an important role in family planning decision making. Many national family planning programmes have targeted women in the promotion of contraception, ignoring men on the whole. This is despite research evidence that when men are involved in family planning decisions, the uptake and continuation of family planning methods increases [1].

Many factors can influence changes in men's knowledge, attitudes and practice (KAP). Education has been strongly linked to increased knowledge and uptake of contraception. The higher the man's level of education the stronger is his determination to use contraception and the stronger his desire for a smaller family. Indeed, the net effect of a man's education on contraceptive use is larger than that of his wife's education [2,3]. Education levels for men show a strong positive relationship to current use of contraception [4] and a strong inverse relationship to the number of living children and the desire to cease having children [3,5]

Media exposure has been shown to increase the use of family planning methods either directly or indirectly by increasing spousal communication. The more types of media message a person is exposed to, the greater the influence and change of behaviour . A study shows that respondents exposed to a family planning drama serial show significant greater increase in spousal communication index and family planning use when compared to respondents who were not exposed [6].

Increased communication has been linked to increased awareness of reproductive health issues and contraceptive use. In Kenya the strongest influence on couples' current contraceptive use was shown to be couple communication and that husbands' cooperation is essential for consistent and continued use of the preferred method [2]. Couples who discussed family planning were far more likely to use contraceptives than those who did not [73% and 27% respectively]. Couples who discussed family size were more likely to be current contraceptive users than those whose family planning decisions were made by the husband alone [4]. Analysis of variance using a combined 'spousal communication index' showed that young respondents had a significantly

more positive attitude towards spousal communication than older respondents [6]. Communication between couples can also reduce the risk of sexually transmitted infections (STI):, non-talkers were three times more likely to contract an STI than those who communicated [7].

The fall in fertility seen within Kenya has been shown in part to be due to increased male involvement [8]. In developing countries decisions that women make regarding contraception are directed by those of their husbands and partners. So if men's perceptions and practice are changing this may influence their wives towards greater contraceptive use.

Fertility preference manifesting in four ways can influence contraceptive use. When families prefer their makeup of children to be of a certain composition it can influence contraceptive use [9].

1] Patriarchal societies value male children more highly than female children and most couples are not prepared to begin contraceptive use until at least one son has been born.

2] A precondition for using any method is that the potential user has entertained the concept of fertility regulation and has perceived it as an advantage. When motivation is weak, acceptance and use of any modern method will be greatly reduced [10].

3] Status and economy can affect fertility preference [5,11]. Economic pressure combined with the transition to new employment sectors contributes significantly to men's desire for smaller families.

4] Marriage at a more advanced age has been associated with the preference for smaller families and the use of contraception [2-3]. Men who are better educated tend to marry later, this is thus indirectly linked to fertility preference and use of contraception.

Nepal has over the last two and a half decades seen a fall in its total fertility rate from 6.3 to 4.1[12-13]. Most research in Nepal has been centred on women, so little is known about men's perceptions and knowledge of family planning and reproductive health. It may be that as the

generations pass, men in Nepal become more educated leading to an increased knowledge of family planning and reproductive health. Could this increase in knowledge among the younger generations partly explain some of the reduction of the fertility rate?

No research to date has investigated the views, knowledge and practice of men in terms of family planning and reproductive health. The research quoted above has come from a variety of developing countries, the majority of which are patriarchal and therefore similar to Nepal. Although the research may not be directly pertinent to Nepal it gives a basis for a possible theoretical framework that may answer questions relating to men in Nepal.

This paper proposes to examine the changing nature of Nepalese men's attitudes towards family planning and reproductive health through the generations. Many factors may be linked to produce a positive change in attitude that ultimately could lead to increased contraceptive use and fertility decline (Figure 1). This study was carried out at the same time as study 2 (continuation of the IUD) but there was no way to collect data on whether the wives of men interviewed had taken place in the IUD study.

From the following studies (Table 1) investigating male attitudes and practice towards family planning and reproductive health, a set of associations have been identified. The previous research identified specific areas such as education that may have an effect, either positive or negative, direct or indirect, on the knowledge, attitudes and practice of men towards family planning and reproductive health. As no research has been performed in Nepal it is difficult to be certain about what influences there are on men in that country so the theoretical framework was designed to try and elucidate routes linking increasing contraceptive use and decreasing fertility rate in Nepal.

Figure 1: Theoretical framework of factors affecting contraceptive use in men.

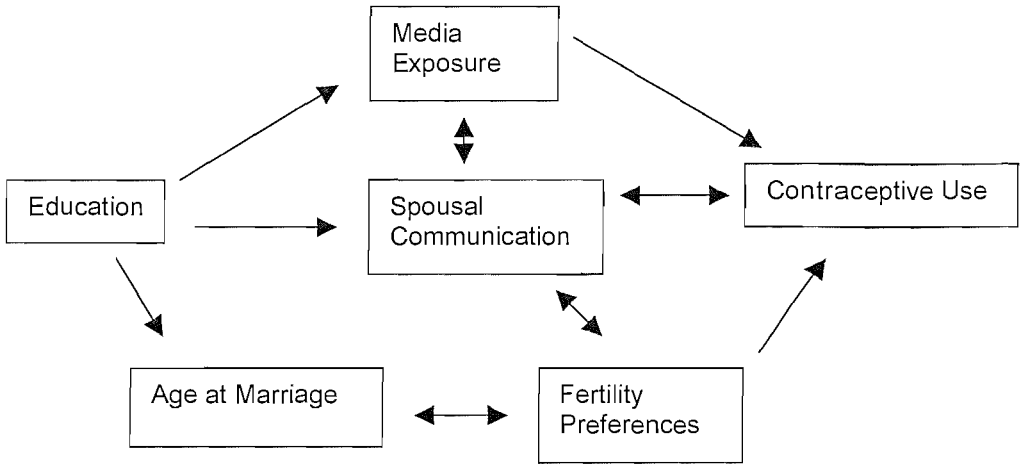


Table 1: Published research informing the framework.

Education	Men's participation in family planning decisions in Kenya. Omondi-Odhiambo. Population Studies; 51(1):29-40. 1997 [2] Adolescent contraceptive use and its determinants in Bangladesh: evidence from Bangladesh Fertility Survey 1989. Mahmud M, Islam MM. Contraception 52: 181-186. 1995. [4] In Nigeria, traditions of male dominance favour large families, but some men report having fewer children. Donovan P. International Family Planning Perspectives 21(1):39-40. 1995 [3] Male involvement in family planning: A case study spanning five generations of a South Indian family. Karra MV, Stark NN, Wolf J. Studies in Family Planning 28(1):24-34. 1997 [5]
Media exposure	Spousal communication and family planning adoption: effects of a radio drama serial in Nepal. Sharan M, Valente TW. International Family Planning Perspectives 28(1):16-25. 2002. [6]
Spousal communication	Men's participation in family planning decisions in Kenya. Omondi-Odhiambo. Population Studies; 51(1):29-40. 1997 [2] Adolescent contraceptive use and its determinants in Bangladesh: evidence from Bangladesh Fertility Survey 1989. Mahmud M, Islam MM. Contraception 52: 181-186. 1995. [4] Spousal communication and family planning adoption: effects of a radio drama serial in Nepal. Sharan M, Valente TW. International Family Planning Perspectives 28(1):16-25. 2002.[6] The role of men in contraceptive decision making: current knowledge and future implications. Edwards SR. Family Planning Perspectives 26(2):77-82. 1994 [7]
Fertility preference	Factors that determine prevalence of use of contraceptive methods for men. Ringheim K. Studies in Family Planning 24(2):87-99. 1993 [10] Male knowledge, use and attitudes regarding family planning in Burkina Faso. McGinn T, Bamba A, Balma M. International Family Planning Perspectives 15(3):84-87+95. 1989. [11] Male involvement in family planning: A case study spanning five generations of a South Indian family. Karra MV, Stark NN, Wolf J. Studies in Family Planning 28(1):24-34. 1997 [5] Strong preference for sons appears to restrain contraceptive practice among couples in Nepal. International Family Planning Perspectives 14(3):116-117. 1988 [9]

Age at marriage	Men's participation in family planning decisions in Kenya. Omondi-Odhiambo. Population Studies; 51(1):29-40. 1997 [2] In Nigeria, traditions of male dominance favour large families, but some men report having fewer children. Donovan P. International Family Planning Perspectives 21(1):39-40. 1995 [3]

Methodology

This was a research site study that included areas within half an hour's travelling distance of selected family planning and reproductive health clinics in semi-urban areas surrounding clinics in three districts of Nepal: Jhapa, Morang and Banke.

Each district chosen had a family planning and reproductive health clinic accessible to men in its main town. The aim was to obtain a sample of men from the three districts, who were able to access services within 30 minutes of travelling, to assess their knowledge, attitudes and practice towards family planning and reproductive health in a context where services were actually available to them. A focus for analysis was to establish the independent factors affecting men's KAP having removed the confounding influence of accessibility.

The three districts chosen all lie in the Terai region: a large, flat belt of land bordering India to the North. The terrain of the Terai allows for a good transport system and lends itself to agriculture, which is the mainstay of livelihoods in Nepal.

Morang and Jhapa are situated in the Eastern Terai whilst Banke is situated in the Mid-Western Terai. Similarities and differences are described in Table 2 using data from the Nepal DHS 2001.

Variables	Eastern Terai (% of men)	Mid-Western Terai (% of men)
Educational attainment		
• None	30	35.1
• Primary	6.6	4.9
• Secondary	6.1	4.1
• Higher	4.8	5.5
Occupation		
• Professional	7.5	9.5
• Clerical	5.6	4.3
• Sales and services	11.9	6.8
• Skilled manual	10.0	2.7
• Unskilled manual	13.2	6.6
• Agriculture	51.8	70.1
• Student	0.0	0.7
• Unemployed	1.9	0.7
Current use of contraception		
• Any method	58.5	64.6
• Modern method	50.3	62.0
• Female sterilisation	24.4	35.9
• Male sterilisation	3.2	3.5
• Pill	2.3	1.9
• IUD	0.0	0.0
• Injection	12.6	12.1
• Condoms	7.3	7.2
Exposure to family planning messages		
• Radio	58.4	66.4
• TV	42.7	19.2
• Newspaper / magazine	28.4	15.9
Heard of AIDS	55.9	73.2
Knows source of condoms	77.9	89.7
Employment	95.7%	98.0%
Median age at first birth		
• 25-29	20.6	20.0
• 30-34	20.4	19.2
• 35-39	20.1	19.9
• 40-44	20.4	18.9
• 45-49	19.8	18.8
Unmet need for family planning		
• spacing	8.0%	10.0%

• limiting	11.7%	13.8%
Ideal number of children	**2.6**	**2.6**
• 15-19	2.4	2.5
• 20-24	2.5	2.3
• 25-29	2.5	2.4
• 30-34	2.6	2.7
• 35-39	2.8	2.9
• 40-44	2.9	3.1

100 men aged between 16-50 years, irrespective of their marital status, were interviewed from each of the three research sites. The total men interviewed for the study was 300. A structured questionnaire (appendix C), comprising questions covering issues surrounding family planning, reproductive health and abortion, was developed in English and then translated into Nepali. Pre-testing of the questionnaire was carried out in Kathmandu, the capital of Nepal. The field interviewers were given orientation and training in Kathmandu on the contents of the questionnaire and the required interviewing technique.

Sampling was carried out using a systematic sampling interval based on the total listed number of households in each study region and the percentage of the total population in the district contributed to by men. The systematic sampling interval describes how the interviewers decided which men to interview. If the sampling interval was six then the interviewers would go to the sixth house and interview the men in that household after which they went to the twelfth house and repeated the process and this would continue until the 100 men required had been interviewed. Over 85% of men asked to participate in the interview agreed. The interviews were carried out in the households of the interviewees. The interviewer explained the purpose of the research and asked permission of the men in the household to take part in the study. The interviews were carried out in quiet rooms in the household away from other members of the family and each man was interviewed separately so there was no influence by other male members of the family. The purpose of the interview was explained as were the content of the interview and the ability to decline to continue participating in the interview at any time. Verbal consent was gained from

each interviewee.

Data collected in the field were edited and coded for computer entry and validated by the research team. The cleaned data were entered into SPSS windows programme. Principal component analysis was undertaken on attitude items so as to identify underlying constructs using varimax rotation and selecting eigenvalues over 0.5 (Table 3).

Table 3

Principal Component Analysis. Rotated Component Matrix(a)

	Component			
	1	2	3	4
Ideal age at marriage for male	.935			
Ideal age for female	.905			
small family: improved income 2		.788		
small family: better housing 2		.673		
is abortion legal?		.532		
Small family: improved life 2			.693	
family planning message acceptable			.674	
right of woman to choose FP			.500	
discuss with wife				.761
use of family planning in future				.744

Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 5 iterations.

The new principal components were labelled and scores assigned to new variables created from the old variables loading to each principal component. These were :

1. Attitude to marriage age
2. Attitude to spousal communication
3. Attitude to acceptance of family planning

4. Attitude towards changes in FP&RH.

The higher the rating for these new variables the more positive the attitude e.g. a higher rating in 'attitude to spousal communication' indicates a positive view of communication with one's spouse. The relationship between each new variable identified by PCA and demographic factors were analysed using correlation coefficients and comparison of means as appropriate. (Appendix A)

Results.

Table 4 describes the background characteristics of the men sampled

	Total (n = 300)	Percentage
AGE		
16-20	77	25.7%
21-25	83	27.7%
26-30	45	15.0%
31-35	30	10.0%
36-40	23	7.7%
41-45	25	8.3%
46-50	17	5.7%
EDUCATION		
No Education	33	11.0%
Years 1-4	24	8.0%
Years 5-9	86	28.7%
School Leaving Certificate	65	21.7%
Diploma	60	20.0%
Bachelor Degree	29	9.7%
CASTE		
High	163	54.3%
Medium	82	27.3%
Low	55	18.3%
EMPLOYMENT		
• Professional	49	16.3%
• Clerical	54	18.0%
• Sales and services	5	1.7%
• Skilled manual	12	4.0%
• Unskilled manual	15	5.0%
• Agriculture	39	13.0%
• Student	99	33.0%
• Unemployed	20	8.3%
KNOWLEDGE OF FAMILY PLANNING		
Pill	264	88.0%
IUD	192	64.0%
Depo-Provera	278	92.7%
Condom	292	97.3%
Female Sterilisation	248	82.7%
Male Sterilisation	246	82.0%

Norplant	181	60.3%
Periodic Abstinence	66	22.0%
Withdrawal	81	27.0%

The relationships and associations between the new variables produced through principal component analysis are shown in table 5. More detailed analysis is shown in Appendix A

There is a substantial difference between the percentage of men in the study survey whose occupation is agriculture and those in the DHS. In the DHS the percent is between 50-70% whereas in the study survey this percent is 13%. This could be explained by the fact that the men interviewed in the survey lived within 30 minutes of the clinic, these clinics are in more urbanised areas of the districts so it is highly likely that the men are employed in more business like occupations. The men in the DHS cover a much larger area reaching far outside of the urbanised centres and this is reflected in the higher percent of agricultural occupations.

Table 5: Associations between men's attitude components and socio-demographic variables

Association with socio-demographic variables	Men's Attitude components			
	Attitude to Advanced Age at Marriage	Attitude to Spousal Communication	Attitude to Acceptance of Family Planning	Attitude to Changes in Reproductive Health
Current age (younger – older)	NS	↑***	↑*	NS
Marital Status (Non-married)	↑***	↑***	NS	NS
Caste	↑***	↑*	↑*	↑**
Ever Attended School (yes)	↑***	↑***	NS	NS
Highest grade achieved	↑***	↑***	NS	↑**
Asset score	↑***	↑*	↑**	↑***

Ever Use of Family Planning (yes)	NS	↑***	NS	NS
Age at birth of first child	↑***	NS	↑*	↑*
Use of Family Planning Before Marriage (yes)	↑***	↑**	NS	NS
Use of Family Planning when Married but Before Children (yes)	NS	↑**	NS	↑**
Use of Family Planning After First Child	↑**	NS	NS	NS
Use of Family Planning After Family Complete (yes)	↓**	↓**	↑***	↓*
Use of Family Planning in Future (yes)	↑*	↑***	NS	NS
e-media Exposure to Family Planning Messages (yes)	↑*	↑*	NS	↑*
Print Media Exposure to Family Planning Messages (yes)	↑***	↑***	NS	↑**
Ever heard of STI (yes)	↑***	↑*	NS	↑*
Ever heard of HIV (yes)	↑***	↑***	NS	NS
e-media exposure to HIV messages (yes)	↑***	NS	NS	NS
Print media exposure to HIV messages (yes)	↑***	NS	NS	↑**
Social exposure to HIV messages (yes)	NS	↑***	↑*	NS
Knowledge of ways to avoid obtaining or transmitting HIV	↑***	↑**	↑**	↑***
Abortion knowledge score	↑***	NS	↑*	↑***

* significant to <0.05% ** significant to <0.01% *** significant to <0.001%

Arrows show direction of significance. An upward arrow denotes a positive association, a

downward arrow denotes a negative association.

Appendix A shows the statistics in more detail with the particular statistical test described.

Socio-demographic variables.

Never married men were more likely to believe in marriage at an older age when compared with their married counterparts, as well as having a more positive outlook towards spousal communication. The current age of the men was significantly correlated with spousal communication: the younger the man, the higher his rating was in attitude towards spousal communication. Current age correlated with a more positive attitude to family planning.

As the age at which the man had his first child increased, so did the ratings for attitude to marriage age and attitude towards changes in family planning and reproductive health. This indicates a better outlook towards later marriage and having a more positive attitude towards family planning. Later marriage and delayed childbirth are important factors in improving maternal mortality rates and infant mortality rates, increasing contraceptive use and decreasing fertility. Later childbirth may encourage a more positive attitude to family planning as it would tend to be adopted to delay childbirth.

Those that had received some form of formal education were more supportive of spousal communication and a more advanced age of marriage. The higher the grade that the man achieved correlated significantly with spousal communication, favouring an older age at marriage and a more positive attitude: As the school grade achieved increased so did the ratings for all of these variables indicating that the greater the education a man had achieved the more positive his attitude towards family planning and reproductive health. An increase in education may open up opportunities for men in employment that could lead to these men wanting to delay both marriage and having children which would increase the consideration of family planning.

Asset score as designated by the number of facilities a household possessed, including

electricity, radio, television, telephone, land, piped water and toilet, is positively correlated with all four variables. This may suggest that men who have a higher asset score may perceive that marriage at a more advanced age, communicating with their spouse and the use of family planning will enable them to maintain their assets and perhaps enhance them. Or it may be that those who marry later, communicate better and have a positive attitude to family planning find that they achieve a greater wealth.

Family planning

The ever use and current use of family planning is significantly, and positively correlated with spousal communication.

Media exposure has been linked to increased awareness and use of family planning. Exposure to family planning messages in magazines is positively correlated with views on advanced marital age, spousal communication and a positive attitude to family planning. Print media appeared to have a stronger positive effect than electronic media in terms of exposure to family planning messages. Books and magazines are correlated with all four variables. Electronic media i.e. television and radio were correlated only with spousal communication. This may be related to television and radio providing a medium for communication between people, including spouses or it may be related to the higher level of female illiteracy making electronic media more accessible to women and opening up a route for communication.

Sexually Transmitted Infections and HIV / AIDS.

Part of the progress towards a better understanding of reproductive health by men is an increasing knowledge of STIs and HIV. Those with higher scores in spousal communication, and views of the desirable age at marriage had a greater awareness of STIs. The same correlations are seen relating to the awareness of HIV / AIDS. The results indicate that as generations pass, there appears to be a more positive attitude towards reproductive health. Acceptance, views on advanced marital age and a positive attitude to changes in reproductive health are correlated with

knowledge of HIV and methods of preventing transmission.

A significant correlation was seen between attitude to acceptance of family planning, the attitude towards advanced age at marriage, and the exposure to HIV messaging through media, both print and electronic. A positive correlation was seen between spousal communication and exposure to HIV messaging through school. Print media, as with family planning messages, seems to be a more powerful tool than electronic media and is linked with attitude to acceptance, positive attitude to reproductive health and advanced marital age.

The increased awareness of HIV highlights increased awareness of ways of preventing HIV transmission; these include monogamous relationships, changing sexual behaviour avoiding homosexual encounters, blood transfusions, sharing syringes and avoiding sex with prostitutes. There was a significant positive correlation between acceptance of family planning and the use of condoms. This may indicate that men are accepting that risks from STIs and HIV are increasing and there is a need to take more responsibility towards their own and their partner's reproductive health. The increased knowledge of HIV includes knowledge of ways to prevent transmission of the virus and this can be seen by the link between acceptance and the use of condoms.

Abortion.

Abortion laws have changed in Nepal with recent legislation. Abortion used to be illegal in Nepal where both the woman undergoing the abortion and the health professional carrying out the abortion could face jail sentences. In reality the health professional were never prosecuted but the women were. The women tended to get a sentence in years that equated to the number of weeks gestation the pregnancy was when it was terminated. Even women who became pregnant due to rape or incest were not allowed to seek abortions. Now abortion is legal within Nepalese law. Changing attitudes towards family planning and reproductive health should encompass an increased knowledge and awareness of abortion. Those with high ratings in attitude to changes in reproductive health and attitude to advanced marital age had a significant increased knowledge

of abortion. An abortion knowledge score was produced that included knowing about abortion, legality of the procedure and knowing where to access the services.

Vulnerable sub-groups

Overall there emerges a picture that the younger generation of Nepalese men have a more positive attitude towards family planning and reproductive health than the older generation. younger men are classified as those below 25 years of age. Within the society there are groups which do not show the same positive trends. The caste system that exists in Nepal shows that some groups are more vulnerable when it comes to family planning and reproductive health. The Tharu caste stands out in particular. Historically Tharus have been undereducated, illiterate, poor and disdained by other castes. In almost all aspects of family planning and reproductive health, the Tharu men who answered the questionnaire showed a lesser appreciation of most aspects of the subjects. This is in contrast to the Brahmin and Chhteri men in the survey. These two castes are historically very active in education, business and politics and tend to enjoy a better standard of living than many of the other castes.

A number of differences were seen between Brahmin and Chhetri castes when compared with the Tharu caste (Appendix B). Tharu men had lower asset scores, lower levels of education and more Tharu men were married than in the Brahmin and Chhetri castes. Marriage for the Tharu men was at a significantly lower age than men from the other two castes. Tharu men had more children compared with the other two castes and the ideal family size for Brahmins and Chhetri caste men was lower than the Tharu men. Tharu men were significantly less likely to be exposed to family planning and reproductive health messages than their Brahmin and Chhetri counterparts. In respect to knowledge, attitudes and practice of family planning and reproductive health, the Brahmin and Chhteri men were significantly more progressive in outlook than the Tharu men.

Discussion.

Socio-demographic variables

A more positive outlook towards family planning and reproductive health was shown by those of a younger age, those who were not married, those who had received formal education, those who had married later and had their first child later and those with greater asset scores. Many of these factors are inter-related. The younger men tended not to be married and had generally attained a higher school grade as well as possessing greater assets.

Education

Education is an important factor in the uptake of family planning and the desire for smaller families. As a population becomes better educated the use of contraceptives would be expected to increase. Family planning decision making in Kenya was studied using the DHS data, showing that the higher the man's level of education the stronger was his determination to use contraception [3]. A conceptual framework was used looking at the causality of contraceptive use and the data strongly supported the hypothesis that the husband's education influences current contraceptive use positively. Indeed the net effect of a man's education on contraceptive use is larger than that of his wife's education. Logistic regression of data from 3073 couples in Kenya demonstrated that among all the socio-economic variables, the level of education was inversely related to the number of living children in an independent manner [2].

As the generations pass in Nepal the trend has been for men to become better educated and find themselves employed in higher status occupations, marrying later. Unmarried men in Nepal tend not to use contraception before marriage. Sexual relations outside of marriage are frowned upon in Nepalese society so both men and women tend not to start sexual relations outside of marriage thereby negating the need for contraception. Among the married men those with more formal education used more effective contraception when compared with their undereducated counterparts. The unmarried men in the present survey had greater levels of education and they favoured later marriage, delayed childbearing and the use of more effective contraception. This

could lead to a trend of increasing contraceptive use and decreasing fertility.

Family Planning

Delayed marriage, childbearing and increased birth interval

Men demonstrating positive attitudes towards family planning and reproductive health were found to have changing views towards the timing of both marriage, childbearing and use of family planning methods. Increasing the age at which marriage occurs will generally lead to delayed childbearing, and the increased use of contraceptive methods for spacing rather than limiting will lead to increased birth intervals. The men with progressive attitudes towards family planning were more likely to consider marriage at an older age, using contraceptives prior to marriage, when married but before first child or after the first child had been born. They were also more likely to consider the use of contraceptives for spacing more than for limiting reasons. These factors when considered together indicate that the younger generation of Nepalese men will marry their wives at older ages than men from older generations, will delay childbearing and will use contraceptives to space their family, all of which are positive steps towards reducing maternal and infant mortality and morbidity, and towards reducing fertility. Maternal mortality and morbidity and infant mortality and morbidity are intimately linked with short birth intervals and childbearing at a young age [14,15,16]. The reasons are not completely clear but maternal depletion may provide one answer, the woman does not have time to recover physically from one birth and childrearing before embarking on the next pregnancy and birth. Infant mortality is linked to reduced birth intervals; the reasons for this may include maternal depletion, sibling competition or the child being more prone to infections. The higher the level of education a husband had achieved the greater the chance his wife would survive in the antenatal or postnatal periods when compared to wives whose husbands' had not achieved such a high level of education [17]. The changing attitudes and educational attainment of Nepalese men indicates that contraceptive use may increase and fertility may decline with birth intervals increasing which could lead to a reduction in maternal and infant mortality and morbidity. However, increasing contraceptive prevalence does not necessarily improve birth spacing at the population level, as shown by data from Africa where

injectable contraception is increasingly prevalent [18].

Media exposure

In the survey the more educated men were exposed to media messaging as were the younger men in the survey. Never married men had greater media exposure than their married counterparts. Mass media have been shown to increase both communication among spouses about family planning issues and utilisation of contraception.

Changes in spousal communication prior to a radio serial campaign in Nepal were investigated. These aimed to broadcast family planning messages, and the results were reviewed after it the broadcast had been in place for two years [6]. It was found that the radio program had caused a shift in the power dynamics within marital relationships which contributed to greater female autonomy and enabled wives to negotiate family planning more effectively with their husbands. Using bivariate analyses it was shown that respondents who were exposed to the drama serial showed a greater increase in a spousal communication index from the baseline to the follow up interview when compared to those who were not exposed.

Information sources of family planning and the use of media in Zimbabwe were investigated [19]. By analysing the Zimbabwean Male Fertility Survey it was shown that for urban and more educated men, radio and newspapers were the most frequently reported sources, whereas for rural and less educated men radio and personal communication were the most reported sources. The differences shown were that between 89.1% and 92.3% of urban and educated men were exposed to messages regarding family planning through the radio compared with 77.7% -79.6% of less educated and rural men. The difference was more striking for newspapers where between 87.4% - 93.9% of educated, urban men were exposed to family planning messaging compared to between 50.7% - 54.3% of less educated, rural men.

Exposure through media to both family planning and reproductive health issues was apparent in

the survey; the more positive the attitude the greater the exposure was. The younger, better educated and unmarried men in our survey had greater exposure to media. It is difficult to know whether media exposure is a cause or effect of progressive attitudes, but there is a definite correlation. In the survey magazines appeared to have the greatest impact of all print media for both family planning and reproductive health messages. Television and radio were effective tools for exposing men to reproductive health issues. Therefore increasing media exposure to a greater proportion of the male population in Nepal may enhance knowledge of family planning and reproductive health and increase the use of contraceptive methods. Targeting specific groups i.e. undereducated, older and married men may provide a route by which to improve attitudes towards family planning and reproductive health.

Smaller families

There is almost a universal ideal from the men in the survey that smaller families (here stated as three children or less) are desired more than large families for a number of reasons. Better education, better health, improved lifestyle and income are all reasons given for desiring a smaller family. A trend away from large extended families in the rural settings to a nuclear family in the urban setting has been described; a nuclear family has a limited income to provide for all in the family [20]. The larger the family the smaller the proportion per family member. This is known as the dilution effect. It has been shown that smaller families equate to greater wealth accumulation and more advanced education for children when compared to larger families [21-22]. It appears that the more positive the attitude of the men, the greater the desire for smaller families becomes, especially to improve education, income and lifestyle. These desires may become driving forces for reducing fertility and therefore increasing the use of contraceptive methods.

Caste

Historically, caste was developed by the Nepalese government as a way to unify Nepalese society and establish a cohesive legal system. The caste system stipulated a place for each

group of Nepalese society. Caste position developed into a critical issue as there is a gradation of fines and punishments according to caste, and the ability to gain education and status can be defined by caste [23]. The Tharu caste contrasts sharply with the castes of Brahmin and Chhteri in many aspects of life. The Brahmin and Chhetri castes are castes of high ranking and enjoy economic and political power locally and nationally: these two castes together account for nearly 55% of all political candidates [24]. As such the children are exposed to a greater level of education and can expect a high standard of living. The Tharus on the other hand share a group status that is seen by other Nepalis as being fairly low and are mostly illiterate and economically exploited [25]. Low caste women and men are much less likely to access family planning services because of the way in which they are treated by the providers [26]. The men in the survey demonstrated the differences seen by status of caste (appendix B). The Tharu men were less educated, married earlier and had a tendency towards a lower asset score. They had a greater number of children, had these children earlier and had a higher ideal number of children. They tended to be less aware about many reproductive health issues including STIs, HIV and abortion. The Brahmin and Chhetri men were the most educated, most exposed to family planning messages and the most aware of reproductive issues. This highlights the fact that the Tharu group of Nepalese men are most at risk with regards to family planning and reproductive health. The Tharu population makes up a moderate proportion of the whole of Nepalese society [8.1%] compared to Brahmin [13%] and Chhetri [17%] and so this group needs to be targeted specifically in order to raise awareness about family planning and reproductive health issues [13]. This may prove to be a difficult task and may not be achieved without increasing the educational level of the Tharu population.

Limitations of the study.

Although sampling was done by SSI, it may be that the areas selected for sampling had a higher proportion of certain castes and levels of education that are not the case throughout Nepal.

The areas sampled lay within 30 minutes of a health centre, these men may be more urbanised than men in other regions of Nepal, thus biasing the outcomes.

The areas sampled were all within the Terai which differs from the Hills and Mountains areas in a number of ways.

Conclusion

The theoretical framework stands in this context. Educational attainment had a direct effect on media exposure, age of marriage and spousal communication all of which have an indirect influence on contraceptive use, but unlike in the original framework it also seems to have a direct influence on contraceptive use and fertility preferences. Education also had an effect on knowledge of sexually transmitted diseases and HIV which wasn't originally included in the framework but is of importance in the understanding of the changing KAP towards family planning and reproductive health in Nepal and current contraceptive use. Age at marriage is associated with spousal communication and this wasn't highlighted in the original framework.

The younger unmarried men in the survey had received a greater level of education compared to the older men, and education appears to be the key to positive attitudes towards family planning and reproductive health.

The younger, educated men believed in marriage at an older age, delaying childbearing, reduced family size, which could be achieved by using effective contraception. They were more exposed to media messages regarding family planning and this was linked with spousal communication. Both of these variables are independently linked to contraceptive use. Increased education can

lead to increased contraceptive use through a number of independent routes. Increased contraceptive use has been shown to reduce fertility. All of the above is involved in caste differences; the undereducated Tharu caste had a lower age of marriage, greater family size, lower media exposure, lower levels of spousal communication and ultimately lower levels of contraceptive use when compared to the educated men in the Brahmin and Chhteri castes.

The changing nature of the younger generation of Nepalese men's attitudes towards family planning and reproductive health is very encouraging. It would appear that these changes may partially explain the fall in fertility that has been documented over the last 25 years. As education levels increase, aspirations of men will increase and Nepal may yet see a more rapid fall in fertility. The more highly educated men in the survey tended to be younger and unmarried, and these men had the most positive attitudes of all. Their positive nature encompassed delaying marriage and childbearing, reducing family size and prolonging birth intervals through using spacing methods of contraception. Their knowledge of reproductive health issues and abortion was greater as was their awareness of methods of avoiding STIs, HIV and AIDS. Despite this encouraging trend, there are still selected male populations in Nepal that are not showing the same trends and these populations may need special attention to encourage more positive attitudes towards family planning and reproductive health.

In the present study the sample size was considered insufficient to allow multivariate analysis of caste with educational and economic variables. In particular, few men of the lower caste group were of higher educational and economic status. There is an indication from these findings that caste prejudice remains a factor constraining social and economic progress. In Nepal, contrasting to the African context where caste is not a feature of social organisation, it cannot be assumed that media based methods of information dissemination will be able to overcome these barriers. A similar 'media underclass' to that identified in India can be postulated, i.e. a substantial population sub-group who are denied access to modern communication channels relating to health information.

Appendix A

T-test of new variables with a range of socio-demographic variables

Attitudes to marriage at an advanced age

Marital Status	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Married	40.654	4.808				
Non-Married	42.869	4.641				

Attitudes to spousal communication

Marital Status	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Married	2.78	0.473				
Non married	4.53	0.000				

Attitude to marriage at an advanced age

Ever attended school	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.23	4.56				
No	37.64	5.27				

Attitude to spousal communication

Ever attended school	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.23	0.687				
No	3.13	0.921				

Attitude to increased spousal communication

Ever use of FP	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	3.63	0.944				
No	4.29	0.673				

When to use family planning methods

Attitude to marriage at advanced age

Before marriage	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	44.18	4.25				

No	41.15	4.81				

Attitude to spousal communication

Before marriage	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.40	0.432				
No	4.06	0.822				

Attitude to spousal communication

Married but b4 children	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.39	0.444				
No	4.07	0.818				

Attitude to change in reproductive health

Married b4 children	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	2.87	0.644				
No	2.61	0.626				

Attitude to marriage at advanced age

After first child	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.27	4.65				
No	40.81	5.06				

Attitude to marriage at an advanced age

After family complete	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	41.32	5.198				
No	43.08	3.159				

Attitude to spousal communication

After family complete	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.05	0.836				
No	4.39	0.447				

Attitude to acceptance of family planning

After family complete	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	2.97	0.572				
No	2.74	0.467				

Attitude to changes in reproductive health

After family complete	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	2.62	0.639				
No	2.82	0.623				

Attitude to marriage at advanced age

Use FP in future	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.72	4.57				
No	38.52	5.24				

Attitude to spousal communication

Use FP in future	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.23	0.670				
No	2.60	0.671				

Attitude to marriage at advanced age

e-media exposure to FP	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	41.98	4.68				
No	39.47	5.78				

Attitude to spousal communication

e-media exposure to FP	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.19	0.718				
No	3.54	1.043				

Attitude to changes in reproductive health

e-media exposure to FP	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	2.69	0.647				
No	2.38	0.461				

Attitude to marriage at advanced age

Print media exposure to FP	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.61	4.40				
No	37.90	4.87				

Attitude to spousal communication

Print media exposure to FP	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.25	0.678				

No	3.49	0.917				

Attitude to changes in reproductive health

Print media exposure to FP	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	2.70	0.647				
No	2.42	0.532				

Attitude to marriage at advanced age

Ever heard of STI	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.179	4.579				
No	36.097	4.705				

Attitude to spousal communication

Ever heard of STI	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.169	0.754				
No	3.452	0.737				

Attitude to changes in reproductive health

Ever heard of STI	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.178	0.642				
No	36.097	0.426				

Attitude to marriage at advanced age

Ever heard of HIV	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.039	4.687				
No	35.467	3.808				

Attitude to spousal communication

Ever heard of HIV	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.174	0.751				
No	3.020	0.009				

Attitude to marriage at advanced age

e-media exposure to HIV	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	42.102	4.746				
No	38.142	4.411				

Attitude to marriage at advanced age

Print media exposure to HIV	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	43.165	4.303				
No	39.909	4.905				

Attitude to changes in reproductive health

Print media exposure to HIV	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	2.757	0.673				
No	2.530	0.560				

Attitude to spousal communication

Social exposure to HIV	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	4.341	0.540				
No	3.832	0.939				

Attitude to acceptance of family planning

Social exposure to HIV	Mean	Std Dev	Confidence Interval Upper	Lower	Mean Diff	Sig
Yes	2.968	0.515				
No	2.833	0.592				

Correlations (bivariate)

1 Current age

Attitude to spousal communication	Spearman -0.569**	0.000
Attitude to acceptance of family planning	Spearman -0.142*	0.019

2 Age at birth of first child

Attitude to advanced age of marriage	Spearman 0.382**	0.000
Attitude to acceptance of family planning	Spearman -0.223*	0.016
Attitude to changes in reproductive health	Spearman 0.219*	0.018

3 Asset score

Attitude to advanced age of marriage	Spearman 0.415**	0.000
Attitude to spousal communication	Spearman 0.185*	0.019
Attitude to acceptance of family planning	Spearman -0.167**	0.006
Attitude to changes in reproductive health	Spearman 0.231**	0.000

4 Knowledge of ways to avoid obtaining or transmitting HIV (number)

Attitude to advanced age of marriage	Spearman 0.302**	0.000
Attitude to spousal communication	Spearman 0.268**	0.001
Attitude to acceptance of family planning	Spearman 0.162**	0.008
Attitude to changes in reproductive health	Spearman 0.212**	0.000

One way anova

5 Caste

		Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	1401.221	2	700.611	36.979	.000
	Within Groups	5627.055	297	18.946		
	Total	7028.277	299			
	Between Groups	3.690	2	1.845	3.232	.042
	Within Groups	89.623	157	.571		
	Total	93.313	159			
	Between Groups	1.918	2	.959	3.167	.044
	Within Groups	81.152	268	.303		
	Total	83.071	270			
	Between Groups	5.858	2	2.929	7.514	.001
	Within Groups	102.905	264	.390		
	Total	108.763	266			

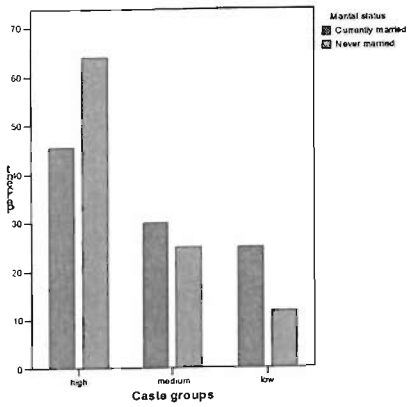
6 Highest grade achieved

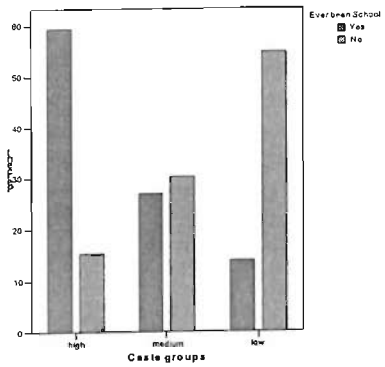
		Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	1304.535	2	652.267	33.719	.000
	Within Groups	5687.215	294	19.344		
	Total	6991.750	296			
	Between Groups	15.751	2	7.876	15.872	.000
	Within Groups	77.406	156	.496		
	Total	93.157	158			
	Between Groups	4.850	2	2.425	6.154	.002
	Within Groups	102.850	261	.394		
	Total	107.700	263			

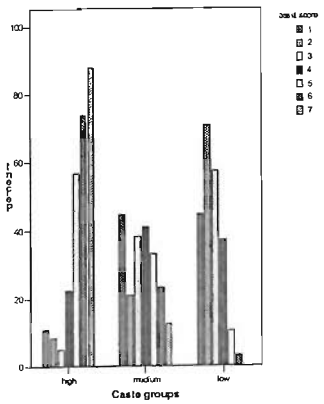
7 Abortion knowledge score

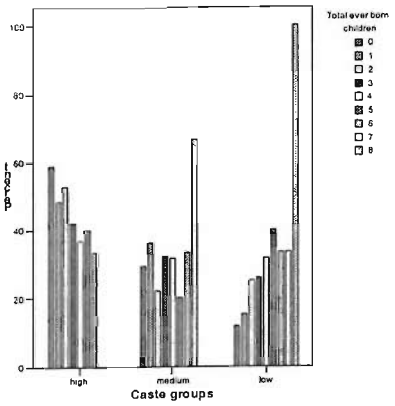
		Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	546.765	3	182.255	8.323	.000
	Within Groups	6481.511	296	21.897		
	Total	7028.277	299			
	Between Groups	2.971	3	.990	3.301	.021
	Within Groups	80.100	267	.300		
	Total	83.071	270			
	Between Groups	52.504	2	26.252	123.189	.000
	Within Groups	56.259	264	.213		
	Total	108.763	266			

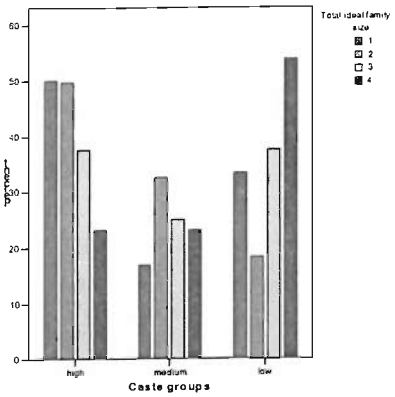
Appendix B: Graphs of differences in Caste with regard to socio-demographic variables

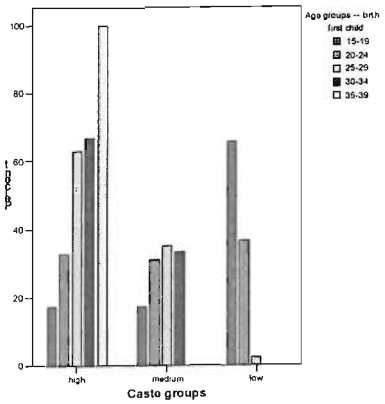


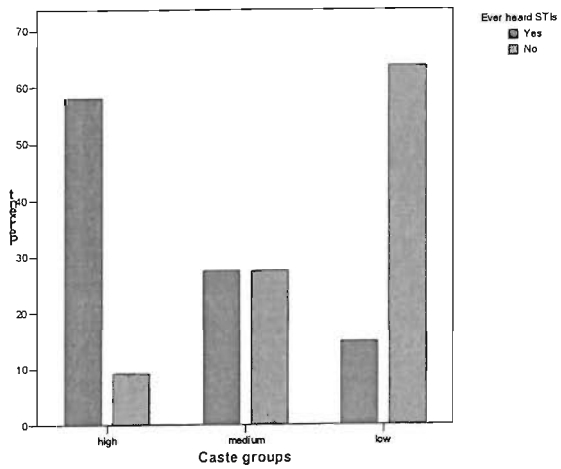


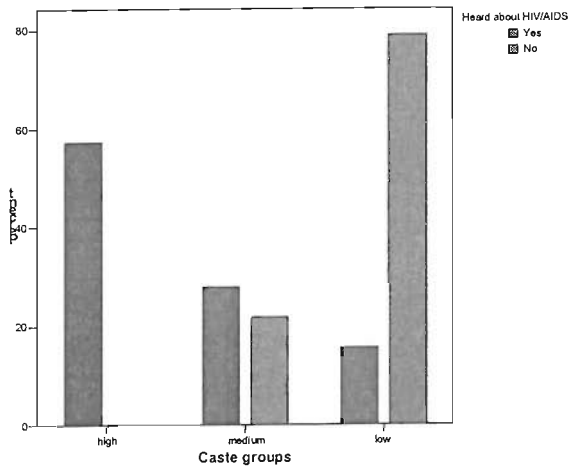


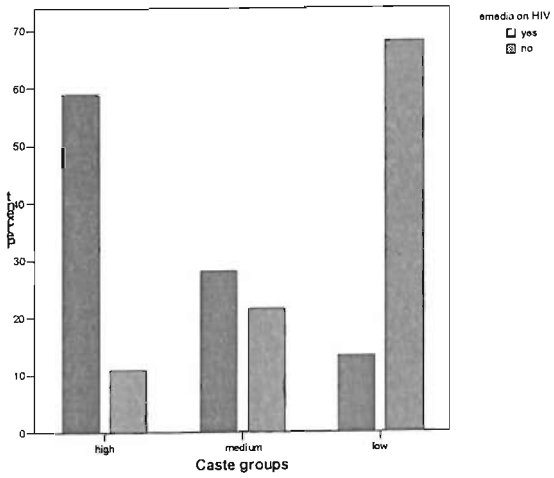

Total ever born children
0
1
2
3
4
5
6
7
8
high
medium
low
Caste groups

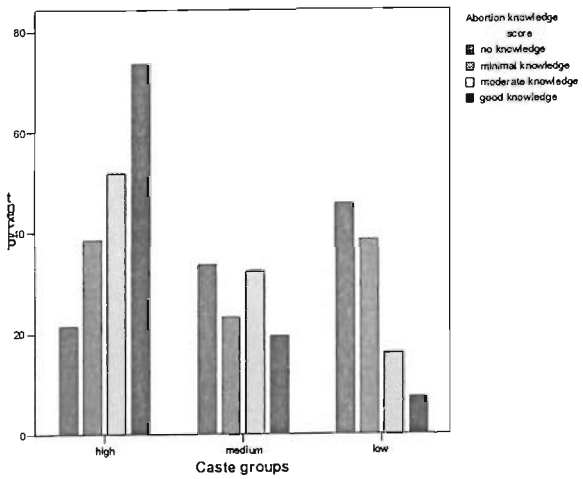

Total ideal family size
1
2
3
4
high
medium
low
Caste groups


Age groups -- birth first child
15-19
20-24
25-29
30-34
35-39
Percent
100
80
60
40
20
0
high
medium
low
Caste groups


Ever heard STIs
Yes
No
Percent
70
60
50
40
30
20
10
0
high
medium
low
Caste groups


Heard about HIV/AIDS
Yes
No
Percent
80
60
40
20
0
high
medium
low
Caste groups


emedia on HIV
yes
no
70
60
50
40
30
20
10
0
high
medium
low
Caste groups


Abortion knowledge score
no knowledge
minimal knowledge
moderate knowledge
good knowledge
80
60
40
20
0
high
medium
low
Caste groups

Appendix C

Identification Questionnaire
(Information to be furnished by anybody from the household)

1. Household Number.....

2. Name of district.....

3. Name of VDC/Municipality .....

4. Ward number.....

5. Name of respondent: First Name.....Last Name.....

6. Caste/ethnicity.....(see code for caste/ethnicity)

Code for Caste/Ethnicity (QN 6)	
1: Brahman 2: Chhetri/Thakuri 3: Newar 4: Kami,/Damain/Sharki 5: Giri, Puri /Sanyashi	6: Rai, Limbu, Gurung, Magar, Tamang 7: Tharu 8: Yadav/Ahir 9: Rajaput/Rajabansi 10: Others (specify).....

Household Roster/Schedule

					Only for 6 years and above		Eligibility
Sn (7)	Name (start asking from the household head) (8)	Relation to household head (9)	Sex 1=Male 2=Female (10)	Age (11)	Literacy Literate= 1 Illiterate= 2 (12)	Completed grade (13)	Aged 16-50 = 1 Others = 2 (14)
1							
2							
3							
4							
5							
6							
7							
8							
9							

10							

Codes for QN. 9 and QN. 13

Relation to Household Head (QN. 9)	Completed Grades(QN. 13)
01: Head 02: Wife/Husband 03: Son/Daughter 04: Daughter/son in Law 05: Grand Son/Daughter 06: Father/Mother 07: Father/Mother in law 08: Brothers/Sisters 09: Nephew/Niece 10: Brother-in-law/sister in law 11: Co-wife 12: Adopted/step child 13: Other Relatives 14: No Relation 98: Don't Know.	00: Less than class one (grade 1) 01: One Class Completed 02: Two Class Completed (like this up to class 8) 09: Nine Class Completed 10: Completed SLC 11: I.A. 12: B.A. or Higher 95: Non-formal education 98: Don't Know.

Instruction for Interviewers:

Individual Questionnaire for Men Aged, 16-50
Informed Consent

Hello! My name is ..... and I am working in a study conducted by MSI/SPN, Nepal. We are conducting a KAP Survey on Male and RH in this district..... We would very much appreciate your participation in this survey. I would like to ask you about your main aspects of RH. This information will help the MSI/SPN, Nepal to plan FPRH Services. The survey usually takes between 20 and 45 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons.

Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.

Signature of Interviewer ..... Date: .....

Respondent agrees to be interviewed Start interview.....1	Respondent doesn't agree to be interviewed Terminate Interview.....2

Section I: Background of the Respondent

QN	Questions and filters	Coding categories	Skip
101	How old are you?	Completed age....	
102	What is your current marital Status?	Currently Married 1 No.wives.... Widowed 2 Divorced/Separated 3 Never married 4	104
103	What was your age at your first marriage?	Age.....	
104	Have you ever attended a School?	Yes.....1 No.....2	106
105	What is the highest grade you completed? *(Note: Write exact grade*	Grade.....	

	completed) 00= Less than class one 10=S.L.C. 11=I.A. 12=B.A. or higher		
106	What is your main occupation?	Not currently employed.....1 Student.....2 Agriculture.....3 Cottage Industry.....4 Government employee.....5 Private Co. employee.....6 Business.....7 Labourer.....8 Skilled manual.....9 Household or domestic Helper.....10 Other _____11	
107	Do you have any of the following in your home? Electricity? Radio? Television? Telephone? Land? Piped Water? Toilet?	Electricity 1 2 Radio 1 2 Television 1 2 Telephone 1 2 Land 1 2 Piped water 1 2 Toilet 1 2	

108	What is your religion?	Hindu.....1 Buddhist.....2 Muslim.....3 Christian.....4 Other _____ 5	
109	How many children have you ever had?	Son _____ Daughter _____ Total _____	
110	How many living Children do you have?	Son _____ Daughter _____ Total _____	
111	What do you think is an ideal family size?	Sons _____ Daughters _____ Total _____	
112	Do you want to have any more children?	Yes.....1 No 2	114
113	Do you prefer a son or a daughter?	Son.....1 Daughter.....2 Any.....3	116
114	In your home do you give more preference to son or daughter?	Son.....1 Daughter.....2 Same.....3	116
115	What are the reasons for the preference?	1 ..... 2 ..... 3	
116	If you want to have more children when is your fertility preference?	Soon (Within 2 years)..... .....1 Later (After 2 or more years).....2	

		Unsure of timing..... .....3 Undecided.....4 Wants no more.....5 Sterilised.....6 Declared in-fecund..... .7 After discussion with wife..... 8	
117	What was your age at birth of your first child?	Age..... Not Applicable	
118	What was your age at birth of your last child?	Age..... Not Applicable	

Section II: Family Planning, Sexuality and Family Size Perceptions

QN	Questions and filters	Coding categories	Skip
201	Have you ever heard about family planning method?	Yes.....1 No.....2	228

Q202 If yes, which methods you have heard about?
(Note: multiple answer possible): Tick in the appropriate box

203			Source of information of the method heard			
SN		Knows methods	Radio/ TV	Newspapers /magazines	Friends /relatives	Others (Specify)
1	Pills (Nilocon)					
2	IUD (Copper-T/Loop)					
3	Gynefix					
4	Depo					
5	Diaphragm/Foam/jelly (Kamal chakki/Malam)					
6	Condom					
7	Female Sterilization					
8	Male Sterilization					
9	Norplant (Implant)					
10	Lactation Amenorrhoea					
11	Female Condom					
12	Periodic abstinence					
13	Withdrawal					
14	Folk method					

204	Have you or your wife ever used any family planning method? .....1 Have you or your partner ever used any of family planning method? ....2 *(Circle either 1 or 2)*	Yes.....1 No.....2	209
205	If Yes, Which methods you have used? *(Multiple answers possible)*	1. Pills (Nilocon) 2. IUD (Copper-T/Loop) 3. Gynefix 4. Depo (Sangini) 5. Diaphragm/Foam/jelly (Kamal chakki/Malam) 6. Condom (Dhal) 7. Female Sterilization 8. Male Sterilization 9. Norplant (Implant) 10. Lactation Amenorrhoea	

		11. Female Condom 12. Periodic abstinence 13. Withdrawal 14. Folk method	
206	Are you or your spouse currently using any family planning method? .....1 Are you or your partner currently using any family planning method? .....2 *(Circle either 1 or 2)*	Yes.....1 No.....2	209

207	If yes, which method are you using?	1. Pills (Nilocon) 2. IUD (Copper-T/Loop) 3. Gynefix 4. Depo (Sangini) 5. Diaphragm/Foam/jelly (Kamal chakki/Malam) 6. Condom (Dhal) 7. Female Sterilization 8. Male Sterilization 9. Norplant (Implant) 10. Lactation Amenorrhoea 11. Female Condom 12. Periodic abstinence 13. Withdrawal 14. Folk method	
208	Where did you obtain the current method the last time?	1. Government hospital, clinic 2. PHC/Health center 3. Health post, 4. Sub-health post 5. PHC outreach clinic 6. FCHV 7. Mobile camp 8. FPAN 9. Marie Stopes center/clinic 10. ADRA 11. Nepal Red Cross 12. Private hospital, clinic and nursing home 13. Pharmacy 14. Shop 15. Friend/relatives 16. others_____	
208 a.	How long did it take to reach the source of contraceptives to obtain the current method last time?	Minutes.....	210
209	If no, what is the <u>main reason</u> for not using any family planning method?	Method failure.....1 Want more children.....2 Side effects / health.....3 Infrequent sex..... 4 Menopausal, hysterectomised..... 5 Infecund .....6 Other fertility related problems.....7	

		Respondent opposed.....8 Other opposed.....9 Religious prohibition.....10 Lack of knowledge.....11 Knows no method.....12 Knows no source..... 13 Fear of side effects.....14 Lack of access..... 15 Costs too much..... 16 Inconvenient to use..... 17 Interfere with body.....18 No Need.....19	
209 a.	Do you think that you will use a family planning method in the near future?	Yes.....1 No.....2 Don't Know.....8	209 c 210

209 b.	If yes, which method would you prefer to use in the near future? *(please circle the most preferred method)*	1. Pills (Nilocon) 2. IUD (Copper-T/Loop) 3. Gynefix 4. Depo (Sangini) 5. Diaphragm/Foam/jelly (Kamal chakki/Malam) 6. Condom (Dhal) 7. Female Sterilization 8. Male Sterilization 9. Norplant (Implant) 10. Lactation Amenorrhoea 11. Female Condom 12. Periodic abstinence 13. Withdrawal 14. Folk method	whatever response go to 210
209 c.	If no, what is the <u>main reason</u> that you will not use a family planning method in the near future? *(please circle the main reason)*	Want children..... ..... .1 Religious opposition..... .....2 Spouse opposition..... ... .3 Parents/parents in-law opposition..... ...4 Knows no method..... ...5 Knows no source..... ... 6 Health concerns..... ..... 7 Fear of Side-effect..... ..... 8 Infertility..... 9 Others (specify) 10	
210	What do you think family planning should be used for? *(Multiple answers possible)*	Spacing children.....1 Limiting children.....2 Both.....3 Should not be used.....4	
211	When would you consider using family planning? *(Multiple answers possible)*	Before marriage.....1 When married but before had any children.....2 After first child born.....3 After first son born.....4 After first daughter born.....5 After all needed children have been born.....6	

		Extra Marital affair..... 7 Never.....8 Others_____ 9	
212	What was the number of children you had when you first used a family planning method?	Never..... 1 0.....2 1.....3 2.....4 3.....5 4+.....6 Don't know.....8	
213	Do you think a vasectomy would make a person impotent/weak?	Yes..... 1 No.....2 Don't Know.....8	215 215
214	What are the reasons for this?	1..... 2..... 3.....	
215	Have you ever considered having a vasectomy?	Yes.....1 No.....2 Don't Know..... 8	217
216	What are the reasons for this?	1..... 2..... 3.....	

217	Do you watch/listen about family planning programs on radio and TV?	Radio and TV.....1 Local FM.....2 Radio only.....3 TV only .....4 Neither.....5 Don't know.....8	219 219
218	Is the message on radio and TV about family planning acceptable to the society?	Acceptable.....1 Not acceptable.....2 Don't know..... .8	
219	Do you read about family planning messages in print? *(Multiple answers possible)*	Newspapers.....1 Magazines.....2 Poster.....3 Leaflet/brochure.....4 Books.....5 Other_____ 6	
220	Do you feel it is men's role, or women's role to obtain and accept, and gain knowledge about family planning?	Men's only.....1 Women's only.....2 Both.....3	222 222
221	Are there any reasons why you do not go to places to gain knowledge of family planning or get contraceptives? *(Multiple answers possible)*	Services are too female orientated..... 1 Stigmatised by other men if found to be going to these places.....2 My job is too busy..... 3 Time of health facility too limited..... 4 Live / work too far from a service delivery point.....5 Other _____ 6	
222	If a woman uses contraception will it make her	Yes.....1 No.....2	

	more promiscuous?	Don't Know..... 8	
223	Do you discuss about family planning with your wife/partner?	Not Applicable.....1 Never.....2 Once or twice.....3 More often.....4	226 225 225
224	Are there any reasons why you do not discuss family planning with your wife/partner?	1..... 2..... 3.....	
225	What is your couple's attitude towards family planning? *(Ask only to currently married men)*	Both approve.....1 Respondent approves, spouse disapproves....2 Respondent approve, spouse unknown.....3 Respondent disapproves, spouse approves....4 Both disapprove.....5 Respondent disapprove, spouse unknown.....6 Respondent unsure.....7 Don't know.....8	
226	Do you feel a women has the right to choose a family planning method for herself?	Yes.....1 No.....2 Don't Know..... 8	
227	Should a wife always discuss the use of family planning with her husband before she accepts a method?	Yes.....1 No.....2 Don't Know..... 8	
228	What do you think is the right age for a man and a woman to marry?	Right age for a man .....1 Right age for a woman .....2 Don't Know 8	
229	Have you ever had a sexual intercourse before marriage?.....1 Have you ever had a sexual intercourse?.....2 *(Circle either 1 or 2)*	Yes.....1 No.....2	232
230	What was your age when you first had a sexual intercourse?	Age	

231	How many sexual partners have you had up till now?	No. of Partners	
232	Do you think a small family (3 children or less) is better than a large family (4 children or more)?	Yes.....1 No.....2	234
233	Are there any reasons for having a smaller family?	Better health of husband/wife/children.....1	

	(Multiple answers possible)	Improved lifestyle.....2 Improved income.....3 Better housing.....4 Better education for children.....5 Small families more affordable.....6 Personality Development.....7 Other .....8 Don't Know_____ 98	Whatever response go to 235
234	Are there any reasons for having a larger family? *(Multiple answers possible)*	More children to work.....1 Better economic security in old age.....2 Better social security in old age.....3 Increased respect from neighbours.....4 Larger social network.....5 Ensured masculinity.....6 Restricted by religion.....7 Don't Know.....8	
235	Have you ever heard of infertility?	Yes.....1 No.....2	Section III
236	Who can be infertile, male/female?	Male.....1 Female.....2 Both.....3 Don't know.....8	
237	How do people look at an infertile person?	1..... 2..... 3.....	

Section III: STIs/HIV/AIDS and Some Myths/Misconceptions

QN	Questions and filters	Coding categories	Skip
301	Have you ever heard of STIs?	Yes.....1 No.....2	303
302	Can you name some STIs? (Multiple answers possible)	Chlamydia.....1 Gonorrhoea.....2 Hepatitis B.....3 Hepatitis C.....4 Herpes.....5 Genital warts..... 6 Pelvic inflammatory disease.....7 Syphilis.....8 Trichomoniasis.....9 None.....10 Others.....11	
303	Have you heard about HIV/AIDS?	Yes.....1 No.....2	318
304	Where did you hear or read about HIV/AIDS? *(Multiple answers possible)*	Radio.....1 TV.....2 Magazines/newspapers.....3 Pamphlets / posters.....4 health facility / health worker..... 5 Religious leaders.....6 School / College.....7 Community meeting.....8 Friends / relatives .....9 Work place.....10 Social Worker.....11	

		Other sources_____ 12	
305	What do you think are the important behaviour needed in an Individual to prevent STIs/HIV/AIDS? *(Multiple answers possible)*	Change sexual behaviour.....1 Do not start sex.....2 Stop having sex.....3 Begin using condom.....4 Only have one partner.....5 Reduced number of partners.....6 Ask spouse to be faithful.....7 No homosexual relations.....8 Other_____ 9	
306	Do you know about condoms? (STIs/HIV/AIDS)	Yes.....1 No.....2	310
307	Do you know where can you get condoms? *(Multiple answers possible)*	Public Hospital.....1 Private Hospital.....2 Family planning clinic.....3 Marie Stopes Center.....4 Health post.....5 Pharmacy.....6 Other_____ 7	
308	Have you ever used condom for family planning? (double role)	Yes.....1 No.....2	310
309	Did you use condom in your last intercourse?	Yes.....1 No.....2	
310	Do you know some of the ways to avoid STIs/HIV/AIDS? *(Multiple answers possible)*	No way to avoid.....1 Abstain from sex.....2 Use condoms.....3 Have only one sexual partner.....4 Avoid sex with prostitutes.....5 Avoid sex with homosexuals.....6 Avoid transfusion of blood..... 7 Avoid kissing.....8 Avoid mosquito bites.....9 Avoid injection.....10 Seek protection from traditional healer..... 11 Avoid sharing syringe.....12 Other .....13 Don't Know_____ 98	
311	Can a healthy person have AIDS?	Yes.....1 No.....2 Don't Know 8	
311a	Is AIDS a game of fate?	Yes.....1 No.....2	
311 b	What is a woman's risk of getting AIDS?	No risk at all.....1 Small.....2 Moderate.....3 Great.....4 Has HIV.....5 Don't Know.....8	
311 c	Is Aids a fatal disease?	Almost never.....1 Sometimes.....2	

		Almost always.....3 Don't Know.....8	
312	Can a man transmit a STI if he withdraws before ejaculation?	Yes.....1 No.....2 Don't Know 8	
313	Can a man be cured of an STI if he has sex with a girl who is a virgin?	Yes.....1 No.....2 Don't Know 8	
314	Once a person has had an STI does he/she become immune, making it impossible for him/her to get it again?	Yes.....1 No.....2 Don't Know 8	
315	Can a man/woman contract AIDS by living in the same house as someone with the Disease?	Yes.....1 No.....2 Don't Know 8	
316	How can family planning/reproductive health services for men be improved? (Multiple answers possible)	Male orientated services.....1 Village leaders advocating the use of family planning.....2 Government figures or royal family advocating family planning.....3 Couple orientated services.....4 Male targeted messages through the media.....5 Other _____ 6	
317	What feelings do you have for or what do you think of a person who has HIV/AIDS?	1..... 2..... 3.....	
318	Does a man need to use contraception after a certain age?	Yes.....1 No.....2 Don't Know..... 8	
319	Can a man make a woman pregnant whilst she is menstruating?	Yes.....1 No.....2 Don't Know 8	
320	Is there a pill that men can take to prevent pregnancy?	Yes.....1 No.....2 Don't Know 8	
321	Does a vasectomy involve removing a man's testicles so he no longer produces sperm?	Yes.....1 No.....2 Don't Know 8	
322	Can a woman take emergency contraceptive pills to reduce the risk of becoming pregnant after having unprotected sexual intercourse?	Yes.....1 No.....2 Don't Know 8	
323	Is withdrawal an effective method of preventing	Yes.....1 No.....2	

	pregnancy ?	Don't Know 8	

Section IV: Abortion

QN	Questions and filters	Coding categories	Skip
401	Do you know what is an abortion?	Yes.....1 No.....2	End Interview
402	Where did you receive information about abortion?	Social worker.....1 Radio.....2 TV.....3 Newspaper/Magazine.....4 Doctor/Nurse.....5 Family/Friends.....6 Other _____ 7	
403	Do you know where to go for a safe abortion?	Yes.....1 No.....2	
404	Has anyone in your family or someone you know had an abortion?	Yes.....1 No.....2	
405	Do you know abortion is legal in Nepal now?	Yes.....1 Yes, Partially.....2 No.....3	

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CONCLUSION

The research presented in this thesis has highlighted issues from an under-researched area of family planning and reproductive health in Nepal. A limited amount of research has up to this time been carried out investigating the poor use of the IUD in Nepal and limited research has investigated the male role in family planning and reproductive health.

The premise of the research presented in this thesis was to investigate aspects of reproductive health in Nepal. Objectives stated at the ICPD 1994 were used to define the research.

The IUD is not widely understood or used in Nepal. In order to increase its use women must be given factual information about the method so they can make an informed choice. The first study investigated the reasons behind the poor uptake and discovered that many myths, rumours and misconceptions were held. When misinformation is the main source of any information in Nepal regarding the IUD, it can be appreciated why the level of use is low.

The findings from this first study were taken and used to inform the second study. In following the objectives of the ICPD, the study aims were to provide women in the study areas with accurate, up to date information and to provide a high quality service. The objective firstly was to dispel misconceptions surrounding the IUD by providing accurate information through three different sources; e-media, print media and social contacts (*e-media means electronic media and covers television and radio*). Women were then free to choose the IUD. The provision of a high quality service was achieved through complete screening and counselling of women, to ensure only suitable women had an IUD inserted and these women were fully informed about the IUD. The providers of the service all underwent Government training for provision of the IUD. The service provided long term follow up for those women who chose the IUD as their method of contraception, this enabled the women to have any uncertainties answered so they could be reassured and continue on with the method.

The second study concludes that by offering women full and accurate information along with a

high quality service for the IUD, including, importantly, follow up provision, the level of uptake is high. The most important conclusion though, is not the level of uptake, but rather the high continuation rate and high level of satisfaction found among the women who entered the study. High levels of satisfaction can lead to a snowball effect within communities enhancing the use of the IUD.

The IUD received a higher profile in the communities that were sampled. If this profile can be linked to continued provision of accurate information and high quality services then in the future the IUD may become a real choice for individuals and couples in Nepal. The research does not suggest that the IUD should be the mainstay of contraception in Nepal, but rather suggests that by becoming more widely used it can become part of a greater method mix. A greater choice for the population will lead, initially, to higher switching of methods but ultimately to higher continuation rates of contraception and a higher contraceptive prevalence rate, as individuals and couples find a method that suits them. This goes some way to answer the objectives set out by the ICPD of providing a full range of methods. Offering a full range of methods allow couples and individuals to choose the number, spacing and timing of their children, by allowing them the opportunity of choosing a method of contraception that suits them best.

Throughout the first and second studies one issue was highlighted. Men in Nepal have a great deal of influence on whether their wives use any family planning method, and in the second study men had a direct effect on whether their wife continued with the IUD. Men are therefore an important, but under-investigated, component in family planning and reproductive health in Nepal. The ICPD considered that some of its objectives must include increasing men's participation and sharing of responsibility in the actual practice of family planning and to encourage and enable men to take responsibility for their sexual and reproductive behaviour and their social and family roles. The first and second study in this research led to the question of what the knowledge, attitude and practice were, of men in Nepal.

The third study emphasised that changes in men's practice, knowledge and attitude are taking place within the study areas of Nepal. Education seems to be a major factor in enhancing this change. Better educated men seemed to believe more strongly in increased communication between spouses, later marriage and smaller families. These men were more exposed to messages, through electronic and print media, regarding family planning and reproductive health which increased their knowledge base. Improving education appears to be a strong factor in change, and as more men in Nepal become exposed to schooling and education this emerging change may continue. With better communication the use of family planning will increase and with ideals changing about family size and age at marriage, it would appear that the level of unmet need will reduce leading to a reduction in fertility. Although these changes appear beneficial in terms of ultimate reduction of fertility rate, it is not a finding that is shared among all men in Nepal. There appears to be under served sections of the male community who lack the same level of education and lifestyle that other sections enjoy. These sections or castes suffer then from a lack of knowledge that leads to practice that is not conducive to reducing fertility. These castes therefore require more focussed attention to allow them the same opportunities as their better educated counterparts.

1 Key issues of concern are: Education of both men and women.
2 The provision of accurate and up to date information regarding family planning and reproductive health.
3 The improvement of the method mix allowing a greater choice of methods.
4 The provision of high quality services, including follow up, so as to improve levels of uptake and continuation of methods.
5 A greater involvement of men in all aspects of family planning and reproductive health.
6 Focussed attention of poorly served sections of the community especially means to overcome caste barriers.

Policy and service recommendations that follow directly from this thesis are as follows.

First study.

1 Increased education about the IUD, dispelling rumours and increasing accurate information

2 Increased involvement of men within the decision-making process. Increasing their knowledge about the IUD will help dispel rumours further and help in the encouragement of women to continue with the method.

3 Increasing the availability of the IUD. A greater number of manned health centres with trained providers will encourage women to consider the IUD.

4 The utilisation of satisfied clients can aid the reduction of false information and highlight the benefits of the method to a wary audience.

Second study.

1 Ensure that the client is suitable to have the IUD inserted. This can be achieved by using standardised exclusion criteria; any client not fitting the criteria should then be offered an alternative method of contraception.

2 The IUD is only associated with an increased rate of pelvic infection when the clients are not screened for STI risk; therefore all clients must be assessed for risk of STI. If the client is deemed to be in the high risk category then she must be offered an alternative method.

3 The provision of a high quality service is essential. This is achieved by having minimum standards for the clinics that must be maintained.

4 The providers of the IUD must undergo standardised training of the IUD and follow set protocols in order to deal with potential problems in a professional manner.

5 Provision of follow up services is essential to gain the confidence of the client. Follow up allows a client to return if she has concerns, be reassured or treated appropriately thus allowing the client to continue with the method. Knowledge that follow up exists and is

always available leads to a higher rate of satisfaction even if the client does not use the follow up services.

6 No one method is suitable for all women and some women who choose the IUD will have unacceptable side effects that make the continuation of the method inappropriate. Those clients who choose to discontinue with the IUD must always be offered an alternative method of contraception so she is not put at risk of an ensuing unwanted pregnancy.

7 The involvement of men could lead to a high continuation rate. If men understand the possible side effects and how they can be dealt with they are more likely to be supportive of their partner and encourage her to continue with the IUD.

Third study

1 Improving education standards for all men will aid in their understanding of family planning and reproductive health.

2 The introduction of strategies to improve spousal communication will lead to a greater uptake and continuation of family planning methods.

3 More focussed attention must be paid towards the under served castes within Nepal who do not receive the same level of exposure to education and media as other well served castes. There must be an attempt made towards providing equality in the provision of family planning and reproductive health.

4 Greater exposure to messages regarding family planning and reproductive health through a variety of media, including electronic and print, improves the knowledge and understanding of men.

Many lessons were learnt during the study period that have given me extra knowledge and know how should I ever perform research in another developing country. Performing research in developing countries takes much preparation and groundwork. Gaining trust from the organisations through which the research is performed is vital and can ease the whole set up process. Developing links with both government and non-government organisations are equally

as important. It is essential to establish the route by which research can be performed, if the right people are not approached in the right order it can become very complicated and difficult to start any research project let alone complete it. The process of the research in this thesis involved making and then establishing many links with different organisations prior to any final research project being agreed upon. A number of meetings had to be attended the outcome being that compromises had to be made. The political situation within a developing country is all important and if this is shifting, as was the case in Nepal, then the researcher has to be ready to adapt the project to suit the changing situation.

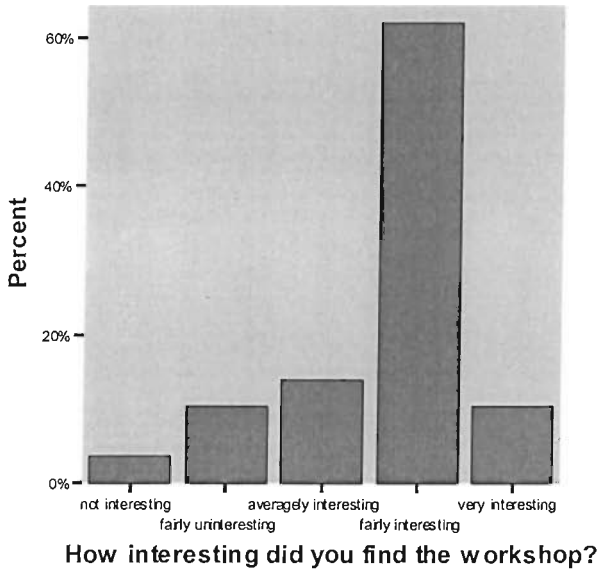
Any research will hit set-backs, this is part of the process and the learning curve. The more positive contacts you can make in the process of finalising the research, the smoother the transition can be when trying to deal with these set-backs. It is essential that the researcher understands the people and country in which they are performing the research. In order to do this preliminary visits must be made to travel to research sites and make contact with the local people. The more contacts that can be made the smoother the whole process can be.

At the conclusion of the study I believed it was important to relay the findings of all the studies back to interested parties in Nepal. With the assistance of the project manager I drew up a list of people who were working in the field of family planning and reproductive health along with members of the press. The chosen method to present the findings was a workshop held for half a day. A full day was felt to be too long for some of the people invited because of their busy jobs. The workshop was held in one the hotels in Kathmandu with refreshments offered.

The workshop allowed a forum for sharing the results of the studies and to answer questions and discuss issues brought to light by the presentations. In order to assess the benefit of the workshop evaluation forms were handed to all participants. The results of these evaluations is shown below:

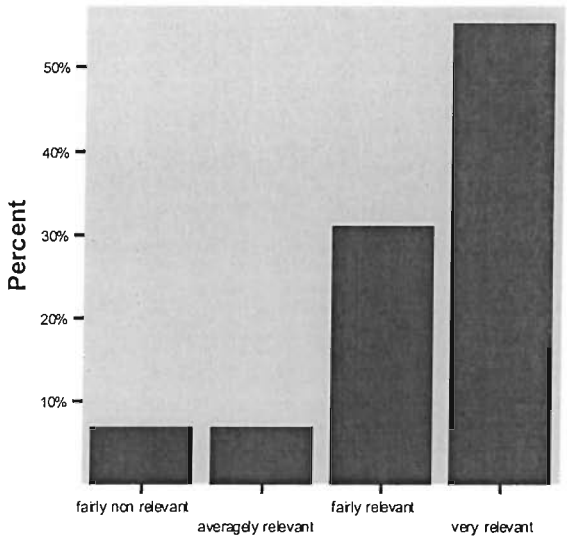
A number of participants thought the workshop was excellent.

The participants were then asked to scale their interest in the workshop from 'not interesting' up to 'very interesting'.



As the graph clearly indicates over 70% of the participants felt that the workshop was interesting to them, which would suggest that the audience had been selected carefully and the topic was relevant to them.

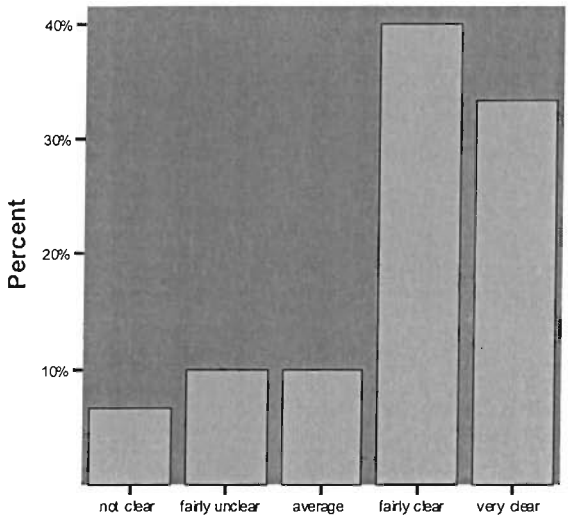
As well as considering interest we also tried to investigate the relevance of the workshop to the organisation that the participant belonged to.



How relevant was the workshop topic to your organisation?

Again the graph would illustrate that over 90% of the audience had found the topic to be of relevance to their organisation. That would imply that the population targeted for the workshop was appropriate and that the messages and results from the studies that lead to the workshop would reach the correct audience where they would have the greatest impact.

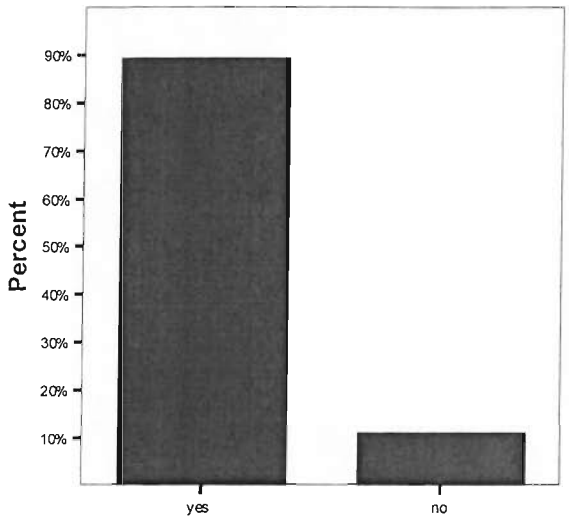
The quality of the workshop could be partly judged by how the participants rated the materials and handouts given to them during the workshop, the clarity of the material could be considered an indicator of the clarity of the presentations. The clearer the materials and presentations the more likely it is that the participants will gain a good understanding of the messages and results.



How clear were the workshop handouts and materials?

The overwhelming impression is positive, the majority of the audience felt the materials were of a good quality and clarity.

One of the most important aspects of any dissemination workshop is that the target audience actually consider the content of the presentations and materials to be relevant to policy within their country. If they feel the content is irrelevant then the purpose of the workshop has been misdirected and needs to be restructured. Overall the participants of our workshop felt that the material we had presented to them was relevant to policy in Nepal.



Was the workshop material policy relevant for Nepal?

This is very encouraging as it means that the results of the studies may actually be taken and used to change policy in some way. Many participants elaborated on the ways that the workshop material may inform policy in Nepal.

"It may help to formulate national policy with regards to health as well as Donor Agencies who wish to work in Reproductive and Sexual Health in Nepal".

"It may inform Information, Eduction and Communication programmes on family planning and meeting unmet need".

"in promoting the IUD especially by elimination of misconceptions to providers and clients. Also to recognise the role of men in enhancing the reproductive health status of women in Nepal".

"IUD programming. Male involvement in reproductive health service provision and the development of IEC materials".

"To adapt a policy to fulfil unmet demand for family planning and to promote small families. But the inference of the results may mislead if it is not given due consideration".

"Study of IUD will be of help in the incorporation of central issues (findings) while revising IUD curriculum. Study on male would be of great help again in revising counselling curriculum".

"Increasing access to a broad range of family planning methods. How to expand access to the IUD".

Finally the participants were asked if the workshop had raised any ideas for future research that could be carried out in Nepal. There were a few suggestions:

"Peer education including sexual health / HIV / AIDS".

"Promoting the use of IUD".

"Family planning campaign".

"Reason for non use of IUDs".

"How can we make people aware who do not have access to radio, TV or print media".

"Decision making regarding method choice".

"Male involvement in promoting family planning".

The final analysis demonstrates that the workshop was a success. The organisation prior to the workshop had provided a smooth running event where the majority of the participants were satisfied not only with the information they had received before the meeting but also with the location and refreshments. The content of the workshop had been presented in such a way that the majority of the participants found the results and messages relevant to them and of potential use in policy adaptation or change in the future. The fact that the content was relevant to the working life of the participants helped to assure the quality of the research

After completion of all the studies and feedback from the workshop MSI and SPN decided they would scale up the IUD study to 10 districts in Nepal using the IEC materials already developed. It was felt that the IEC campaign should occur over a longer period of time to encourage a more sustained acceptance of the IUD, the period of time chosen was 12 months. All three forms of promotional activity would run in this time frame. This decision was based on other research that had suggested in order to attain a more sustained outcome the methods of increasing awareness involves much longer durations. The decision to scale up the study was based on the results found and the increase in CYP for SPN over the study period. SPN almost doubled CYPs for the IUD for the whole year over the short two month induction period of the study. As SPN, along with all the other international partners of MSI, are gauged on the number of CYP they attain over a year, the results of the IUD study was seen as a very positive effect that they wished to continue.

The contribution that this thesis makes to the knowledge and practice base of family planning in developing countries is three fold. Firstly it has identified that gaps in men's and women's knowledge of the IUD can lead to poor uptake of the method. secondly, by focusing on ways to fill that gap in knowledge then the uptake can be increased. Quality of care is essential to providing an IUD service that will ensure high continuation, high satisfaction and switching to alternative methods of contraception should the IUD not suit the woman. Thirdly, men are important in the uptake and continuation of family planning. Women are strongly influenced by their partners and poor knowledge and attitudes of men can detrimentally affect women's ability to utilise family planning. It appears that as men become better educated and more exposed to messages about family planning and reproductive health that this can have a positive effect on women.

The results of these studies have been communicated in a number of ways. A final report was submitted to MSI with all details of study set up and findings, along with recommendations for future practice. The findings have been presented at a number of conferences covering several fields including health, public health and social science conferences. The findings were also presented in the international Opportunities and Choices newsletter which is posted to many developing countries, and as working papers available through the Opportunities and Choices website. The results have been discussed with other international agencies including the population council and family health international, from these discussions a workshop was held in Southampton to open the forum on ways of promoting the IUD. Many of these agencies are involved in projects investigating the low use of the IUD in a number of developing countries.

Bertrands Conceptual framework was expanded through the first study investigating the barriers to the uptake of the IUD in rural Nepal. The original framework identified that psychosocial factors influenced access to contraceptive services, what the research in this thesis identified was that this particular arm of the framework could be expanded in the context of access to IUD services

in rural Nepal. Indeed it appeared that this arm of the framework was the most important in terms of restriction to services. This arm could be further divided into a further five arms: husband, kin, fear and uncertainty, myths and rumours, and embarrassment; the latter of which was especially pertinent to the IUD whereas the other four may have some influence on access to all contraceptive methods. The expansion of this arm of the framework then moved through into the other two studies in this thesis.

The second study, investigating the uptake and continuation of the IUD, used Bruce's quality of care framework to ensure that the IUD provision was of the highest quality of care possible in the clinics providing the services. In order to increase uptake we had to look back at the expanded arm of Bertrand's framework to try and negate the restrictions to IUD use. The issues identified had to be addressed to minimise problems with access.

To address the issues of husbands and kin being restrictive to the women's uptake of the IUD it was felt to be important to involve them in discussions about the IUD. This job fell mainly to the female community health volunteers whose job involved going into the villages and either individually or in groups discussed the IUD. This discussion involved conveying the facts about the method, the benefits, the possible side effects and dispelling any of the women's uncertainties and fears. The clinic staff also played a role by going through the information once more with the woman and with her husband, if present.

Fear and uncertainty, and myths and rumours are closely related and were addressed in more or less the same way. Again much of the initial job was done by the FCHV. In order for the FCHV to impart correct and factual information about the IUD by which to allay uncertainties and fears, they all received two days intensive training on the IUD and given flip charts to take with them into the villages and aids in transferring information. Part of this training also involved discussing common myths and rumours about the IUD and why these were not correct and then giving the FCHV the information needed to impart to the women and their families to counteract and

therefore dispel these myths and rumours. Backing up all this information was the media campaign that was going on at the same time as the FCHV were travelling into the villages. Both the poster and radio sketch passed on positive messages about the IUD.

Embarrassment was dealt with in the clinic setting by having a female nurse as the provider and having a separate room for the actual insertion process. This addressed women's fears both about a male provider and lack of privacy, both real obstacles to the uptake of the IUD.

Bruce's quality of care framework ensured that the already high standard of service provided by the SPN clinics were maintained and increased if at all possible. A high quality service will enhance both uptake and continuation but will allow switching of methods so ensuring ongoing contraceptive protection.

The final study was influenced by the expansion of the psychosocial arm of the Bertrand's framework. Husbands appear to have a great influence on women's ability to access IUD services and probably all contraceptive services so restricting contraceptive uptake. In order to try and understand men's influence it was felt that baseline data on their knowledge, attitudes and practices (KAP) regarding contraception and reproductive health was important. The framework used in this study was drawn up from a number of different studies carried out mainly in patriarchal developing countries much like Nepal. These studies pointed to a number of factors influencing men's KAP. The original framework designed for the study was expanded by the study as some associations not identified by the framework were identified by the research. For example age at marriage and spousal communication appeared not to be associated in other studies but the research revealed some link between the two.