University of Southampton
United Kingdom

Barriers and Opportunities to Effective Contraceptive Management in Bangladesh

Juliet McEachran
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Department of Social Statistics
Faculty of Social Sciences

University of Southampton
ABSTRACT
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It was not until the early 1990s that it was realised that cross-sectional measures of contraceptive use were insufficient in terms of measuring the effectiveness of family planning programmes. Following this there emerged many studies on contraceptive use dynamics, focusing especially on continuation rates and reasons for discontinuation.

Building on the move to examining contraceptive use dynamics this study examines two areas of contraceptive management, the adoption of a method postpartum and contraceptive discontinuation due to side effects. The study focused on adoption postpartum, as it is an ideal time period in which to examine the timing of adoption. The return of menstruation postpartum provides the indicator of risk to women and their reaction to this was categorised into effective and ineffective adoption. The focus of the study on side effects resulted due to the high prevalence of hormonal contraceptive method in Bangladesh associated with a high rate of discontinuation due to side effects and a lack of information on why women discontinue hormonal contraceptive use due to side effects.

The descriptive analysis of the postpartum adoption data indicates that the return of menstruation acts as a trigger (Salway, 1996) to women to adopt a contraceptive method. Of those who adopted postpartum, 52.7% of women in 1993/94 and 64.9% in 1996/97 adopted in the month that they reported menstruation returning. This result has great implications for postpartum contraceptive policy in Bangladesh, a policy that promotes the adoption at 40 days postpartum, which is many cases is long before menstruation returns. In the statistical modelling of postpartum adoption, multinomial models were used, the categories being non-adoption, ineffective adoption and effective adoption. The models found that the most significant factors affecting adoption postpartum were education, discussion with husband and division of residence.

The side effects component of this study used both quantitative and qualitative techniques. The statistical modelling found the factors most associated with discontinuation were related to the motivation of the woman; literacy was also found to be related to discontinuation due to method-related reasons, including side effects and health concerns. It is likely that more literate women are better able to switch method and hence their greater likelihood of discontinuation due to method-related reasons. The qualitative component of this study examined why women discontinue due to side effects, since quantitative methods are unable to fully examine this question. The qualitative results document the burden of hormonal contraceptive use in Bangladesh. The burden is in terms of the experience of side effects, the impact of these side effects on women's daily lives and the 'knock on' effects of women's impaired or inability to perform her daily chores.

The research suggests that effort should be made to improve women's contraceptive experience in Bangladesh, and for the postpartum policy to take into consideration the beliefs of the population.

Contents

Tables

Chapter 5

Chapter 6

Chapter 7

Chapter 8

Graphs

Figures

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Chapter One Introduction

The need for greater research into contraceptive use dynamics was highlighted by the United Nations Group Meeting on 'Measuring the Dynamics of Contraceptive Use', New York 1988. The need was highlighted both by the fact that the meeting was convened and its findings. As stated by Shireen Jejeebhoy:

"*In evaluating the demographic impact of family planning programmes, the importance of contraceptive prevalence has typically been stressed. Level of prevalence, however, is not a sufficient measure of programme success*". (Jejeebhoy 1991 p 21).

Figure 1.1 illustrates the limitations of using prevalence as an indicator of contraceptive use. This cross-sectional measure clearly overlooks the dynamic nature of contraceptive use by simply focusing on the number of users at a specific point in time. In terms of current use woman 1 in Figure 1.1 is considered identical to woman 3, despite the difference in duration. Translated onto a national level, contraceptive use characterised by woman 1 is completely different to that characterised by woman 3. The patterns of non-use are equally important, non-users are made up of those who have never used a method, woman 2 who used for a short time then discontinued, and woman 4 who discontinued use only for a short time, and yet a contraceptive prevalence measure treats them identically.

Figure 1.1 Prevalence indicators of contraceptive use.

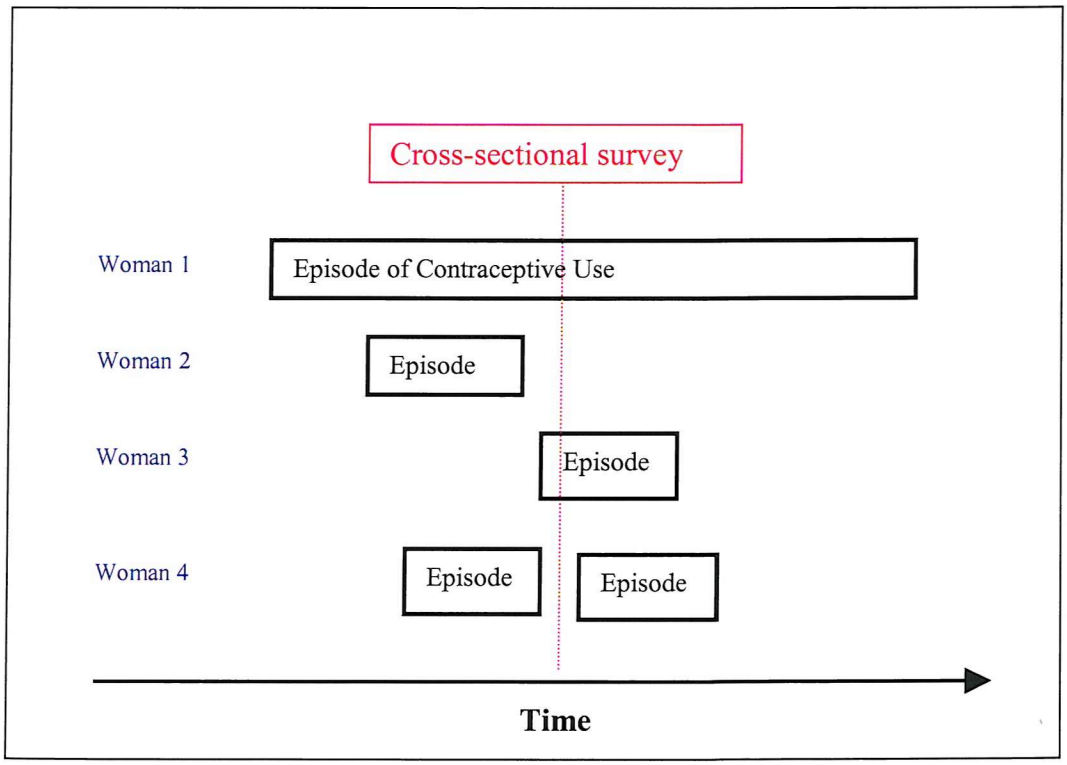
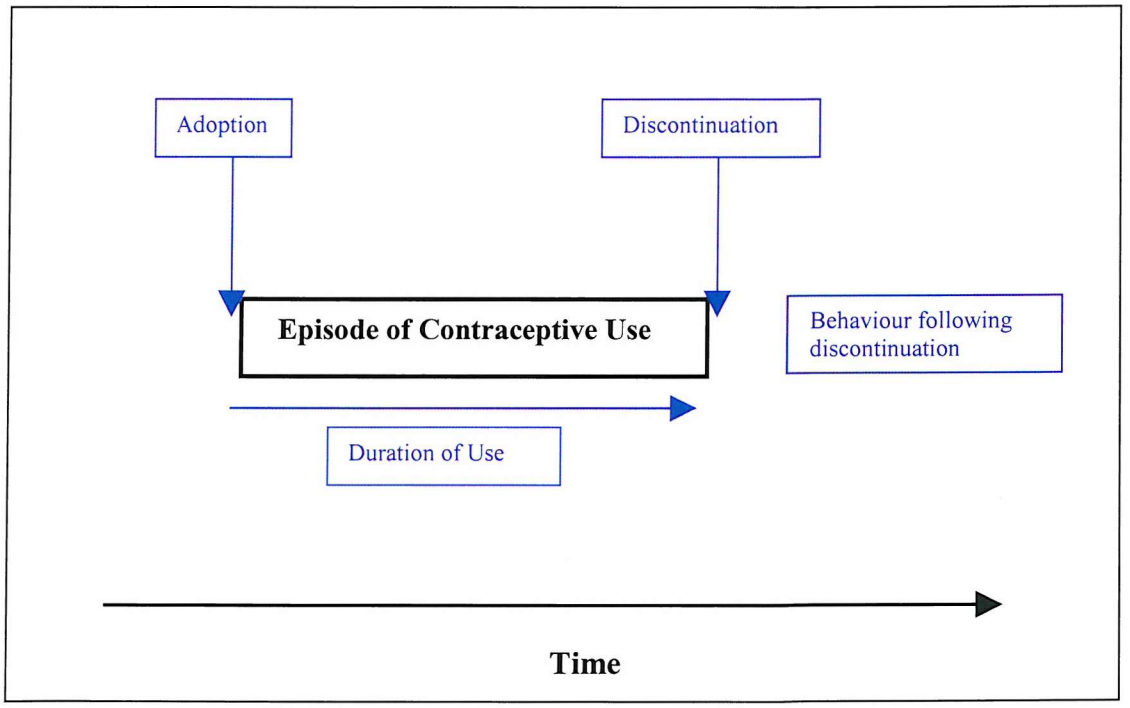


Figure 1.1 raises a number of questions, concerning what accounts for the difference in duration of use of woman 1 and woman 3. Is it down to fertility preference, with woman 1 limiting her childbearing and woman 3 using the method for child spacing? Or is the difference due to other factors, factors that could be addressed by a family planning programme, for example, access to and the availability of the method or the experience of side effects? What accounts for the period of non-use shown in woman 4? Was it because her husband was away at the time or was it due to other factors, factors that could be addressed by a family planning programme?

As a family planning programme matures, and contraceptive use increases it is no longer sufficient to examine only the cross-sectional measures, such as how many couples are using at any one time or the number of adopters; the quality of use also needs to be examined. The quality of contraceptive use can be investigated by examining the dynamics of its use. Contraceptive-use dynamics involves a thorough examination of use, through the dis-aggregation of use into the distinct parts that make up an episode of contraceptive use. Figure 1.2 below highlights these different components.

Figure 1.2 Components of an episode of contraceptive use



A typical episode of contraceptive use has four distinct parts: adoption, duration, discontinuation and subsequent behaviour, and through the investigation of these components

it is possible to gain much clearer picture of contraceptive use. These four components of use are discussed in more detail following a description of the central tenet of this study and the study site.

The focus of this study is contraceptive management, women's ability to manage effectively their contraceptive use and ways in which this may be improved. From the demographic perspective women who are not able to manage their contraceptive use effectively will have an unmet need for family planning at some point(s) in their contraceptive careers and will, therefore, be at risk of an unplanned pregnancy, be it unwanted or mistimed. Broadly speaking ineffective management, or unmet need, is when a woman does not adopt a method when she becomes at risk of an unplanned pregnancy, and when she discontinues due to factors unrelated to her reproductive intentions and becomes at risk of an unplanned pregnancy. The focus is on women simply because the burden of contraceptive use largely falls on women, however, the same principles would apply to the study of male contraceptive management.

This study investigates the situation in Bangladesh, a country that has relatively high contraceptive prevalence, 49.2% (BDHS 1996/97) and also a reliance on temporary, as opposed to permanent, methods of contraception. In this context there is the potential for a greater dynamism of use than if the method mix was dominated by permanent methods. The contraceptive method mix in Bangladesh is dominated by oral contraception, 20.8% of currently married women (BDHS 1996/97), and the rate of discontinuation due to side effects or health concerns is high, 24.2% discontinue for this reason in the first year of use (BDHS 1996/97). The high levels of discontinuation for reasons unrelated to fertility preference indicate barriers to women's effective contraceptive management. In order for the family planning programme to further meet the needs of its clients this high level of discontinuation due to side effect/health concerns has to be investigated. As with the focus on women, the methods employed in this study could equally be applied to investigate contraceptive use dynamics in other contexts.

1.1 The components of contraceptive use

Each component of contraceptive use has its own demographic impact and yet to date adoption has primarily been studied using current use as a proxy, and the only two other aspects which have been extensively studied are continuation rates and discontinuation due to

failure[1]. All of the four parts are discussed below in terms of their demographic impact and how they can contribute to our understanding of effective contraceptive management.

1.1.1 Adoption

The action of adopting a method is the product of a woman feeling that she is at risk of a pregnancy that she does not want, either because she wants to delay or limit her child bearing, and her ability to initiate contraceptive use. The situation in which she becomes at risk is indicated either by her entry into a sexual relationship or a physiological transition where she attains or retains her fecundity within the context of a sexual relationship. Her ability to initiate contraceptive use is dependent on a number of factors including knowledge, access, and the attitudes of 'others' to her contraceptive use.

The postpartum period is a time when, in absence of prolonged postpartum sexual abstinence or prolonged exclusive breastfeeding, all women are at risk of an ill-timed pregnancy since a method should be adopted either for the purpose of birth spacing or limiting. The postpartum period is a particularly interesting time to study. It is where the beliefs and perceptions of individual women are likely to play an important role in defining when they perceive themselves to become 'at risk' and when they adopt relative to perceiving their fecundity has returned. It is the 'at risk' period between the return of menstruation and the adoption of contraception that is of special interest in the context of the study of effective contraceptive management. This study examines the timing of contraceptive uptake relative to the return of menstruation, the only indicator of fecundity available to most Bangladeshi women, and examines the predictors of effective, ineffective and non-adoption postpartum.

1.1.2 Duration

Of all the components of contraceptive use dynamics the duration of contraceptive use has the most obvious demographic impact. The longer that a woman uses a method of contraception, the greater the time that she is not at risk of conceiving. While this might appear a simplistic interpretation, especially considering no contraceptive method is 100% effective, good episode data mean that contraceptive failures are revealed.

The duration of contraceptive use and reason(s) for discontinuation are very closely linked. For example, a woman who discontinues in order to become pregnant, i.e. who used the method for spacing purposes, is likely to do so after a shorter period of time than a woman

[1] There are three different measures of contraceptive method failure: method or theoretical failures, user failures and extended user failure, however failure rates in general have been studied more than discontinuation for any other reason.

using the same method, but discontinuing due to menopause. Owing to this close linkage, between duration and reason for discontinuation, it is often difficult to separate the results of studies into two components, although in the literature review this has been done where possible.

1.1.3 Discontinuation

Of all the aspects of contraceptive use dynamics, continuation and failure rates have been the most commonly studied. In this study continuation rates are not going to be explored, but reasons for discontinuation are. This is because what is important to this study is whether the woman was able to manage her reproductive intentions or not. The duration of use is not as important as the reason for discontinuation because if, for example, a woman wants to become pregnant, in this study this is seen as effective management, regardless of the duration of use. The same can be said of a woman who discontinues due to side effects; the duration is irrelevant as the final action indicates behaviour not primarily linked to reproductive preferences, and is therefore indicative of some thing(s) preventing the woman from effective management. Therefore, while following previous developed protocols for the analysis of contraceptive discontinuation, this study will focus on the factors unrelated to fertility and fertility preferences, notably side effects.

1.1.4 Subsequent Behaviour

A woman's behaviour after she discontinues contraceptive use is also of crucial importance. Those who discontinue for reasons unrelated to their fertility preferences and then become pregnant are different to those who immediately adopt a different method and those who discontinue in order to become pregnant. A woman's behaviour following contraceptive use is one of the least studied areas within contraceptive use dynamics, although this is a relative term since there are few studies of contraceptive use dynamics per se.

It is within the area of subsequent contraceptive behaviour that the demographic rationale would be closest to the rationale of this study, since the women who immediately switch methods without a period of risk are both effective contraceptive managers and can be viewed as those undertaking optimal demographic behaviour. There is a belief that switching methods puts women at greater risk of experiencing a contraceptive failure, due to the predominance of failures in the first few months of use. However, if one views discontinuation of the previous method as the starting point, the alternative is a period of non-use.

There are two crucial factors that have to be borne in mind when looking at studies of contraceptive use dynamics. One is that those who adopt a method of contraception may be a self-selected group, especially in environments where contraceptive use is not universal. This is especially important when looking at determinants of continuation, reasons for discontinuation and subsequent behaviour. For example, in a study discussed in more detail later, Rahman *et al.,* (1992) examined the effect of son preference, the specific desire for a male child, on contraceptive use and found that the effect of son preference was greater on discontinuation than acceptance. However, contraceptive acceptance was 51% lower among those with no surviving son compared to those who did have surviving sons. Therefore, a selection has occurred in terms of those who could discontinue at all.

The other factor that has to be considered is that the method that a woman chooses impacts on the subsequent events. For example, a woman who adopts an intrauterine device (IUD) is less likely to discontinue for any reason, and is likely to use the method for a longer period of time than if she had chosen another method.

1.2 Thesis Structure

To investigate effective contraceptive management in Bangladesh the structure of this thesis is as follows. Chapter Two reviews the contraceptive use dynamics literature, focusing especially on postpartum contraceptive use and discontinuation due to side effects. Included in the section on postpartum use is literature from public health and medicine in order that the mechanics of lactational amenorrhoea are fully understood. In the review on side effects, literature from demography, sociology and anthropology is included to look at all those studies found that discuss contraceptive side effects. Finally, a review of family planning in Bangladesh is included.

In Chapter Three the Bangladesh Demographic and Health Survey (BDHS) is described, as are the statistical methods used for this secondary analysis. The BDHS is a nationally representative survey of women in Bangladesh, which collects information on a variety of public health topics, including contraceptive use. Most importantly, these surveys collect month-by-month information on contraceptive use, or non-use, in the five years prior to the survey. This information, called calendar data, collects all four components of contraceptive use dynamics, essential for a study of this kind.

Chapter Four examines postpartum contraceptive adoption in Bangladesh. Using DHS data the first part of this chapter examines the timing of contraceptive adoption postpartum. The

postpartum period is one of the few time periods when effective contraceptive management can be examined, since this is a time when all women should adopt a contraceptive method in order to achieve long birth intervals. The timing of adoption relative to the return of menstruation is investigated, since the return of menstruation is the only indicator of the return of fecundity available to these women. The second part of this chapter model includes the multinomial models examining the determinants of effective, ineffective and non-adoption postpartum.

Chapter Five contains the analysis of discontinuation due to side effects. Discrete time hazards models are used to examine factors associated with discontinuation. One model is presented for pill discontinuation due to side effects, due to the predominance of this method in Bangladesh, and another model is presented for the injectable, a method whose use is increasing and also has a high rate of discontinuation due to side effects. These models are included to examine individual characteristics or population groups who appear more at risk of discontinuing hormonal method use due to side effects.

Chapter Six presents the background to and the design of the qualitative study of discontinuation due to hormonal contraceptive side effects. A qualitative approach was required due to the fact that, while quantitative methods can reveal user characteristics and other factors associated with discontinuation due to side effects, this type of methodology does not add to our understanding of 'why' women discontinue due to side effects. In Chapter Six the theoretical background, and the fieldwork for the qualitative component of the work are described, and a framework for examining the impact of contraceptive side effects on women's lives is presented along with previous studies examining this issue. In order to illustrate the function of the framework, a case study of the effect of menstruation on women's lives is discussed. This case study also provides essential background information on the influence of menstruation on women's lives, which are likely to be similar to the side effects that disrupt a woman's 'normal' menstrual pattern.

Chapter Seven examines why women in urban Dhaka discontinue using the pill or injectable due to side effects. Chapter Eight reports similar research for a rural area, Matlab. Finally Chapter Nine summarises the urban and rural results and brings together the quantitative results on side effects and those from Chapters Seven and Eight. Chapter 10 concludes this study, presenting a picture of contraceptive management in Bangladesh, making policy recommendations and suggesting areas for further research.

Chapter Two Literature review

This literature review begins with a description of methods that have previously been used to examine contraceptive use dynamics. Following this, literature on each of the specific components of contraceptive use dynamics are discussed focusing especially on the two components under study in this thesis, postpartum adoption and discontinuation due to side effects. The literature review was carried out using a variety of different computerized research facilities, including: Bath Information and Data Services (BIDS), Medline, Popline and internet searches. The following key words were used: Bangladesh, South Asia, contraception, contraceptive discontinuation, contraceptive side effects, contraceptive use, contraceptive use dynamics, depo-provera, hormonal contraception, injectable, lactational amenorrhoea, oral contraception, pill, post partum amenorrhoea, and postpartum infecundity. Literature from the fields of anthropology, demography, medicine and sociology are included in the review. The review finishes with a review of the situation in Bangladesh.

2.1 Methods

The only 'dynamic' parts of early studies of contraceptive use were current and ever use of a method. One of the reasons for this is that surveys only collected cross-sectional information and information on ever-use. Figure 1.1 in Chapter 1 highlights the drawbacks of cross-sectional measures especially when it is compared to Figure 1.2. Current use does not give any indication of how a method was used, merely that at the time of the survey *x* percent of, usually, women reported use. A clear example of the limitations of current status measures even if they are regularly collected, comes from Hamill *et al.*,(1990). In this study, further discussed later, contraceptive switching in rural Sri Lanka was examined. During the period 1975-1987 the pattern of contraceptive use in rural Sri Lanka, as defined by current use indices, was dominated by traditional methods and sterilisation with a relatively constant level of temporary modern method use. What was not known, and what Hamill and colleagues sought to examine, was whether this pattern resulted from a high level of method continuation and few new acceptors or whether it was due to large number of ever users flowing in and out of current method use.

Until the late 1970s studies of contraceptive use came either from family planning acceptors or clinical trials, neither of which were ideal for policy makers and planners at the national level, for reasons which are discussed later. In addition, only two of the components of contraceptive use dynamics, continuation rates and reasons for discontinuation, were

collected and, more specifically, some clinical trials may only have collected information on continuation and failure rates. What has happened in the last 30 years is that the measures of contraceptive use dynamics that were previously only available from family planning programme or clinical trial data, can now be obtained from national surveys. At first though, the data were limited to indices of current use obtained through national surveys such as those of the World Fertility Survey (WFS) programme.

A broader picture of contraceptive use dynamics is now possible, albeit rarely undertaken. Data on contraceptive use dynamics have quite simply got better, and while they are by no means perfect, relatively inexpensive estimates of various facets of contraceptive use dynamics can now be obtained from national surveys. In order to describe this development, from clinical trial to nationally representative estimates, the methodologies used in studies reviewed later in this section are considered.

As previously mentioned the first studies that gave any measure of contraceptive use dynamics were clinical trials and the follow up of family planning clients. No clinical trial studies are explicitly contained in this current study although overall estimates of failure are mentioned. Clinical trials have two major drawbacks in terms of their application to national populations. The first is that they include only those men or women who are willing to take part in a clinical trial. The second is that they primarily evaluate modern contraceptive methods, and therefore data on traditional methods, e.g. the rhythm method, are usually absent. In addition, clinical trials are likely to have eligibility criteria that mean that the methods are only tested on 'healthy' men and women. This is potentially important when considering discontinuation due to side effects, where 'unhealthy' women may react differently to 'healthy' women.

Studies involving users of family planning services also suffer from similar problems in that not everyone may use the family planning services and therefore those who do can be a specific group. In addition, few family planning programmes give advice on traditional method use[1] and therefore data on these methods are absent.

Table 2 in Appendix 2 contains a summary of studies, mainly involving family planning clinic acceptors, the findings of which are discussed later. There are some important methodological issues highlighted by this table. One is that the study sites are often in

specific geographical areas, and rarely nationally representative. For example, the study by Cotten *et al.,* (1992) took place in the capital of Niger, Niamey, and in two urban and two rural clinics in the Gambia. Another characteristic of studies of this type is loss to follow up. In this table the rates of loss to follow up range from eight percent in a study in South Lebanon to 55 percent in Karnataka, South India. Loss to follow up may occur for a variety of reasons but when these levels are high they raise questions about the validity of the findings. This is especially true if the study examines continuation rates, as those who are lost to follow up may or may not have discontinued use. Those studies that do not discuss loss to follow up at all can lead the reader to question all of the findings because of this omission.

Having highlighted some of the drawbacks of clinical trial data and data on family planning acceptors initially these were often the only data available. With the increase in family planning programme activities in the 70s and 80s, the national contraceptive prevalence in many countries increased. In the early stages of family planning programmes measures of knowledge, attitude and practice were seen to be adequate as they gave planners and policy makers an indication of the impact both in terms of the spread of information and broad uptake within the population. However, as the contraceptive prevalence increased, these measures were recognised to be only some of a number of indicators needed to assess the full effectiveness of a family planning programme.

The realisation that more information on contraceptive use was required was not sudden and methods currently used to measure this have evolved over a period of 30 years. The limitations of cross-sectional measures, outlined above show the need for longitudinal information in order to examine use dynamics. There are two ways of collecting longitudinal data: prospectively and retrospectively. Prospective data are collected over a period of time, period, and respondents are visited regularly and, in the case of contraceptive use dynamics, their reproductive status is noted; if there are any changes, for example contraceptive use is discontinued, the reasons for these are noted. A drawback in terms of study design that a prospective study may have is a potential bias resulting from respondents being frequently visited, and the selection bias of certain groups moving out of the area. Overall, however, this is the most accurate way of collecting longitudinal information, but on a nationally representative level it would likely be prohibitively expensive. Therefore, such studies that

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[1] This is not always the case, but examples such as the Philippines Family Planning Programme which does give information on use of the rhythm method, have tended to be the exception rather than the rule.

have been undertaken have usually been located within specific areas, the most famous of which is the record keeping system (RKS) of Matlab, Bangladesh.

Matlab is an area of Bangladesh where a number of family planning programme interventions have been tested. Broadly speaking the study area consists of an intervention area and an area where only Government of Bangladesh family planning services are available. In the intervention area women are visited each fortnight and data are collated monthly creating a prospective month by month calendar. Owing to the unique nature of the data and the study area, the studies from Matlab are included in a separate table, Table 3 in Appendix 2.
The prospective data collected in Matlab have been used for the analysis of continuation rates, discontinuation and switching behaviours[2]. The analysis methodologies employed on the Matlab data primarily utilise sophisticated statistical techniques. Similar methodologies are undertaken in the studies using the national surveys in Table 1 in Appendix 2. However, all of the studies in Table 1 are based on retrospective data, the collection of which has been an evolutionary process.

In the core WFS questionnaire, information on current use, and any other use in the open interval (since last birth) for those who were currently not using, was the only information collected. However, an optional but recommended section, called the 'fertility regulation module', contained a greater number of questions. In this module the following information was collected in addition to current/past use in the open interval: if a contraceptive failure was responsible for the previous birth or current pregnancy, and if stopped using during the previous interval, the reason for discontinuing use. There were two drawbacks to the collection of this information that resulted in the data not being extensively analysed. One was that the survey methodology only collected data on a maximum of one contraceptive episode in each interval. The second was that information on failures and reasons for discontinuation in the closed interval was only collected from women who had wanted the birth. The reason for this second restriction was in order to look at the difference between 'a timing' and 'a number' failure of contraceptive management, and the fact that this made the data of limited utility was acknowledged as an "unfortunate error" (Cleland *et al.,* 1987). In addition, information on the timing of contraceptive use and the duration of use was not collected.

[2] Researchers throughout the world have largely overlooked the study of adoption, although as the definition of use dynamics broadens it is hoped that more studies of this kind will be undertaken.

The Demographic and Health Survey (DHS) built on the experience of the WFS and collected more information than its predecessor. The initial DHS in high contraceptive prevalence countries collected information on contraceptive practice in birth intervals in the five years prior to the survey. In each closed birth interval information was collected for the most recent segment of use. In open intervals, where the woman was not using at the time of the survey, information was also collected for the most recent episode of use. If the woman was using a method at the time of the survey, information on current use and the previous segment of use was collected. Therefore a maximum of two episodes of use was collected for open birth intervals and a maximum of one for closed birth intervals. While these data are limited they did enable discontinuation and duration to be examined.

While contraceptive use data were being collected largely by birth interval in surveys in the developing world, in the United States and some studies in the developing world a calendar approach was being used. By adopting a calendar approach, where information was collected on a month by month basis, the number of episodes for which data were collected was not limited. The initial calendar as outlined by Laing (1985) collected information for each month for a specified time period, usually three years, prior to a survey. The calendar collected information on all births, contraceptive use and periods of postpartum amenorrhoea that occurred during the time frame. Information on contraceptive use included which method was used and whether the women had been using a method at the time of a conception. For all the months when a women was neither pregnant nor using a contraceptive method, the reason why a method was not used was collected.

This data collection method resulted in a much more complete picture of contraceptive use than had previous methods. However, reasons for discontinuation were not collected but were inferred. The coding groups for non-use were 'unable or unlikely to bear children' (including subfertile), 'no sexual contact' (including not yet married), 'desires pregnancy', 'amenorrhoeic and not using contraception', and 'other'. These categories have been used for the analysis of discontinuation but they are not entirely satisfactory, because the question was "why are you not using" as opposed to "why did you discontinue", and the 'other' category can contain a huge variety of reasons including husband's disapproval and supply problems.

One of the advantages of the calendar method is that all events are recorded in the same part of the questionnaire and therefore contraceptive use can be reconciled with pregnancy, birth histories, and thus internally validated[3]. Evidence from the DHS found the quality of

[3] A full discussion of the validity of the contraceptive calendar is found in Chapter 3.

information obtained from birth history was good; this was unexpected since during the design stages of the questionnaire it had been felt that as a methodology the birth history was too ambitious for illiterate populations (Cleland *et al.,* 1987). The realisation that collecting month by month retrospective data on contraceptive use could yield good data, in addition to the growing demand for more complete data on contraceptive use dynamics, led to the inclusion of the contraceptive calendar in some DHS surveys.

The contraceptive calendar included in the DHS is different to Laing's calendar in a number of ways. One is that it collects information for the five years prior to the survey, as opposed to only three years. A more important change in terms of contraceptive use dynamics data is that these explicitly collect information on contraceptive discontinuation, and more reasons are collected.

Table 2.1 DHS reasons for discontinuation

Factor
Infrequent sex/ husband away
Became pregnant while using
Wanted to become pregnant
Husband disapproved
Wanted more effective method
Health concerns
Side effects
Lack of access/too far
Cost
Inconvenient to use
Fatalistic
Difficult to get pregnant/menopause
Marital dissolution/separation
Other

The reasons for discontinuation collected in both of the 1993/94 and 1996/97 BDHS are listed in Table 2.1. Similar categories are used for all of the DHS studies that use the contraceptive calendar. Compared to the reasons for discontinuation used by Laing (1985) previously listed, the most important improvement is the dis-aggregation of the previous 'other' category. The shaded area in Table 2.1 indicates all those factors that would have been included in the 'other' category.

There are still problems with the calendar method, one being that contraceptive discontinuation is likely to occur for a number of reasons and by only collecting one reason the DHS oversimplifies the situation (Ali and Cleland 1995, Curtis and Blanc 1997). In addition, the fact that calendar data are retrospective means that they are subject to various recall and response errors.

Following this more general introduction into contraceptive use dynamics four different facets of contraceptive use dynamics are now described. Some of the discussions are longer than others due to their transdisciplinary nature, whereas others are shorter either due to their position in a single discipline, being a neglected area or both. The circumstances of postpartum adoption provide an example of a transdisciplinary topic, where it is important to examine studies from demography, medicine, physiology and psychology.

2.2 Postpartum Contraceptive Adoption

While the term 'postpartum' is often used in the family planning literature, it can be defined in a variety of ways. Winikoff and Mensch (1991) list the following definitions: administrative, physiological and behavioural. That until 1991 this fact had not been clarified is indicative both of the assumption of knowledge that individuals can make, and the relative lack of attention that postpartum contraceptive use has attained. In this study, 'postpartum contraceptive use' is defined as the use or non-use of contraception following a live birth.

Using DHS data, Steele *et al.,* (1999) examined the impact of family planning provision on contraceptive use dynamics in Morocco. They analysed data from the 1995 Morocco DHS using linked service data from both the 1995 survey and a previous 1992 survey. In their analysis of the adoption of a modern method postpartum, the authors found that women were more likely to adopt a method within 12 months postpartum if they lived within 10 kms of a public health centre providing family planning services, and if three or more methods were available. The other factors found to be significantly related to postpartum use included urban residence, 'unwantedness' of last child, lower maternal age, and increased education level. Current breastfeeding status was not significant in the final model and menstrual status was not included as a potential explanatory variable.

In another study by Steele and Choe (1997) the utility of event history analysis for the evaluation of family planning programmes was illustrated. One of the illustrations investigated the adoption of modern contraception postpartum in Indonesia. As with the study discussed above, the analysis in this paper concentrated on service delivery. However, in addition to service delivery factors, the woman's menstrual status was also found to be significantly associated with the adoption of a modern contraceptive method. Those women whose menstruation had returned postpartum were less likely to adopt a method compared to those whose menses had not yet returned. Age, parity, education and fertility preference were the only other women level factors included in the final model. The most significant of the other variables, all of which were related to family planning provision, were the presence of a

family planning (FP) worker in the village, or being visited by a FP worker in the previous 6 months. Both of these factors were significant at the 1 percent level and had a large impact.

Curtis (1996), in a largely methodological paper, investigated the effect of an overlap in contraceptive use postpartum and postpartum amenorrhoea (PPA) on the estimation of contraceptive failure rates. The results of the study concluded that the underreporting of abortion in the DHS calendar data is likely to have a greater effect on estimates of failure rates than the overlap between use and PPA.

Before examining postpartum contraceptive strategies and current recommendations, it is necessary to be aware of current research into the relationship between breastfeeding and fertility.

2.2.1 Breastfeeding and Postpartum Amenorrhoea

The impact of breastfeeding as a means of prolonging birth intervals has long been recognised. In 1984, it was estimated to be associated with a reduction in total fecundity of between 30-33 percent in developing countries (Cleland *et al.,* 1984). However, the precise neuro-endocrine pathways through which this occurs were only uncovered 15 years ago.

Throughout pregnancy ovulation is suspended, initially due to steroids released by the corpus luteum including oestrogen and progesterone, which are essential for supporting the early stages of pregnancy, and later by steroids secreted by the placenta. The effect of the release of these steroids is to suppress the levels of follicle stimulating hormone (FSH) and luteinising hormone (LH). After the placenta is delivered the steroids are no longer released and therefore their inhibitory effect is removed. The pituitary gland then resumes the release of FSH and LH (Kennedy and Trussell 1998).

In the absence of breastfeeding, menses resumes 4-6 weeks postpartum; however, fecundity is unlikely to return fully at this time. Of these first cycles, 1/3 are anovulatory and, in addition, the corpus luteum often does not secrete enough of the steroids necessary to maintain the early weeks of pregnancy (Kennedy and Trussell 1998). The incidence of anovulatory cycles declines to 15 percent in the second and third menstrual cycles and, of these ovulatory cycles, around 25 percent have luteal phases defects (Kennedy and Trussell 1998).

It was initially thought that the prolactin associated with breastfeeding disrupted the release of FSH and LH. It has since been found that this is not the case. It is now believed that suckling affects the release of gonadotropin releasing hormone (GnRH), and this interferes with the release of LH. LH is required for follicle stimulation and when its release is disrupted the surge necessary to induce ovulation does not occur (Kennedy and Trussell 1998).

As breastfeeding behaviour changes with time postpartum the inhibiting effects on fecundity reduce. Much research has been undertaken to identify the pathways through which breastfeeding influences the return of fertility. For health service professionals, knowledge of the breastfeeding practices most likely to maintain infecundity are key to promoting breastfeeding as a contraceptive method. It is the intensity of suckling that has been found to be most strongly associated with the maintenance of an anovulatory and amenorrhoeic state. The frequency and duration of feeding are the most important behavioural aspects (Gray *et al.*, 1990, Kennedy and Trussell 1998 and Heinig *et al.*, 1994). The introduction of supplements to the infants' diet can result in a rapid decline in suckling that, in turn, leads to a more rapid return to fecundity (McNeilly 1993).

The return of fecundity in individual women is very difficult to predict, but results have shown that exclusive breastfeeding for the first six months postpartum is as effective as the use of OCs (oral contraceptives) and condoms (Simpson-Herbert and Huffman., 1981).

In demographic research, the resumption of menses can be used as the marker for the imminent return of fertility. However, as the time between birth and first menses increases it becomes a less effective indicator, since with time the likelihood that first menses is preceded by an ovulation increases. Gray *et al.*, (1990) found that 45 percent of the first menses in the six months following a birth were anovular but this declined to 20 percent after six months postpartum.

An additional problem with using the resumption of menses as an indicator of the return of fecundity is the occurrence of bleeding known as *lochia*, in the immediate postpartum period. This bleeding is unrelated to menstruation and results because of the high levels of oestrogen and progesterone in the mother's circulation at this time (Wood 1994).

To be able to state accurately when an individual woman's fecundity has returned postpartum, assays would have to be performed on a daily basis. Therefore, while taking into consideration the drawbacks, the return of menstruation postpartum is the most practical indicator of the return of fecundity postpartum.

2.2.2 Postpartum contraceptive adoption strategies

By considering the existing evidence on the fecundity suppressing effects of breastfeeding, the Bellagio conference of 1988 developed guidelines for the use of the lactational amenorrhoea method (LAM) of family planning. There were a number of difficulties in its formulation. One was the increasing ineffectiveness of the return of menses as an indicator of the future return of fertility; another was the need for a balance between encouraging exclusive breastfeeding and the nutritional requirements of the child. An additional factor is that hormonal contraceptives containing oestrogen have been found to reduce milk supplies (Guillebaud 1997).

The consensus of the conference was the following:
"maximum birth spacing effect of breastfeeding is achieved when a mother "fully" or nearly fully breastfeeds and remains amenorrhoeic (bleeding before the 56^{th} postpartum day being ignored). When these two conditions are fulfilled, breastfeeding provides more than 98 percent protection from pregnancy in the first six months" (Consensus Statement 1988).

The guidelines given for the adoption of an alternative contraceptive method were that, should menstruation return before six months, or if breastfeeding ceases to be exclusive before this time, an alternative method should be adopted. If neither of these events has occurred, an alternative method should be adopted at six months postpartum. While these were the main recommendations of the conference, a further recommendation was that the guidelines be adapted to specific situations so that different infant feeding practices could be catered for. Another conference was held in 1995 to assess the results of the clinical trials to evaluate the recommendations made in 1988, and the results supported the initial recommendations. However, there is little evidence of any flexibility of the recommendations to suit a variety of situations. This is especially true of the six month 'cut off' period.

2.2.2.1 Demographic Research and Lactational Amenorrhoea

Prior to the Bellagio conferences, Potter *et al.*, (1973) and Potter and Langsten (1979) examined the demographic impact of different postpartum contraceptive adoption strategies. These strategies were in fact very closely related to the Bellagio recommendations, which were based on medical evidence. The first study investigated two different IUD adoption strategies, postpartum and postamenorrheic, in India. The study found that in an environment

of low fecundity postpartum, due primarily to breastfeeding, and low continuation rates, the postamenorrheic strategy had the greatest demographic impact.

The second study examined three strategies; 'fixed duration T', where women were encouraged to adopt 'T' months after childbirth, 'postamenorrheic'- accept after the first menses postpartum, and finally the 'mixed T' when women accept T months after childbirth or after first menses whichever occurs first. 'T' is a fixed duration such as the six months defined in the recommendations from the Bellagio Conference. Potter and Langsten (1979) found that in the context of Bangladesh, which has a long period of anovulation postpartum and therefore low natural fecundability postpartum, and also has a high rate of contraceptive discontinuation, long T strategies were better than low T strategies. Therefore, the policy in this case should be for a longer duration before women are recommended to adopt a method postpartum. The study also found the advantage of the mixed T over the fixed T strategies in all scenarios where T was greater than the minimum length of PPA.

Both studies highlight the fact that these strategies are theoretical, and to date the formulation of such strategies has approached postpartum contraception adoption from the side of biomedical evidence and the impact of the strategies on national fertility levels. The utility of the 'postpartum strategy' in much of the developing world is called into question by Winikoff and Mensch (1991), since these areas are often characterised by low natural fecundity due to prolonged breastfeeding, and low contraceptive continuation rates.

While there is some discussion of the risk to individual women of adopting after their first menstruation, especially if this occurs after six months postpartum, the examination of strategies has largely concentrated on the inefficiency of dual protection and overlooked the preferences of women.

2.2.2.2 Lactational Amenorrhoea and Family Planning Programmes

Untested until 1991, the assumptions were that women were most motivated to accept postpartum family planning immediately after childbirth, and that if they were not supplied with a method prior to their release from hospital they would be lost to the family planning programme. Winikoff and Mensch (1991) point out that this first assumption was untested and that the idea of women being 'captured' was at odds with the increasing recognition of the importance of quality of care to contraceptive adoption and continuation. The second assumption is of little relevance to Bangladesh where less that five percent of women deliver

in hospital (BDHS 1993/94 and BDHS 1996/7). The first assumption about motivation requires examination on a general level.

Apart from questioning the assumption per se, it is also necessary to question what is actually meant by 'highly motivated to use a contraceptive method'. It is possible that health professionals understand it as a motivation leading immediately to an action, whereas for women it is an attitude placed within a temporal framework containing a number of factors. The issue which can be, and often is, overlooked is that a woman may be as motivated at nine months postpartum as she is at one day postpartum, but if she does not feel at risk of a pregnancy she will not adopt a method. Only when she feels at risk might she translate the motivation into an action.

2.2.2.3 The return of fertility postpartum

The return of fecundity postpartum is discussed in Section 2.2.1 and, while understanding the physiological processes is important, understanding women's perceptions of the return of their fecundity is equally important.

The factors that lead to a woman feeling that she is 'at risk' may vary between cultures and educational groups. In a study of postpartum women in Istanbul, Bulut and Turan (1995) examined the family planning and health needs among low-income women. The study found that 61 percent of women adopted a method after 40 days. Focus groups revealed that *lohnsalik,* the 40 days immediately postpartum, was viewed very favourably by the women as a time of good nutrition and hygiene, and was also a period of sexual abstention[4]. Therefore, women are not at risk of pregnancy during this time. Consistent with the above results was that focus groups in this study found little consensus among women regarding the return of fecundity postpartum. The women would appear to have had little perception of the physiological processes going on but view the resumption of sexual relations as re-entering a state of pregnancy risk. It is plausible that in West Africa, where periods of sexual abstention are very long (Cleland *et al.,* 1999), the end of this period is likely to be the indicator to women.

Another indicator to women of the return of their fecundity is the resumption of menstruation. Menstruation in general has received relatively little attention in the sphere of reproductive health. However, there are a few studies and some of these are now reviewed.

In 1981, the results of a World Health Organisation (WHO) study into the beliefs and behaviour of women with respect to menstruation were published. The results found that regular bleeding is seen as important for bodily function. In most of the study sites[5] menstruation was valued by women and "seen as a natural, vital and physiological occurrence indicative of good health". (WHO 1981a)

In the context of Bangladesh, Johnston (1999) found that women viewed menstruation to be simultaneously purifying and polluting. The process is purifying as it rids the body of bad blood, and is an indication of fertility. Yet once this blood has left the woman's body it is believed to pollute everything it touches. Regular menstruation is associated with good health, indicating that a woman has enough blood and is adequately nourished. Johnston (1999) found that the importance attached to regular menstruation resulted in the women using contraceptive injectables, which often causes amenorrhoea, switching methods, under going dilatation and curettage (D+C), or adopting traditional methods in order to resume menstruation.

Results from Iran (Delvecchio 1980), also found a duality in the way that menstruation is perceived. While the free flowing of blood is highly valued as an indication of a woman's fertility, the actual blood is viewed as dirty. If the blood is thought to be remaining in the body it is believed to causes aches and pains, especially in the joints, and lead to a darkening of the skin.

2.2.2.4 Postpartum amenorrhoea

Potter *et al.*, (1973) stated that one important finding was the difficulty they had in basing the assumptions of their postpartum strategies on previous research. They found little information on postpartum infecundity and the duration of anovulation in different populations. Eighteen years later, Winikoff and Mensch (1991) highlighted the lack of information on women in the postpartum period, although they emphasised the shortage of research on the beliefs and behaviours of women at this time. The author could find no studies solely on the return of menstruation postpartum. Most studies examined the relationship between the adoption of contraception and PPA.

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[4] This traditional practice maybe declining, but it was mentioned by most women.
[5] The study was conducted in ten countries and in three of these countries, two culturally distinct groups were surveyed.

One study focused on woman level variables associated with postpartum contraceptive use. Using data from an infant feeding study, but which also collected information on postpartum menstrual status and contraceptive use, Laukaran and Winikoff (1985) were able to investigate the impact of amenorrhoea on contraceptive adoption. This study used data from four cities - Bangkok, Bogota, Nairobi and Semarang - and found that contraceptive use was much lower in amenorrhoeic women, regardless of their breastfeeding status. The Bangkok data were of sufficient quantity to investigate the temporal relationship between contraceptive adoption and the return of menstruation. Of the OC adopters, 75 percent resumed menstruation in the same month that contraceptive use was initiated. This study concluded that amenorrhoea and breastfeeding patterns need to be taken into consideration in postpartum family planning provision, and that more research is required into the contraceptive acceptance patterns of amenorrhoeic women and the determinants of these patterns.

The third Contraceptive Prevalence Survey (CPS) in Thailand collected information on PPA. Using these data, Knodel *et al.,* (1985) investigated the relationship between contraceptive use and amenorrhoea. The study found that amenorrhoeic women were less likely to use a method postpartum, compared to those women who had resumed menstruating, even controlling for time postpartum. They tentatively concluded that the data suggested that the return of menses was an important stimulus to Thai women to adopt a method postpartum.

In a later study, using the Thailand DHS, Knodel *et al.,* (1989) found that only 14 percent of women adopted prior to the resumption of menses. In this study, the authors conclude that the return of menstruation "serves as an important stimulus" to adopting a family planning method.

In a study of 25 developing countries, contraceptive use postpartum was investigated in 'exposed' and 'unexposed' women (Thapa *et al.,* 1992). Unexposed women were those who were either amenorrhoeic or who were still abstaining from sexual relations postpartum. The study found that contraceptive use was lower in the unexposed compared to the exposed group. In the conclusion the authors emphasise the importance of breastfeeding status which 'interacts with all aspects of postpartum contraceptive use'. However, despite using menstrual status as part of the categorisation for their dependent variable, they state only that the results 'suggest' support for the other studies linking menstrual status and the use of contraception postpartum.

In her PhD thesis on 'contraception following childbirth in Bangladesh' Salway used both quantitative and qualitative methods (Salway 1996). The return of menstruation postpartum

is a major theme running through this work. She found that women were not only more likely to adopt after the return of menstruation, but that the return of menses was a stimulus for the adoption of contraception. Of those who did adopt a method following childbirth, 40 percent did so in the week following the return of menses and 51 percent did so within a month.

Salway's quantitative research found an inverse relationship between the duration of PPA and contraceptive use. She suggests that potentially both conscious and/or unconscious reasons could partly explain the substitution of one mechanism for another. It is possible that women consciously replace contraceptive use for the fecundity suppressing effects of breastfeeding, or alternatively the resumption of menses is taken as an indicator of the need for a contraceptive method. De Leon and Potter (1989) found evidence of a similar substitution effect in their study of the inverse association between breast feeding and contraceptive use. In Salway's study those women who did adopt prior to the resumption of menses were of higher parity or had previously conceived during PPA. Condom use was also more likely during PPA.

The qualitative component of Salway's work revealed that the most common explanation for PPA was that the blood loss at childbirth and blood required making the child, meant that postpartum a woman is in a fragile state and does not have enough blood to menstruate. Women view this as completely normal, and the return of menses indicates the return to a pre-pregnancy state of health.

Women were aware of the possibility of conceiving during PPA, these pregnancies being known as *mura* or *muria.* The pregnancies are viewed as both unfortunate and undesirable, and while they are not seen as a frequent event, certain women are viewed to be more at risk than others are. Women who have had a previous *mura* or *muria* pregnancy, or are related to a woman, who has, are viewed as being at increased risk.

The qualitative work also found that adoption of a contraceptive method prior to the resumption of menses is seen to offer little benefit and to carry potential risks to both the mother and her newborn child.

2.3 Continuation

The study of continuation, discontinuation and contraceptive switching are all more straight forward than postpartum adoption in terms of the academic disciplines into which they fit.

All three of these aspects of contraceptive use dynamics have primarily been studied by demographers and, to an extent, the pharmaceutical industry.

Since they represent a binary dimension, continuation and discontinuation are used interchangeably in the following section.

In their studies of contraceptive use, authors have made very different assumptions in what they define as 'continuation'. Akbar *et al.,* (1991) allowed a period of 4 months of non-use between episodes and still considered an individual to be continuing if they were found to be using the same method after this time. This was in part to reduce the loss of data should a woman not have been contacted for information at any time[6]. However, from the methodological standpoint, it is likely to result in an overestimation of durations of use, an overestimation of contraceptive failure and under estimation in contraceptive switching. These final two issues will be discussed later in this chapter.

In their study in Indonesia, Parani *et al.,* (1991) defined a woman as having discontinued use if she was not using after 12 months; however, if a woman experienced a pregnancy and then readopted prior to the 12 month cut off period she was not considered to have discontinued. In addition to using different definitions, other studies have different methodological problems. A study using calendar data attempted to find the date of initiation of episodes of use that began before the start of the calendar, a method that will overestimate durations of use (Akhter and Ahmed 1991).

In their study of six countries, Curtis and Blanc (1997) found that overall around two thirds of women in Bangladesh, Colombia and Peru discontinued within two years, compared to under 50 percent in Egypt, Indonesia and Peru. In their review of findings from Matlab, Bangladesh, Salway and Hossain (1991) found 33.8 percent of couples were still using their first method choice after 36 months, and 56.7 percent were still continuing with any method of contraception. However, this study is based on the analysis by Akbar *et al.,* (1991), previously mentioned, and therefore likely to over-estimate due to the generous allowance of a four-month window of potential non-use.

A number of studies have examined the determinants of the duration of contraceptive use. Ali and Cleland (1999) found desire for another child, number of living children and the respondent's age to be significantly associated with discontinuation. This study also found

[6] This is a study from Matlab using prospective data.

few educational effects on the duration of use of any method including those "*that require skill or memory from user for successful use*". They conclude that this aspect of contraceptive use dynamics appears to be the exception to the "*education must be related to demographic outcome/proximate determinant school of thought*". The International Planned Parenthood Federation (IPPF) study also found that a woman's motivation was the most consistent predictor of continued use (Huezo and Malhotra, 1993). The fact that motivation and not education level or urban/rural residence, both of which were found to be significant predictors of ever or current use, is associated with continued use is important. There was initially a belief that educated urban women were likely to be more effective users of contraception. However, this assumption has been explicitly tested in a number of studies, as well as those mentioned above, and has been found not to be the case.

In their review of the studies in Matlab, Salway and Hossain (1991) found that the continuation rates were similar for educated and uneducated women. In a study in the same area, Hossain and Philips (1996) found there was a net positive effect of outreach workers visiting on continuation of contraceptive use. Another service delivery factor was found to be associated with use in Indonesia; Pariani *et al* (1991) found that if clients were granted their choice of method they were less likely to discontinue use.

Curtis and Blanc (1997) found that the reason for use influences discontinuation, the hazard of discontinuing increasing with time for spacers and being flatter for those limiting their child bearing. Consistent with this, a study in Matlab found the overall discontinuation for first time adopters to be high, since these women are more likely to be 'spacers' as opposed to 'limiters'. All of these studies are in accordance with the conclusion by Ali and Cleland (1999) that continuation is associated with a woman's motivation. Rahman *et al.*, (1992) examine another area linked to motivation - family sex composition - and found that the proportion of users who have no surviving sons or daughters was lower among continuers compared to discontinuers.

Some studies that have examined the determinants of continuation for specific methods have also failed to find a significant relationship between urban/rural residence and education level. Ali and Cleland (1999) found that pill discontinuation varied little by education in the six countries they studied, and the IPPF study found that rural residence increased the risk of discontinuation but decreased the risk in the case of IUD and injectable use (Huezo and Malhotra 1993). In the case of injectables, only motivation was found to be significantly associated with continuation.

Discontinuation of IUD was found to be lower than for other methods (Ali and Cleland, 1999), which is not surprising considering the semi permanent nature of the method. In the same study, the authors found that, having controlled for fertility preference, younger women were still more likely to discontinue compared to older women. Ali and Cleland (op.cit) conclude that this is due to the fact that older women are better able to tolerate side effects; however, there are some other possible explanations. It may be that the side effects reported by older women are different to those experienced by younger women, or that younger women are better able to use the health services available to them to switch methods. Finally, although fertility preferences were controlled for, the cultural/societal view of a woman becoming pregnant may be very different; for example, a grandmother becoming pregnant may be a source of scorn within the community.

Contraceptive discontinuation due to side effects and switching is dealt with later in this review but, as discussed before, discontinuation and continuation are interchangeable and the reason for discontinuation is often closely linked to duration of use. This is due to the individual characteristics of methods impacting on why women may discontinue their use, and this in turns impacts on how long a method may be used for. A study in Peru found that the discontinuation rates for the pill were greater than for the rhythm method and this is due to primarily, method related reasons (Kost 1993).

The situation is succinctly illustrated by Akbar *et al.*, (1991), who point out that the women who tolerate the side effects of IUDs in the short term will have few problems in the long term due to a strong selection effect.

2.4 Discontinuation

As mentioned in the previous section the method initially chosen impacts heavily on subsequent behaviour. Some methods are provider dependent either for the initiation of use (for example, injectables) or for both initiation and discontinuation (for example, IUDs). A methodological issue in the study of discontinuation is how investigators may view discontinuation. In their study of IUD use in Karnataka, Bhat and Halli (1998) discussed IUDs being "wilfully removed". It is possible that it is the current author being over sensitive to semantics, or simply the wrong usage by Bhat and Halli; however, if it is neither the approach of the investigators of this study could in some way have influenced the results. The term wilful is defined as '(of something bad) done intentionally or (of a person)

determined to do exactly as you want, even if you know it is wrong'. The term is therefore a value statement inferring that IUD removal is not approved of.

Most of the studies included in this review found a strong link between contraceptive use and a woman's own motivation. In addition, these studies have occurred in an environment where an individual can dictate her own behaviour, hence the results. One study however examined IUD continuation in an environment where the state, as opposed to the individual, is believed to have a strong influence on behaviour.

As outlined by Ping (1995), in China there are restrictions on the timing, number and spacing of children, women are expected to use the IUD after their first child and sterilisation after the second. Official permission is required in order to have the IUD removed and therefore an individual woman has little control over her contraceptive use. The retrospective study of IUD discontinuation focused on four rural counties, some of which were more advanced at fulfilling the family planning target than others. The most developed county had the lowest discontinuation rate due to expulsion of the IUD.

Following the introduction of the two child policy for women whose first child was a girl, these women were unsurprisingly more likely to discontinue than those whose first child was a boy. In addition, those women whose first child was a girl had a higher rate of expulsion of the IUD and the author concludes that the only plausible explanation for this is that the women removed the devices themselves. Between the different counties there were significant differences in removal, expulsion and failure rates, in part a reflection of the flexibility of the family planning cadres. The author quotes a modern Chinese saying as accounting for this variation in an environment where family planning behaviour is directly controlled by the state, *"for every policy that comes from above, there is a strategy to deal with it at the bottom"*. This study illustrates, that even in these conditions, a woman's individual motivation can possibly still play an important part in her contraceptive behaviour, the study also highlights the mis-reporting of reason for discontinuation.

There are a number of reasons that women discontinue contraceptive use. Table 2.1 page 13 contains a list of those reasons included in the Bangladesh DHS. Survey instruments such as the DHS usually only collect one reason for discontinuation, while it is likely that in at least some cases women discontinue for a combination of reasons (Curtis and Blanc, 1997). There follows a discussion of previous research on two different types of discontinuation, failure and discontinuation due to side effects.

2.4.1 Method failure

There are three different definitions of contraceptive method failure. Theoretical or method failure, which is akin to a laboratory failure rate, a 'perfect use' rate unaffected by user or other external influences. A more realistic measure is use failure, which examines failure rates occurring in an 'average' population. This second definition includes failures that may be attributed to the user. Finally, an extended failure rate includes all accidental pregnancies including those occurring after the method was discontinued (Jejeebhoy, 1991).

A contraceptive method failure is exposed to a number of influences that can lead to it being either over or under-reported. Trussell and Kost (1987) highlight the subjectivity of definitions of failure owing to the fact that a woman determines if she was using the method at the time or not. The issue of *how* the method was used is irrelevant; what is important is simply if the woman felt that she was using a method at the time or not.

In her study based in Peru, Kost (1993) discusses how women may be resigned to experiencing some method failures and associate them with their own fault as opposed to believing there to be a problem with the method. While this was discussed in reference to returning to a method following a contraceptive failure, this perception may also lead to an under-reporting of failures.

Seaton (1985) describes a scenario where women may be unwilling to admit their part in a method failure and therefore may state that it is due to another cause. There is therefore evidence that there may be cultural variations in how method discontinuation is perceived and consequently reported.

An additional potenial source of bias is the time frame involved when examining contraceptive failures. Although it is not completely clear, it appears that in the study by Akbar and Colleagues (1991) failure is defined as any pregnancy that occurred during or within four months of contraceptive use. This is likely to over estimate the failure rate since the method could have been discontinued for three months due to a desire to become pregnant and yet this pregnancy would be classified as a contraceptive failure.

In 1991, Moreno and Goldman (1991) published a review of contraceptive failure rates from DHS in the developing world. They found that failure rates correlated strongly with the strength of the family planning effort as measured by the Lapham and Maudlin scale. The study found the pill had a greater failure rate than IUD in all of the countries studied apart

from Brazil, and there was evidence of higher user failure of the pill in the developing as opposed to the developed world.

Moreno went on to use the same datasets to test the assumption that educated, urban women are less likely to experience a failure. The study found that the failure rates for clinical and barrier methods were slightly higher in rural areas but this was not true for traditional methods. Failure rates were found to be higher among rural women, but this result was only significant in two countries and in six of the countries failure rates were lower among this group. Moreno found that once method used, duration of use, woman's age at acceptance and her fertility intentions were controlled for, neither urban/rural residence nor education level explained a significant amount of the variation in failure rates (Moreno 1993).

The above results are consistent with the findings of Ali and Cleland (1999) who also found that it is the motivation of the woman that has the greatest impact on discontinuation. The study by Akbar and colleagues also less directly found motivation to be linked to failure rates. As discussed above, this study used a broad time definition for when a failure could have occurred and is therefore likely to have over estimated failures. However, with this in mind it is interesting that the study found that over time the failure rates of both the pill and IUD increased. The authors discuss in their introduction the fact that at the outset those women who first adopted contraceptive methods tended to be older, higher parity women, and over time the characteristics of the acceptors changed to include younger women, who would also use for spacing purposes. Therefore, if the definition of failure stayed the same and the sample's characteristics changed, it is possible that this change may account for some of the increase in failure rates.

In his study based in Kenya, Ferguson (1992) found that 30 percent of discontinuation of the pill was due to poor compliance or method failure. The implications of this result for service delivery are difficult to interpret since it is not clear what caused the poor compliance and what proportion of the contraceptive discontinuation was due to failure, as opposed to poor compliance. However, it is possible that both scenarios are influenced by service delivery factors, especially counselling on how to use a method, what to do if one forgets to take the pill and the side effects that may be experienced when using the method. Similar results were found in Matlab, where Seaton (1985) found an average undertake of 2-3 pills a week, indicating poor compliance.

2.4.2 Discontinuation due to side effects

As discussed in the section on contraceptive continuation and failure, there are a number of definitional issues associated with the study of side effects. In this case the issue is how researchers view 'discontinuation due to side effects'. The DHS results simply state that a woman has discontinued due to side effects. Some researchers subdivide this into real and perceived, or real and 'fear of side effects'. The reason for the introduction of this dichotomy is unclear but it could have its origins within a biomedical bias if clinical trial information on side effects was found to be different from that reported by a national population. In her study of Peru, Kost (1993) speaks of a 'fear of side effects', implying that women discontinue prior to actually experiencing side effects, presumably due to rumours prevalent within the population or previous experience with the method. Salway and Hossain (1991) speak of reported side effects being similar to the general health complaints in Matlab.

From a demographic perspective the splitting of side effects into real and perceived is irrelevant because it is the fact that a woman has discontinued that will impact on fertility levels. However, from a programme perspective it is important to examine if the dichotomy is real or not; counselling could be improved to reduce the number of women discontinuing due to perceived side effects, be they wrongly attributed to the method or not yet experienced. A clear understanding of this issue requires qualitative techniques; however, evidence from the DHS on current method and associated side effects lead the author to believe that the side effects are indeed likely to be 'real' or more conservatively attributed to the method.

This thesis does not make any distinction between real and perceived contraceptive side effects. This is because the focus of this work is on effective contraceptive management. Therefore a woman discontinuing contraceptive use due to perceived side effects is still discontinuing for a reason unrelated to her fertility preference and on an individual level this is exactly the same as discontinuing due to real side effects. For the purpose of this thesis, where side effect(s) appears in the text, this refers to perceived or real or both types of side effects.

As previously mentioned the method chosen by a woman is likely to impact on the reasons that she discontinues. This is especially true in the case of discontinuation due to side effects, since this is primarily associated with the use of hormonal contraceptive methods and IUDs.

Table 2.2 Contraceptive prevalence (Currently Married Women aged 10-49)

	Contraceptive prevalence	Pill	IUD	Injectable	Other modern	Rhythm	Other Traditional
Bangladesh 1993/94	44.6	17.4	2.2	4.5	12.2	4.8	3.6
Brazil (NE) 1991	59.2	13.3	0.3	0.8	39.2	2.4	3.1
Colombia 1990	66.1	14.1	12.4	2.2	26.0	6.1	5.3
Dom. Rep 1991	56.4	9.8	1.8	n/a	40.2	2.0	2.7
Indonesia 1994	54.7	17.1	10.3	15.2	9.6	1.1	2.6
Paraguay 1990	48.4	13.6	5.7	5.2	10.8	3.3	9.9
Peru 1991/92	59.0	5.7	13.4	1.9	11.8	20.7	5.5
Philippines 1993	40.0	8.5	3.0	0.1	13.3	n/a	7.8
Turkey 1993	62.6	4.9	18.8	n/a	10.8	1.0	27.1
Zimbabwe 1994	48.1	33.1	1.0	3.2	5.0	0.1	4.2

BDHS 1993/94, Colombia DHS 1990, Dominican Republic DHS 1991, Indonesia DHS 1994, North East Brazil DHS 1991, Peru DHS 1991/92, Paraguay DHS 1990, Philippines DHS 1993, Turkey DHS 1993, Zimbabwe DHS 1994

Table 2. 3 Twelve month net discontinuation rates by reason for discontinuation

	Failure	To get Pregnant	Side effects	Method related	Other	Total[1]
Bangladesh 1993/94	3.7	8.3	18.7	12.7	6.0	49.4
Brazil (NE) 1991	10.3	5.6	14.5	15.8	13.4	59.6
Colombia 1990	9.5	6.9	10.0	10.2	8.6	45.2
Dom. Rep 1991	10.4	13.3	11.7	17.4	12.1	64.9
Indonesia 1994	3.2	6.2	5.6	10.0	1.4	26.5
Paraguay 1990	9.1	5.9	13.0	17.5	13.6	59.1
Peru 1991/92	15.6	5.6	7.5	12.5	7.7	48.9
Philippines 1993	14.0	5.6	6.2	----11.5----		37.2
Turkey 1993	10.4	5.3	5.2	10.9	5.3	37.1
Zimbabwe 1994	3.6	5.2	1.7	6.5	2.6	19.7

Source: Curtis and Blanc 1997

[1] This is the total 12 month net discontinuation rate.

Tables 2.2 and 2.3 are included to give a broad overview of contraceptive discontinuation in ten countries representing different regions of the developing world. While these tables are included primarily to examine discontinuation due to failure and side effects it is useful to look also at the variety of method mixes and overall discontinuation rates.

The impact of method choice on discontinuation is likely to be most visible for permanent methods. The prevalence of female sterilisation is high in Latin America, illustrated in Table 2.2 by the high values for 'other' modern methods. It could be expected that the overall discontinuation rate for these countries, especially Brazil, Colombia and the Dominican Republic, would be lower than that of the other countries included in the table. However, the twelve month net discontinuation rates for these countries is higher than would be expected and are in fact roughly comparable to countries with much lower levels of permanent contraceptive use.

Another expectation that is not realised is that countries with a high level of traditional contraceptive use do not show markedly higher levels of method failure. In Turkey, the contraceptive prevalence is dominated by the use of withdrawal, but the net twelve-month discontinuation rate is similar to those found in the other nine countries. This observation supports previously discussed findings, where personal motivation was found to be the strongest determinant of effective contraceptive method use (Cleland and Ali 1999).

While the two examples above highlight that it is not simply the method that dictates discontinuation there are nevertheless some generalisations that can be made. The relationship between method choice and reason for discontinuation has been found in the US and in developing countries to be remarkably similar. Hammerslough (1984) compared the probabilities of failure relative to discontinuation for 'other' reasons. The study used the early version of the calendar and therefore, for reasons discussed in Section 2.1, the reasons for discontinuation are inferred and the 'other' category is very broad. The study based in the US found a low failure rate for the pill, but this method was associated with a high level of discontinuation for 'other' reasons. In the case of the rhythm method, it was found that discontinuation due to 'other' reasons was low, but failure rates high. In their study of contraceptive discontinuation, Ali and Cleland (1995) observe that the overall discontinuation rates for hormonal and traditional contraceptive methods were largely similar; the high failure rates of traditional methods being balanced by discontinuation of hormonal method use due to side effects.

Those studies that have examined discontinuation due to side effects have found this to be primarily associated with modern method use. However, rates of discontinuation due to side effects vary from country to country as seen in Table 2.3, discontinuation due to side effects varying from 2 percent in Zimbabwe to 19 percent in Bangladesh.

Small scale studies in The Gambia and Niger (Cotton *et al.*, 1992) and in Mexico (Shedlin and Hollerbach, 1981and Zetina-Lozano, 1983), and a study using the DHS in Morocco (Steele *et al.*, 1999) all found that side effects were the most common reason for discontinuation of a number of modern methods. One of the Mexican studies (Shedlin and Hollerbach 1981), and the Moroccan Study looked solely at oral contraceptive (OC) use, the other Mexican study examined IUD and OC use, and the African study looked at IUD, injectable and OC use.

In another study based in Peru, Kost (1993) found that pill discontinuation was greater than that of the rhythm method due to 'fear of side effects'. Other studies have found that the pill

is viewed as very powerful. In Rural Mexico, Shedlin and Hollerbach (1981) reported the local belief that the pill weakens the body. This was also found in a Lebanese study (Zurayk 1981). The Lebanese study followed up women who became pregnant in the 11 months immediately postpartum, of which 24 percent had been using traditional methods and 16 percent were resting from the pill and using either a traditional method or no method at all.

2.4.2.1 The side effects of modern contraceptive method use

Discontinuation of hormonal contraceptive use due to side effects is common both in the developing and the developed world, and yet little is known about what precise side effects result in discontinuation and how these side effects impact on individual women's lives to result in discontinuation. In Bangladesh, over 50 percent of women discontinue the pill and injectable as a result of side effects within the first year of use (Mitra *et al.*, 1997). The review aims to give an overview of the issues of modern contraceptive use and their effects on women's health, concentrating on women's perceptions.

2.4.2.2 The Biomedical Health Effects

The health benefits of any contraceptive use[7] are well documented and have been highlighted during the rapid increase in use that has occurred over past thirty years. These benefits are to both women and children. Giving women the ability to avoid high-risk births, for example to very young or older women, and by preventing the effects of prolonged and often-continuous childbearing accords both morbidity and mortality related benefits to women. The use of contraception also reduces the number of unplanned pregnancies, and therefore the number of abortions. This is advantageous due to the reduction in potentially avoidable surgical procedures or medical interventions and, more importantly, in the developing world to reduce the number of illegal abortions. There are few countries in the developing world where abortion is legal and women seek abortions regardless of the legal status; the consequences of illegal abortion are, however, infinitely more severe. The benefit to children is their improved health status as a result of longer birth intervals and the improved health status of their mothers.

Other less direct advantages have been found to be associated with contraceptive use. These advantages are predominantly method specific. For example, combined oral contraceptives (COCs) have been found to reduce cancers of the endometrium and ovary, and reduce the incidence of benign breast disease and pelvic inflammatory disease (Lee *et al.*, 1989). An

[7] This include traditional methods which can also be successfully used for delaying, spacing and limiting births, e.g. withdrawal and the rhythm method or periodic abstinence.

additional effect of COCs, which is more closely linked to its action, is the reduction of risk of anaemia due to the reduction in menstrual flow (Lee *et al.,* 1989).

Negative side effects are also associated with contraceptive use, but as a result of the clinical testing procedures and drug licensing laws, those contraceptive methods that have been approved will always confer an advantage as opposed to a disadvantage. In the case of the pill there is evidence of increased risk of venous thromoboembolism among users and evidence for increased risk of ovarian and breast cancers (Lee *et al.,* 1989). However, these risks, while increased, are still low in absolute terms. The injectable contraceptive DMPA was initially not approved in the US due to unacceptable elevated risks of breast and endometrial cancers (Lee *et al.,* op.cit.).

2.4.2.3 The user's perspective of health effects

While the medical view of the effects of contraceptive use is well defined both in terms of the overall advantage of family planning and the method specific attributes that can be advantageous, the users of these methods have different views. In response to a study that found that 76 percent of US women stated that there are substantial risks associated with oral contraceptive use, Grubb and colleagues (1987) investigated the perceptions of women in the developing world.

This study did not aim to be nationally representative; instead, it sampled women in middle class urban areas so as to aid comparability between the eight study sites. Overall between 51 percent and 75 percent of the women surveyed felt that there were substantial risks associated with taking the pill. In the US study, 31 percent of women surveyed believed that using the pill can cause cancer, and in the Grubb study universal concerns were voiced about sterility associated with its use. Both of these perceptions are associated with major physiological consequences and at odds with medical research findings. In a survey of urban women in Sudan some women linked the use of 'medical methods' such as IUD, vaginal methods and injections, to some cancers and deformation of the embryo. In addition, the Sudanese women also stated concerns about temporary and permanent sterility.

The perception of a contraceptive method as 'dangerous' has associated impacts on its use. In the case of the Grubb study, between 26 percent and 60 percent of women had discontinued using the pill due to concerns about its safety and in each country there were numbers of women who had never used the method due to reservations about its safety.

Contraceptive use is fatal in a very small number of cases. What is highlighted by the difference in opinion between the medical community and users is the poor flow of information between the two and understanding of the other perspective. In the case of the developed world it can be said that this information flow has improved since the studies were carried out, but there are still concerns. In the developing world the situation is less clear.

The effect of a contraceptive method on a woman's health can be perceived by her in two different ways, one being the long term, more general effect of use, and the other being specific side effects that are associated with the action of the method or associated with its use. The general way in which contraceptive use affects a woman is discussed below. A more detailed examination of the impact of contraceptive side effects on a woman's life is discussed in Chapter 6.

In Bangladesh (Salway 1996), India (Winkvist and Akhtar 1997), and Sri Lanka (Nichter and Nichter 1996) modern medicines are perceived to be very powerful. In the case of India this was in reference to modern medicine in general, while in Bangladesh and Sri Lanka this perception was found when investigating oral contraceptive methods. Such findings are not limited to South Asia. In South Lebanon, Zurayk (1981) reported that women stated the need 'to rest' from the pill and in Mexico Shedlin and Hollerbach (1981) found that women believed that the pill 'weakens the body'.

There are two closely linked potential explanations for the belief that the action of hormonal contraception is inherently harmful. One is that women's perceptions of their own reproductive physiology do not easily accommodate the action of the pill, and this leads to a belief that the method is inherently harmful. The other is that women directly feel, or attribute, the effects of the method on their body and these effects are viewed as disruptive and powerful. The two explanations are closely linked simply because the latter explanation is also linked to how a woman perceives her physiology in general and especially her reproductive function.

The Sri Lankan study by Nichter and Nichter (1996) specifically sought to examine local rationales for contraceptive health concerns and to move away from the usual biomedical approach which, they argue, exists in a cultural void. As they point out, rumours about contraceptive methods which are, at worst, dismissed by the medical profession and, at best, are not closely investigated, would not exist in a community unless they fitted in with prevailing health beliefs. An understanding by service providers of women's perception of their own physiology is key in explaining the action of a contraceptive method in a way that a

woman can relate to, recommending a method that is appropriate to the women, or simply so that a woman's subsequent behaviour is better understood. A woman's understanding of physiology is likely to be influenced by education but, on a much broader level, beliefs are likely to be culturally specific and linked in many cases to the traditional and/or folk beliefs within the local population (Maynard Tucker, 1989, Shedlin, 1979).

The study by Maynard Tucker found that while 61 percent of women and 19 percent of men had an accurate knowledge of how a contraceptive worked this was not accompanied by an understanding of the function of the reproductive organs. As the author points out, this could lead to a lack of understanding of any information given by the medical staff concerning the action of the method both in terms of how the method is supposed to be used and the side effects that could occur. In Sri Lanka (Nichter and Nichter, 1996) women's fears about the long-term toxicity of the pill culminated in a belief that the excess heat resulting from pill use lead to the womb drying out resulting in permanent sterility. Owing to the perception of the pill as being this powerful, women felt that it should not be taken every day. This perception of the pill ties in with the beliefs discussed above concerning resting or taking a break from the pill.

Just as the pill may be perceived as very powerful in a general way due to its action fitting poorly into an individual's perception of how the body works, the clinical side effects of a method are also likely to viewed as detrimental. Contraceptive side effects are further discussed in Chapter 6 with specific reference to qualitative component of this study examining why women discontinue hormonal contraceptive method use.

2.5 Contraceptive Switching

There are a number of definitions that have been employed in the examination of contraceptive switching. In Section 2.3 a number of issues also pertinent to the study of switching were discussed. These include the study by Akbar *et al.,* (1991), that potentially included a period of four months of non-use within their definition of an episode of use, and the study by Pariana *et al.,* (1991) where use after 12 months was examined, and if the same method was being used at that time continuation assumed, regardless of whether a pregnancy occurred. Both of these studies underestimate switching among those women who discontinue the use of a method and then re-adopt the same method. The perception of hormonal contraception by women as something that is powerful and that the body requires rest from its effects means that the switching patterns of these users would be under estimated. In their study of contraceptive switching in Sri Lanka, Kane *et al.*, (1988)

interrupted use of a method was not considered to be switching if the same method was resumed.

It may be due to semantics that re-adopting the same method is not considered to be 'switching'. This may also be the reason that some studies of contraceptive switching have considered the movement from non-use to use as a switch. A more purist definition is that a switch involves either a period of non-use between two episodes of use of the same method or changing immediately from one method to another. For the purposes of this study the more purist definition is preferred, but in the case of some studies reviewed it was difficult to report findings according with this definition.

Curtis and Blanc (1997) completed one of the most comprehensive studies of contraceptive switching as part of their larger study on the 'Determinants of Contraceptive Failure, Switching, and Discontinuation'. The study found that higher education levels were associated with increased levels of switching in all six of the countries studied and, in four, this relationship was significant. The study also found that in four of the six countries significant variation existed at the cluster level. The cluster level can be loosely viewed as a community, and therefore this result indicates spatial variation that is not accounted for by the model.

The policy in Matlab has been to encourage method switching as an integral part of the family planning programme. Cleland and Ali (1997) highlight that one third of women who start to use hormonal contraception are likely to discontinue within a year and therefore programme managers should anticipate this and make alternatives readily available. This finding and the policy of Matlab make it perfectly plausible that service provision can vary to the extent that for women in certain areas it is easier to switch methods than it is in other areas.

While hormonal contraceptive method users are more likely to switch methods due to side effects (Cleland and Ali 1997, Ferguson 1992), experiencing a contraceptive failure was found to be associated with traditional users abandoning the method. In Lebanon, Zurayk (1981) reported that the high rate of switching between withdrawal and the pill was due to women's preference for the pill but their low tolerance of its side effects.

The method used was also found to be important. Episodes of condom or injectable use were more likely to be associated with switching behaviour. In the case of the condom it may be that women use this as a temporary method or while, for example, 'resting' from the pill, and, therefore, while it might appear to increase the amount of switching, it may in fact have been

chosen for exactly that purpose. As has been previously discussed, the method chosen and its characteristics play an important role in contraceptive use dynamics, and it is important to consider the effect of a specific woman adopting a particular method on subsequent behaviour.

Having described the literature on the various aspects of contraceptive use dynamics, the remained of this chapter will describe the situation in Bangladesh.

2.6 Bangladesh

Due to a combination of data problems and the belief that Bangladesh did not have the traditional precursors for fertility decline, it was not until 1990, and the results of the 1989 BFS (Bangladesh Fertility Survey) that the fertility decline was identified. The initial results of this survey were viewed with scepticism and a rigorous examination of data, from a number of sources, undertaken. Cleland *et al.,* (1994), who undertook this examination, concluded that the decline had indeed occurred and fertility had dropped from seven births per woman in 1974 to between 4.6 and 5.5 in 1988. The current figure in estimated to be 3.3 births per woman (BDHS 1996/97).

The fact that Bangladesh remained one of the poorest countries in the world throughout the entire period of its fertility transition has raised questions about the driving force of this decline. The driving force being what led couples to adopt contraceptive methods in order to reduce their fertility levels. In 1993, Cleland and Thomas debated the necessary conditions for fertility decline.

Thomas argued that fertility would remain high in a society until children cease to be a parent's security in times of hardship. He has sympathy with Cain's theory of the economic value of children but states the environment in which the risks occur must also be considered (Thomas, 1993). Cleland, on the other hand, argues that economic considerations are relatively unimportant to reproductive motivations, and while improvements to the economic and social conditions of a population can aid fertility decline they are not prerequisites. In historic populations with high mortality rates, a women would bear around seven children, but an average of only two or three of these children would survive to adulthood. Thus as mortality conditions improve the adaptation to lower fertility is a reaction to the increased survival of children rather than a change in their economic value. Cleland also points out that fertility declines in Western Europe occurred before extra-familial mechanisms for insurance against risk were in place (Cleland, 1993).

In 'The determinants of reproductive change in Bangladesh: Success in a challenging environment' (Cleland *et al.,* 1994) additional evidence is provided to support the fact that certain social and economic conditions are not essential for fertility decline to occur. The following factors support this argument: infant and child mortality levels were still high when the fertility decline started, living standards have not increased markedly, levels of schooling have increased but at a modest rate and female age at marriage has increased by only a small amount.

It should be noted that the latter two measures are commonly used proxies of women's status. The accurate measurement of theis is fraught difficulty and, as Balk (1994) points out, commentators are sometimes unaware that while examining 'women's status' they can be comparing identically named variables measuring very different entities. The two measures used above are acknowledged by the authors to be proxies of women's status. From evidence presented in Balk (1994), it would appear that age at first marriage does not have the positive effect on women's status that was believed to exist. However, education was found to be significantly and positively related to her indexes of leniency, authority and attitudes, but displayed a significant but negative relationship with mobility.

Bongaarts and Watkins (1996) have further contested the dependence on socio-economic explanations of fertility decline in the study on the relationship between the human development index [8](HDI) to fertility transition. Their study, involving data from 69 developing countries found that the development level, as measured by the HDI, at the time of onset of fertility transition has declined over time. If Bangladesh had waited until it attained the development level of Hong Kong or Singapore when their fertility transition occurred, the fertility decline is unlikely to have started before the next century.

In the case of Bangladesh, Cleland *et al.,* (1994) have argued that ideational change has brought about the decline in fertility. This ideational change has brought about a change in individual's ability to control their fertility in terms of access to services, and a national climate of promotion and acceptance of fertility regulation as a means of achieving sustainability. The following statement is a more cautious interpretation, "The low level of development at which Bangladesh's fertility decline occurred has attracted the attention of demographers because it suggests that family planning programs can play a part". (Bongaarts and Amin 1997).

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[8] The HDI is a function of life expectancy, literacy and GNP per capita.

2.6.1 Bangladesh Family Planning Programme and Policy

Family planning was introduced into Bangladesh in the early 1950s by the voluntary efforts of social and medical workers and, in 1965, the programme became a government sector programme. In 1971 Bangladesh achieved its independence from Pakistan and between 1971 and 1975 experienced both the economic hardship of the oil crisis and famine. By 1976 population growth had been declared the country's number one problem and government commitment to fertility reduction has continued up to the present day.

Since 1965-1975 a large-scale field based family planning programme has been in place, and since, 1975 maternal and child health (MCH) supported the multi-sectoral family planning programme. The field based programme constituted a very different approach compared to the previously clinic based programme. Since 1980, the integration of MCH, primary health care (PHC) and family planning as a single entity has been promoted. The most recent approach to be adopted is one of social awareness in all sectors of society, aimed at raising and sustaining awareness in, and the benefit of, reducing fertility in order to achieve sustainable development.

The national aims of family planning programmes often fail to diffuse to village level, if indeed they get past policy documentation level, but Bangladesh is an exception. National aims have been translated into action on the ground through the large-scale family planning network that blankets the country. There are two key features of the Bangladesh family planning programme that have contributed to its impact on fertility levels, government commitment and the awareness of, and the reduction in, potential barriers to contraceptive use.

Government commitment has been key in maintaining the momentum and motivation of the family planning programme. Reduction to one barrier to use has been achieved by the provision of services where they are most convenient for the user.[9] Most couples live within five miles of a service delivery point and a network of family welfare assistants exists which visit women and men in their homes. In 1998 there were an estimated 28,000 government family welfare assistants (FWA), and an additional 10,000 NGO (Non-government Organisation) FWAs (Phillips and Hossain, 1998). Pill and condoms are available free through the village workers and subsidised pills and condoms are available through the

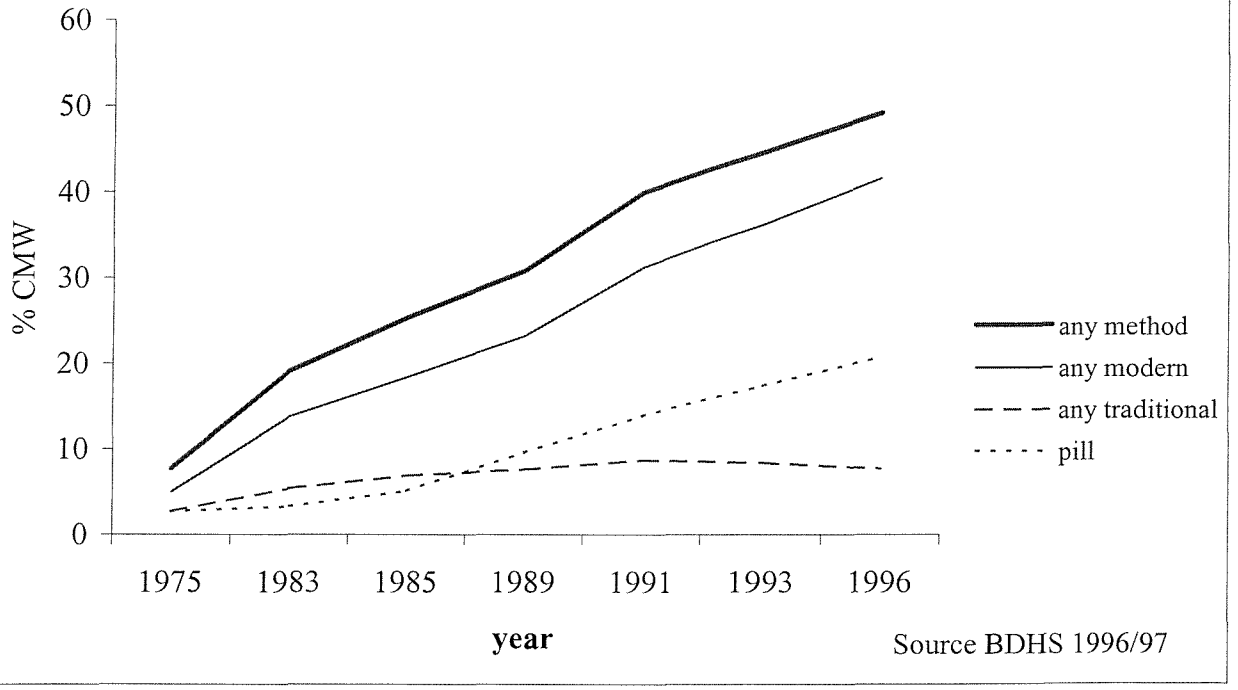
[9] Barriers to use are also referred to as the costs of contraceptive use and include direct costs such as the financial cost of methods and services, and indirect costs such as the societal cost of a woman using a method.

commercial sector. In addition, societal and cultural barriers to use have been minimised by the active inclusion of community and religious leaders by the family planning programme. Societal barriers to the use of contraceptive methods have been reduced via a nation-wide education and information campaign promoting a small family size, and increasing the social acceptance of family planning.

2.6.2 Contraceptive trends

Graph 2.1 shows the increase in contraceptive use since 1975. The increased use of modern method is clear, with relatively constant use of traditional method since the mid 1980s. The pill is included in this graph to illustrate the dominance of this method in Bangladesh. Table 2.4 is included to give further detail.

Graph 2.1 Trends in contraceptive use
Bangladesh 1975-1996



Source BDHS 1996/97

Table 2.4 Trends in current use of family planning methods (CMW 10-49)

Method	1975 BFS	1983 CPS	1985 CPS	1989 CPS	1989 BFS	1991 CPS	1993-94 BDHS	1996/97 BDHS
Any method	7.7	19.1	25.3	31.4	30.8	39.9	44.6	49.2
Any modern method	5.0	13.8	18.4	24.4	23.2	31.2	36.2	41.6
Pill	2.7	3.3	5.1	9.1	9.6	13.9	17.4	20.8
IUD	0.5	1.0	1.4	1.7	1.4	1.8	2.2	1.8
Injection	U	0.2	0.5	1.1	0.6	2.6	4.5	6.2
Vaginal methods	0.0	0.3	0.2	0.2	0.1	U	U	U
Condom	0.7	1.5	1.8	1.9	1.8	2.5	3.0	3.9
Female Sterilisation	0.6	6.2	7.9	9.0	8.5	9.1	8.1	7.6
Male Sterilisation	0.5	1.2	1.5	1.5	1.2	1.2	1.1	1.1
Any traditional method	2.7	5.4	6.9	7.0	7.6	8.7	8.4	7.7
Periodic Abstinence	0.9	2.4	3.8	3.8	4.0	4.7	4.8	5.0
Withdrawal	0.5	1.3	0.9	1.2	1.8	2.0	2.5	1.9
Other traditional methods	1.3	1.8	2.2	2.0	1.8	2.0	1.1	0.8
Number of women	U	7662	7822	9318	10907	9745	8980	8450

U= Unknown (no information)
Source: 1996-97 DHS

The pill has increased steadily in prevalence, becoming the most commonly used method at the end of the 1980s. Although initially popular the promotion of female sterilisation declined in the late 1980s. This decline was due to a reduction in donor support for the programme that offered remuneration to those undergoing a sterilisation procedure. As a result of the permanent nature of sterilisation, and the fact that few female sterilisation procedures have been carried out in the 1990s, the current prevalence of female sterilisation consists primarily of women who underwent the procedure in the past, (Steele and Diamond 1998).

The prevalence of traditional methods has also increased over time, increasing from 2.7% in 1975 to 7.7 % in 1996-97. Periodic abstinence is the most commonly used traditional method and would appear to be the second most popular contraceptive method in Bangladesh at the present time if female sterilisation is excluded for the reasons described above. However relative to the pill, all other contraceptive methods, including periodic abstinence, individually make up a small proportion of total contraceptive use.

Despite widespread knowledge of contraceptive methods and near universal access to methods, current contraceptive use varies across the country. Table 2.5 illustrates this variation. Current use of any method varies from 20.1% in Sylhet to 61.9% in Khulna, and the variation in use of modern methods is even greater. Modern contraceptive method use by the urban population is 12.5% higher than that for the rural population. The use of the pill

increases with increasing education, while injectable use appears to have an inverse relationship with education.

Table 2.5 Current use of family planning by background characteristics (1996-97)
Currently married women age 10-49.

	Urban	Rural	None	Primary incomplete	Primary complete	Secondary/ higher	Barisal	Chittagong	Dhaka	Khulna	Rajshahi	Sylhet	Total
Any method	62.1	47.6	45.8	51.2	51.1	56.0	49.4	37.2	49.8	61.9	58.6	20.1	49.2
Any modern method	52.6	40.1	39.5	43.9	41.9	45.1	41.0	30.8	42.1	51.0	51.0	16.0	41.6
Pill	22.2	20.6	18.3	22.5	23.7	24.7	20.8	13.1	21.9	26.6	26.3	5.4	20.8
IUD	2.8	1.7	1.3	1.2	2.6	3.1	2.1	2.6	1.2	2.4	1.5	1.5	1.8
Injection	5.7	6.3	7.0	8.3	4.8	3.0	7.0	5.5	5.2	9.1	6.8	5.1	6.2
Condom	13.2	2.7	1.6	2.7	4.9	10.7	3.8	3.2	5.0	3.8	3.6	1.4	3.9
Female Sterilisation	7.9	7.6	9.7	7.9	4.8	3.1	6.1	5.8	8.0	7.7	10.1	2.6	7.6
Male Sterilisation	0.7	1.2	1.4	1.3	1.0	0.2	1.2	0.5	0.6	1.2	2.4	0.0	1.1
Any traditional method	9.5	7.4	6.4	7.3	9.1	10.8	8.3	6.4	7.8	10.9	7.6	4.1	7.7
Periodic Abstinence	5.0	5.0	4.3	4.4	6.8	6.6	4.6	4.2	4.9	7.0	5.3	3.7	5.0
Withdrawal	3.5	1.7	1.0	2.3	1.7	3.9	2.6	1.1	2.1	3.3	1.6	0.4	1.9

Source: BDHS 1996/97

2.6.3 Spatial variations in contraceptive use

Diamond *et al.,* (1997) examined the spatial variations in contraceptive use, using a multilevel approach to examine individual, community and district level influences. In this paper family planning is seen as an intermediary variable through which socio-economic and cultural factors influence fertility.

At the individual level modern method use was found to be most prevalent among those aged 20-30 and with an increased education level. As an indicator of autonomy, women who were permitted to go out alone[10] were also found to be more likely to be using a modern method. Furthermore, the authors stated that it was a reflection of the strength of the programme that contraceptive use was found to be relatively similar in urban and rural areas, and therefore not a predictor of use in this study.

At the community level, access to the thana HQ and visits of the family planning worker were both found to be important to modern method use. The study found that while some individual and community variables were important predictors of use, there was a large amount unexplained community and district level variation in use that requires further investigation.

Amin *et al.,* (1997) also studied spatial variations in contraceptive use. Using the 1989 BFS they found the interesting result that, while at an individual level religious strength[11] did not predict contraceptive use, at a district level it was an important predictor, with districts where religion was very strong having relatively low contraceptive use particularly for modern reversible methods and sterilisation. They argued that this could be due to difficulties in recruiting fieldworkers and in the fieldworkers moving freely around in areas of high religiosity. Amin *et al.,* (1997) results also supported early work by Caldwell (1980) who argued that mass education was a precursor for the uptake of contraception as they showed that district literacy was an important predictor of contraceptive use. As with Diamond *et al.,* (1997), this paper argues for more work on the spatial context of family planning in Bangladesh so as to fully understand the relative success of the programme in certain areas.

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[10] For this analysis, two indicators of autonomy, both direct questions in the BFS 1989 were used. The other indicator used was whether or not a woman works for cash.

[11] At the individual level the religiosity variable was divided into three: strict Muslim (pray every day), non-strict Muslim (those who pray less frequently) and Hindu. At the district level, religiosity was measured as the proportion of Muslim women who report praying every day.

In one further study, Amin *et al,*. (2000) examined the geographical variation in contraceptive uptake in Bangladesh. Using multilevel techniques, they found that the positive outliers, areas with higher contraceptive use that would have been expected having controlled for other key variables, lay along the borders with West Bengal. The western border of Bangladesh, cuts through the area known as Bengal, the Indian part being West Bengal. The Bengalis share a common language and sense of identity, and this paper provides strong evidence of the influence of this commonality and cross border communication on contraceptive uptake.

Following on from this paper, two of its authors, Amin and Basu (2000) discuss the importance of culture, in the fertility decline in Bengal as a whole. They point out that a specific cultural change, in this case fertility change, can occur on its own and does not have to be either accompanied nor result from other cultural changes. Hence the limited improvements in indicators of women's status at the time of the fertility decline. The other component that they discuss is the importance of culture as a facilitating agent. In the case of Bangladesh, the aristocracy left at partition to go to West Pakistan and into the void stepped the educated middle class, who retained strong ties with rural areas. The Bengali culture is described as having a willingness to change and the means, via its new leaders to the rural areas for this change to be widespread.

This explanation for the relative lack of change in social indicators during the time of the fertility decline is more compelling than other recent account, (Caldwell *et al.,* 1999). It seems likely it is a combination of the unique cultural factors and the strong family planning programme that account for the decline.

2.6.4 Unmet need

Linked to the need for a greater understanding of factors influencing contraceptive use is the high level of unmet need for family planning that still exists in Bangladesh. In the following discussion the most basic concept of unmet need is used, namely "fecund women who are currently married and who say either they do not want any more children or that they want to wait two or more years before having another child, but are not using any method of contraception".

The 1996/97 BDHS found that 15.8% of currently married women had an unmet need for family planning. Levels of unmet need varied across the country, with the highest level in Sylhet , 21.4% and the lowest level in Khulna 10.6% (BDHS 1996/97). At a national level, demand for family planning services was 66.6% of currently married women, of which, 76.2% had met as opposed to unmet need (BDHS 1996/97).

As unmet need is defined by a woman's current status it is not clear what would have happened to these women after the survey, for example - whether they would adopt a method or if they would have experienced an unplanned pregnancy. The level of unplanned pregnancy is measured by comparing TFRs with total wanted fertility rates. The BDHS found a total wanted fertility rate of 2.1 in 1996/97, compared to the TFR of 3.3. These indicators show that, although the family planning programme has been successful there remain areas where it can be improved. It should be noted that throughout the 1980s there has been an unmet need in Bangladesh even as contraceptive use increased. This is an indicator of diffusion for as more people take up contraception a further proportion has an unmet need.

2.6.5 Contraceptive discontinuation rates.

With increased maturation of family planning programmes, such as that of Bangladesh, it is not sufficient to only use impact indicators that are primarily output measures, such as number of new acceptors and couple-years of protection. What increasingly needs to be examined is the quality of care that clients received and their reproductive behaviour after they have left the clinic. On a national level, discontinuation rates and contraceptive switching levels can provide information on the reliability and effectiveness of contraceptive method use, and these are likely to have an increased impact of fertility levels in the future.

The collection of calendar data on contraceptive use allows contraceptive use dynamics to be investigated in the population as a whole, rather than among specific groups, e.g. clinical study participants of other specialised studies. Due to the specialised nature of these studies their findings have been limited in their application to other population groups (Jejeebhoy, 1991).

Table 2.6 shows that 46.9% of women discontinue method use within the first year of use. As previously stated the pill is the dominant method and 44.4% discontinue this method in the first year. Of this, over half discontinue due to side effects or health concerns.

Table 2.6 First year contraceptive discontinuation rates

Method	Discontinuation rates					Current Contraceptive prevalence
	Method failure	To become Pregnant	Side effects/ health concerns	All other reasons	All reasons	
Pill	2.9	7.0	24.2	10.3	44.4	20.8
IUD	0.0	2.5	35.5	13.4	41.3	1.8
Injection	1.3	5.1	35.6	9.0	51.0	6.2
Condom	6.4	10.3	11.4	36.7	64.8	3.9
Periodic abstinence	9.9	10.0	0.1	21.4	41.4	5.0
Withdrawal	4.8	10.3	16.6	28.4	60.0	1.9
Total	3.8	7.1	21.5	14.5	46.9	49.2

Source. BDHS 1996-97

2.7 Summary

This chapter has described previous methodologies used for the study of contraceptive dynamics, and reviewed the relevant literature on each of the components of contraceptive use individually. The final section has outlined the situation in Bangladesh, highlighting the progress that has been made but also outlining some of the variation that exists in contraceptive use and highlighting the high level of discontinuation due to side effects.

Chapter 3 Quantitative Data and Methods

Demographic and Health Surveys (DHS) are nationally representative surveys undertaken in many developing countries. These surveys are often the sole source of essential information on topics such as fertility, family planning and maternal and child health. The quantitative section of the current study uses two Bangladesh DHS, the first of which was carried out in 1993/94 and the second in 1996/97.

3.1 Sample design

In Bangladesh, the largest geographical unit is a division, which is subdivided into districts or *zillas*, which are then divided into *thanas*. In rural areas the *thanas* then split into unions and *mauzas*, and in urban areas, into wards and *mahallas*. In 1994 an additional division, Sylhet, was created from within the old Chittagong division. Therefore in the 1996/97 survey there are six divisions compared to only five in 1993/94.

The sample was based on a master sample maintained by the Bangladesh Bureau of Statistics and this in turn is based on the 1991 census. In the sample from the Bureau of Statistics divisions were stratified into statistical metropolitan areas, municipalities and rural areas. The primary sampling unit (PSU) in rural areas was the *mauza* and in urban areas the *mahalla*. Since the PSUs included in the Bureau of Statistics sample were selected with a probability proportional to size, the DHS sub-selected from this sample with equal probability so as to maintain the overall probability according to size.

In order that the BDHS provide estimates for each division, the sample rate was increased for Barisal division and for municipalities in both surveys, and in the 1996/97 survey the sample rate in Sylhet was also increased. As a result, neither of the DHSs are self-weighting.

A total of 304 PSUs were selected in the 1993/94 BDHS and 316 in the 1996/97. In both surveys there were three PSUs where fieldwork was not possible. In 1996/97 these were one in the Dhaka Cantonment and two in the Chittagong Hill Tracts. It would appear from the DHS reports that the same three PSUs were not used in 1993/94[1]. The difference of 12 in the number of PSUs between 1993/94 and 1996/97 is due to an additional 12 being sampled in Sylhet, the newly created division.

[1] This is not explicit in the DHS reports.

All ever married women aged 10-49 in the household were interviewed, and in addition, in every second household all currently married men aged 15-59 were interviewed. The response rate for women was 97.4% in 1993/94 and 97.8% in 1996/97, the total number of women interviewed was 9,640 and 9,127 respectively.

3.1.1 Weighting

The data used in the quantitative analysis in this thesis have not be weighted because the weighting variable provided is at the woman level and the episode is the unit of interest in the analyses presented. Since a single woman may provide more than one episode of use it would therefore be inappropriate to apply women level weights.

3.2 Calendar Data

Initial studies of contraceptive use dynamics were limited to clinical trial participants and family planning programme acceptors. The unique and/or very defined nature of these sample groups mean that data from such studies are limited in their generalisability (Jejeebhoy 1991). In addition, these studies only examined the clinical methods under study or methods provided by the family planning programme, therefore information on traditional and non supply methods was not available. It was such the WFS (World Fertility Survey) and DHS (Demographic and Health Survey) that were often the first to provide both nationally representative contraceptive use data and information on a more complete range of methods used by the population. Another advantage of the WFS and DHS is that they do not suffer from loss to follow up, a problem associated with both clinical trial and family planning acceptor data.

Currently the DHS, in countries of high contraceptive prevalence, approximately 40% (Curtis 1996), includes a calendar of month by month reproductive health information, for approximately five years prior to the survey. For each month, a woman's status in terms of pregnancy, contraceptive use or non-use is collected. In addition, the reason for discontinuation of a contraceptive method is included, as is the relationship status of the woman for each month.

The contraceptive calendar was first used in the USA National Fertility Surveys (Hammerslough 1991), and was included in the DHS in response to the growing need in developing countries for data on contraceptive use dynamics. Cross sectional measures such as contraceptive prevalence being of limited utility to policy makers and family planning programme managers, for whom information on the effectiveness of use, in terms of failure and continuation rates, and reasons for discontinuation, are equally as important.

3.2.1 Description of the Calendar Data

The instrument used in the DHS questionnaire to collect the calendar data is shown in Figure 3.1. The reproductive history section of the calendar, column 1, is completed during the section on contraception of the DHS questionnaire. Prior to this certain information is inserted.

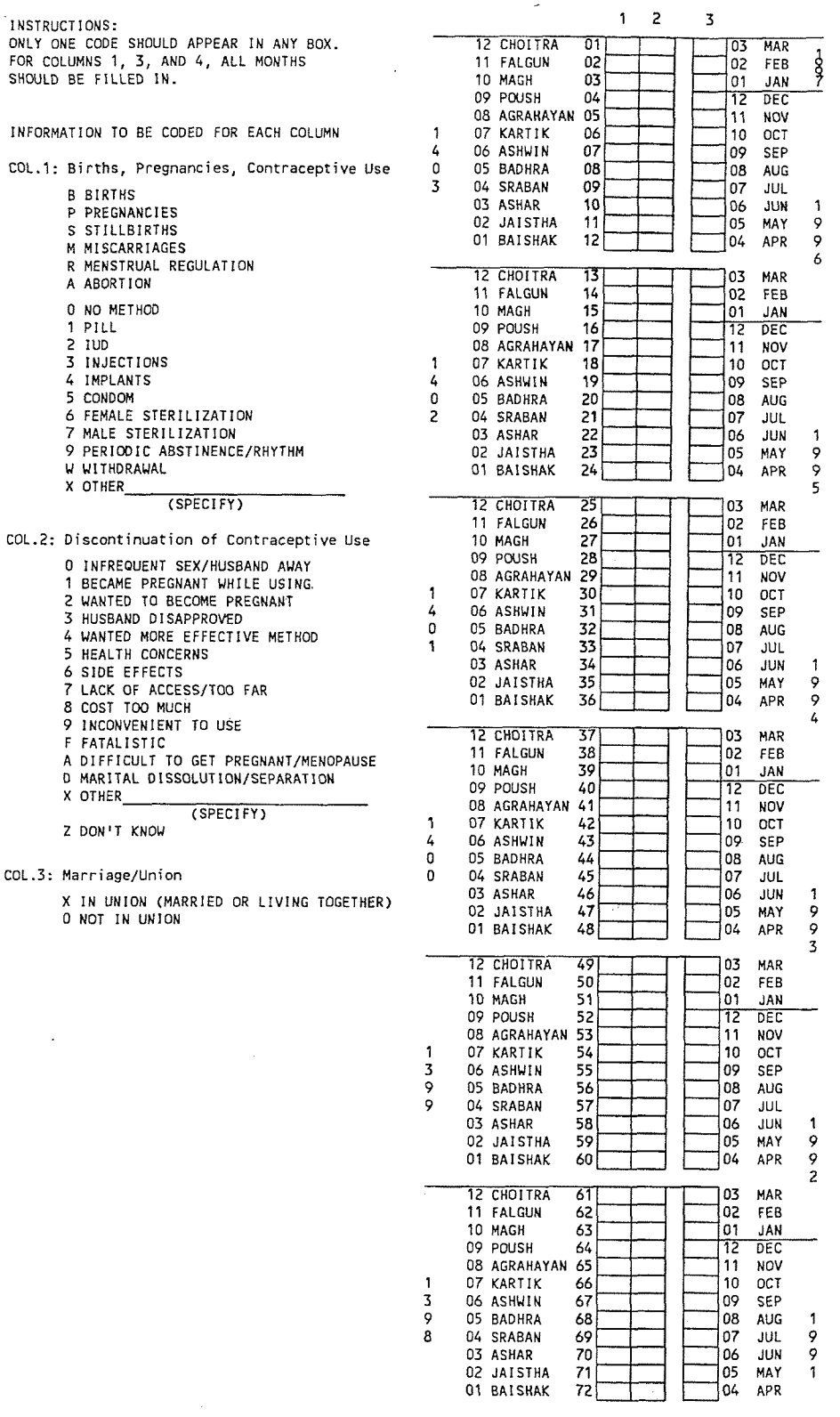
Section two of the DHS questionnaire collects information on a woman's pregnancy history, all the pregnancies and births that she has experienced. After this information has been collected, all those live births and other pregnancies that occurred during the previous five years are entered in the appropriate place in the calendar. For example, a live birth that occurred 12 months previously is entered as a 'B' for the same month one year before and a 'P' is entered for the eight months prior to that month.

The reproductive history column of the calendar is completed in the middle of the Contraception section of the DHS questionnaire, after questions on knowledge and use and prior to questions on access to methods, reasons for use and non-use. However, prior to its completion some contraceptive use information is also entered. If the woman has never used a contraceptive method all the blanks in column 1 are filled with '0'. If she has been sterilised, all of the blank months since sterilisation were completed with a '5' in the 1994/94 survey and with '6' in the 1996/97 survey. If her husband has been sterilised the blank months since the operation were filled with '6' in 1993/94 and '7' in 1996/97. Finally if the woman is using a method at the time of the survey the duration of current use is asked and the appropriate method and duration is entered into the calendar.

Following the current method being included in column 1 of the calendar the blanks in the calendar are filled using the following as prompts; *'When was the last time you used a method? Which method was it?'*, *'When did you start using that method? How long after the birth of <NAME>?'*, *'How long did you use the method then?'*.

After column 1 is completed the reasons for discontinuation for all interrupted periods of use are entered. The following questions are used '*Why did you stop using the <METHOD>?*' *'Did you become pregnant while using <METHOD>, or did you stop to get pregnant, or did you stop for some other reason?'*. If the woman deliberately stopped to become pregnant, '*how many months did it take you to get pregnant after you stopped using <METHOD>?*'.

Figure 3.1 The Calendar section of the 1996/97 BDHS.



INSTRUCTIONS:
ONLY ONE CODE SHOULD APPEAR IN ANY BOX.
FOR COLUMNS 1, 3, AND 4, ALL MONTHS
SHOULD BE FILLED IN.

INFORMATION TO BE CODED FOR EACH COLUMN

COL.1: Births, Pregnancies, Contraceptive Use

B BIRTHS
P PREGNANCIES
S STILLBIRTHS
M MISCARRIAGES
R MENSTRUAL REGULATION
A ABORTION

0 NO METHOD
1 PILL
2 IUD
3 INJECTIONS
4 IMPLANTS
5 CONDOM
6 FEMALE STERILIZATION
7 MALE STERILIZATION
9 PERIODIC ABSTINENCE/RHYTHM
W WITHDRAWAL
X OTHER_____
(SPECIFY)

COL.2: Discontinuation of Contraceptive Use

0 INFREQUENT SEX/HUSBAND AWAY
1 BECAME PREGNANT WHILE USING.
2 WANTED TO BECOME PREGNANT
3 HUSBAND DISAPPROVED
4 WANTED MORE EFFECTIVE METHOD
5 HEALTH CONCERNS
6 SIDE EFFECTS
7 LACK OF ACCESS/TOO FAR
8 COST TOO MUCH
9 INCONVENIENT TO USE
F FATALISTIC
A DIFFICULT TO GET PREGNANT/MENOPAUSE
D MARITAL DISSOLUTION/SEPARATION
X OTHER_____
(SPECIFY)
Z DON'T KNOW

COL.3: Marriage/Union

X IN UNION (MARRIED OR LIVING TOGETHER)
0 NOT IN UNION

			1	2	3		
	12 CHOITRA	01				03 MAR	1
	11 FALGUN	02				02 FEB	8
	10 MAGH	03				01 JAN	7
	09 POUSH	04				12 DEC	
	08 AGRAHAYAN	05				11 NOV	
1	07 KARTIK	06				10 OCT	
4	06 ASHWIN	07				09 SEP	
0	05 BADHRA	08				08 AUG	
3	04 SRABAN	09				07 JUL	
	03 ASHAR	10				06 JUN	1
	02 JAISTHA	11				05 MAY	9
	01 BAISHAK	12				04 APR	9
							6
	12 CHOITRA	13				03 MAR	
	11 FALGUN	14				02 FEB	
	10 MAGH	15				01 JAN	
	09 POUSH	16				12 DEC	
	08 AGRAHAYAN	17				11 NOV	
1	07 KARTIK	18				10 OCT	
4	06 ASHWIN	19				09 SEP	
0	05 BADHRA	20				08 AUG	
2	04 SRABAN	21				07 JUL	
	03 ASHAR	22				06 JUN	1
	02 JAISTHA	23				05 MAY	9
	01 BAISHAK	24				04 APR	9
							5
	12 CHOITRA	25				03 MAR	
	11 FALGUN	26				02 FEB	
	10 MAGH	27				01 JAN	
	09 POUSH	28				12 DEC	
	08 AGRAHAYAN	29				11 NOV	
1	07 KARTIK	30				10 OCT	
4	06 ASHWIN	31				09 SEP	
0	05 BADHRA	32				08 AUG	
1	04 SRABAN	33				07 JUL	
	03 ASHAR	34				06 JUN	1
	02 JAISTHA	35				05 MAY	9
	01 BAISHAK	36				04 APR	9
							4
	12 CHOITRA	37				03 MAR	
	11 FALGUN	38				02 FEB	
	10 MAGH	39				01 JAN	
	09 POUSH	40				12 DEC	
	08 AGRAHAYAN	41				11 NOV	
1	07 KARTIK	42				10 OCT	
4	06 ASHWIN	43				09 SEP	
0	05 BADHRA	44				08 AUG	
0	04 SRABAN	45				07 JUL	
	03 ASHAR	46				06 JUN	1
	02 JAISTHA	47				05 MAY	9
	01 BAISHAK	48				04 APR	9
							3
	12 CHOITRA	49				03 MAR	
	11 FALGUN	50				02 FEB	
	10 MAGH	51				01 JAN	
	09 POUSH	52				12 DEC	
	08 AGRAHAYAN	53				11 NOV	
1	07 KARTIK	54				10 OCT	
3	06 ASHWIN	55				09 SEP	
9	05 BADHRA	56				08 AUG	
9	04 SRABAN	57				07 JUL	
	03 ASHAR	58				06 JUN	1
	02 JAISTHA	59				05 MAY	9
	01 BAISHAK	60				04 APR	9
							2
	12 CHOITRA	61				03 MAR	
	11 FALGUN	62				02 FEB	
	10 MAGH	63				01 JAN	
	09 POUSH	64				12 DEC	
	08 AGRAHAYAN	65				11 NOV	
1	07 KARTIK	66				10 OCT	
3	06 ASHWIN	67				09 SEP	
9	05 BADHRA	68				08 AUG	1
8	04 SRABAN	69				07 JUL	9
	03 ASHAR	70				06 JUN	9
	02 JAISTHA	71				05 MAY	1
	01 BAISHAK	72				04 APR	

Source: BDHS 1996/97

The final column of the calendar is completed in Section Five on relationship status. All the months when the woman was in a relationship are coded 'X' and where she was not in a relationship 'O'. If the woman reported more than one marriage or she was widowed or divorced the dates of the end of these relationships were probed.

The data for each column of the calendar are entered as single variables in the DHS data files, one variable for the monthly use, non use or pregnancies, another for the reasons for discontinuation and a third for relationship status (see Figure 3.1). This yields three 68-72 digit variables. A suite of programmes developed by Curtis and Hammerslough (1995) was developed to facilitate the analysis of these data. This suite of programmes allows contraceptive use dynamics to be investigated by creating a file of all the episodes of contraceptive use.

The suite of programmes was not used for this study. For the postpartum analysis it is necessary to maintain information on the non-use of contraception following a pregnancy, this postpartum data are not maintained by the suite of programmes (Curtis 1999 personal communication).

3.2.2 Data manipulation

In this study the first step of the data manipulation was to divide the 68-72 digit contraceptive history variables into distinct episodes of use, non-use and pregnancy. From this it was straightforward to obtain both the type of episode and its duration. More complex was linking the contraceptive use episodes to reason for discontinuation. This difficulty arises due to the fact that a) the reason for discontinuation variable contains spaces and then a digit at the appropriate place and b) there are potentially multiple episodes of contraceptive use. Therefore to make the data episode based the reason for discontinuation data have to be carefully linked to the episode data.

The relationship data were also linked to the episode data. Episodes that occurred outside a relationship were coded +200 so that they could be easily identified and excluded from subsequent analysis. These episodes were excluded because the women were not at risk of pregnancy at this time as they are presumed not to be having sexual relations.

It is not believed that the coding of the data were necessarily done in the most effective way, indeed some was completed by hand by the author. However, the extended process of coding the data made for greater familiarity with both datasets and confidence in the accuracy of the

resultant datasets. The latter comment is not intended to imply anything about the suite of programmes available, instead it is a reflection of the need to fully understand the data manipulations that were undertaken.

The manipulations formed the basis of all the discontinuation data and also provided the measure of contraceptive non-use required for the postpartum adoption analysis. The duration of non-use postpartum was then linked to the duration of postpartum amenorrhoea from the pregnancy history data. As with the manipulation of the original calendar data, the linking of the calendar to the pregnancy data was labour intensive. However, pregnancy history data were only collected for the three years prior to the survey in the case of the 1993/94 BDHS and the previous five years in the case of the 1996 survey. The fact that the pregnancy histories were time bound, rather than collected for the woman's entire reproductive history, did make the manipulations easier.

Finally, certain independent variables had to be made time varying due to the fact that the event in question occurred during the calendar and therefore could have occurred up to three years prior to the survey. Time varying covariates such as woman's age were relatively straightforward to compute. However, others such as family formation were more difficult to compute due to the need to match the birth history, births and deaths, to family formation at the time of survey and to the calendar.

3.2.3 The calendar as a data collection method.

A few studies have undertaken to validate the calendar as a data collection method. Studies in Peru and Costa Rica (Goldman *et al.*, 1989, Becker and Sosa 1992) compared the accuracy of the calendar to core questions in the DHS. The core questions included in the DHS were been discussed in Section 3.2. The studies found the accuracy and completeness of reporting to be greater in the calendar than the core questionnaire.

Goldman *et al.*, (1989) found in Peru that while reporting of current use was similar using both of the methodologies, reporting diverged in the 18 months prior to the survey and thereafter the difference in the two estimates remained constant. Reported contraceptive use was five percent higher in the calendar data compared to the core questions in the period 18 to 72 months prior to the survey. This study concluded that the calendar provides more accurate and complete information, and also found that the heaping of durations was less pronounced in the calendar data.

In the Costa Rica data, Becker and Cosa (1992) found the contraceptive prevalence information obtained from the core questions was much lower than that reported in both the calendar and the corresponding Contraceptive Prevalence Survey (CPS) of that time. The authors therefore also concluded that information from the calendar is more reliable.

The two studies described above examine the accuracy of data obtained via the calendar as opposed to core questions at the aggregate level. Investigating the accuracy at the individual level requires data to be collected twice from the same women.

Strickler *et al.*, (1997) compared the results of two Moroccan DHS, 1992 and 1995, where attempts were made in the later survey to re-interview the same women. For those women who were re-interviewed, an overlap in the calendar of 40 months facilitated the investigation of individual level variations in reporting. The study found that the level of reporting was most consistent if non-use was reported, which is unsurprising as non-use requires less recall than use or pregnancies. If the criterion for consistency was an exact match of events, only 28% of women who experienced more than one episode of use met this criterion. The consistency of reporting was found to decline with the increased number of events, and this relationship was stronger than that between any woman level characteristic and consistency. Linked to this was the finding that younger women had less consistent results, as these women are likely to experience a greater number of events than older women. The study could find no systematic reporting errors; instead, the authors concluded that the errors appeared to follow a more random distribution.

The accuracy of reporting of reason for discontinuation was also investigated by Strickler *et al.* (1997). The matching of reason for discontinuation was limited due to the fact that most of the contraceptive episodes in the earlier survey were censored at the time of the survey, and therefore a reason for discontinuation not given. For those episodes for which a reason was given, the consistency of reporting was given by a Kappa statistic of 0.51[2]. Due to the relatively small amount of data on discontinuation, a detailed examination of differential reporting of reasons for discontinuation was not possible. However, results showed that in the later survey discontinuation due to failure was higher, and discontinuation rates lower. Strickler et al. (*op.cit.,*) recommend caution when using the discontinuation data especially for complex statistical analysis. At the aggregate level differential reporting may cancel out, but in subgroups of women results may be less stable.

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[2] A Kappa value above 0.75 indicates excellent reliability or consistency, 0.5-0.75 good reliability and below 0.50 poor reliability (Strickler *et al.*, 1997).

The results of the studies examining the quality of the calendar data compared to the core questions clearly show its superiority in terms of accuracy and completeness. While the ideal scenario would be prospective data on contraceptive use and reproductive behaviour, logistic and cost issues prohibit such data collection methods on a national scale. As a result, the advantages of the DHS calendar data, in terms of being representative at the national level and the relative ease of collection relative to prospective studies, make it at the present time to be the most useful data available for the study of contraceptive use dynamics.

The data on reasons for discontinuation, while apparently less accurate than contraceptive use data, are frequently the only nationally representative information available. Considering the increasing realisation, (Jejeebhoy 1991), (Wang and Diamond 1995), (Hammerslough 1991), (Curtis and Blanc 1997) that as contraceptive prevalence increases it is the effectiveness of use that is going to have an increasingly important impact on national fertility levels, the use of these data are justified. However, the caution suggested by Strickler *et al.,* (1997) and the results of Goldman et al (1989) should be considered.

The advantages of the calendar are outlined above. Disadvantages due to the retrospective nature of this data include the under reporting of shorter use intervals and method specific under reporting, Jejeebhoy (1991), Curtis and Hammerslough (1995). Other disadvantages include the fact that the data collection method only allows for one method to be reported as used at any one time and only one reason for discontinuation of a method to be collected.

3.2.4 Validation of Calendar data

Compared to the contraceptive data collected by the core DHS questions, where the birth history is separate from family planning questions, the calendar method enables these events to be compared and therefore their compatibility examined. While interviewers in Bangladesh (Mitra and Al-Sabir 1996) and Peru (Goldman *et al.,* 1989) were initially intimidated by calendar, after training they preferred this method because it facilitated internal validity checks and probing for additional information. It is intuitive that since the pregnancy and contraceptive data are collected together a woman's ability to recall events will be improved.

The calendar data can be both internal and externally validated. An advantage of both the DHS core questions and the calendar, is that reported use can be compared to previous surveys measuring contraceptive prevalence, e.g. CPS, to examine the completeness of reporting. In Costa Rica, Becker and Cosa (1992) found that the contraceptive prevalence

five years prior to the survey as reported in the calendar was very similar to that reported in the CPS carried out at the time.

Hammerslough (1991) suggests the validation of abortions reported in the calendar with routinely collected service data. This validity check relies heavily on the accurate reporting of abortions by service providers and the fact that all abortions are obtained through formal health services. In the case of Bangladesh, and many other countries in the developing world, neither of these assumptions holds and therefore this validation is not appropriate.

3.2.4.1 Internal validation checks

The following internal validation checks of calendar data were carried out: duration of pregnancy ending in a livebirth, conception and reversible contraceptive use outside marriage and, disagreement between current relationship status and the calendar section on relationship status.

It is possible that sexual relations and conceptions occur outside marriage in Bangladesh However, it is unlikely that women in a conservative Muslim country would report such events. Therefore reversible contraceptive use and conceptions outside marriage are viewed as data errors, since women are very unlikely to report their occurrence outside marriage. The data in the calendar on relationship status were obtained directly from the relationship status questions, therefore, it is fair to assume that any discrepancy between these two variables is due to a data entry error or recording.

Table 3.1 shows the inconsistencies in the data files. The cases numbers and an explanation of the problem were sent to Macro International for verification which was received, and the cases were subsequently excluded from the analysis. Their exclusion is especially important in the postpartum analysis, since this examines with the temporal aspect of contraceptive adoption. Therefore any movement of an event back or forward a few months may impact on the analysis.

Table 3.1 Internal validation checks

	Year of Survey	
Internal validations	1993/94	1996/97
Conception outside marriage	0	6
Used reversible method after end of relationship	7	13
Pregnancy ending in a livebirth did not have a gestation of 9 months	11	0
Inconsistencies in reports of relationship status	125	42
Total women excluded	143	61

Other cases that were excluded from the statistical models include those women who were not in a relationship at the time of the survey. This is due to the fact that these women were not asked certain questions in the Core DHS questionnaire. Since some of these were seen to be potential explanatory variables, the women were excluded. Owing to the missing values, these women would have been excluded from any statistical model. However, for those less familiar with the DHS their exclusion from the analysis is made explicit.

3.2.4.2 External validation checks

1993/94 BDHS

In their study of contraceptive use dynamics in Bangladesh, Mitra and Al-Sabir (1996) examine the data quality of the 1993/94 BDHS. Data from the calendar were compared to the current status data from the 1989 and 1991 CPS. To increase the comparability of these data, calendar data compared to the 1989 survey was limited to women 14 and over, and in the case of the 1991 survey women 12 and over. By limiting the respondents to these age ranges at time of survey those women who would not have been eligible for inclusion in the CPS are not included. It was not possible to limit the CPS results to the corresponding upper DHS age ranges, however, since the sample from these ranges, 47-49 in 1991 and 44-49 in 1989, are small the difference in prevalence distribution is also likely to be small. In Tables 3.2 and 3.3 the age ranges listed for the DHS data are the ages that respondents would have been at the time of the comparison survey. For example, in Table 3.2 the age range of 10-47 for the 1993/94 BDHS calendar data refers the age respondents would have been in 1991.

Table 3.2 Percentage of currently married women using contraception, comparison of different data sources. BDHS 1993/94

Method	1993-94 Calendar data for 1991 (Ages 10-47)	1991 CPS (Ages 10-49)	1993-94 Calendar data for 1989 (Ages 10-44)	1989 CPS (Ages 10-49)
No method	62.8	60.1	71.1	68.6
Pill	15.0	13.9	10.2	9.1
IUD	2.0	1.8	1.6	1.7
Injectables	2.2	2.6	0.9	1.1
Condom	2.1	2.5	1.7	1.9
Female sterilisation	8.2	9.1	7.7	9.0
Male sterilisation	1.2	1.2	1.2	1.5
Periodic abstinence	4.2	4.7	3.7	3.8
Withdrawal	1.5	2.0	1.4	1.2
Others	0.8	2.0	0.6	2.0

Source: Mitra and Al-Sabir (1996)

Table 3.2 compares the 1993/94 data with those of the 1989 and 1991 CPS. For both time periods the overall contraceptive prevalence is lower for the calendar data than the current status data reported CPS. However, pill and IUD use in the 1993/94 BDHS is over-reported

compared to the 1991 CPS, and pill and use of 'other' methods is over reported in the 1993/94 data compared to the 1989 CPS.

An issue of note in Table 3.2 is the difference in the reporting of female sterilisation. This is largely due to the reduction in the availability of female sterilisation in the late 1980s, as the cohort of women who were sterilised move out of the age range eligible for interview or die, the prevalence decreases.

1996/97 BDHS

The results of the external validation of the 1996/97 calendar data are shown in Table 3.3. Compared to the 1993/94 BDHS and the 1991 CPS there is an overall under-reporting of method use in the 1996/97 calendar. The pill is the only method whose use is over-reported.

Table 3.3 Percentage of currently married women using contraception, comparison of different data sources. BDHS 1996/97

Method	1996-97 Calendar data for 1993/94 (Ages 10-46)	1993/94 DHS (Ages 10-49)	1996-97 Calendar data for 1991 (Ages 10-44)	1991 CPS (Ages 10-49)
No method	57.6	55.4	63.0	60.1
Pill	18.4	17.4	15.9	13.9
IUD	1.6	2.2	1.5	1.8
Injectables	4.1	4.5	2.2	2.6
Condom	2.5	3.0	1.9	2.5
Female sterilisation	8.0	8.1	8.0	9.1
Male sterilisation	1.1	1.1	1.2	1.2
Periodic abstinence	4.6	4.8	4.5	4.7
Withdrawal	1.4	2.5	1.1	2.0
Others	0.7	1.1	0.5	2.0

1 Only the confidence interval for the 1993/94 data is included, as it was not possible to get similar data for the 1989 and 1991 CPS.

As mentioned in reference to Table 3.2, the prevalence of female sterilisation is declining over time. This decline is especially noticeable in the comparison of the 1991 CPS and the 1996/97 DHS calendar data.

In both the 1993/94 and the 1996/97 DHS calendar the under-reporting of most method use is increasing with time since event. In the case of the pill it would appear that over-reporting increases with time. In order to reduce the impact of potential mis-reporting in the calendar, the analyses included in this study are limited to the three years prior to the survey.

3.3 Statistical Techniques

3.3.1 Postpartum data analysis

The adoption data are analysed using multinomial logistic regression, the variable of interest being effective postpartum adoption or not, with three categories, effective adoption, ineffective adoption and those who did not adopt a method post partum.
The model is specified as:

$$\log\left(\frac{\pi_{ri}}{\pi_{si}}\right) = \alpha_{ri} + x'_{ri}\beta_r \quad r = 1, 2$$

where π_{ri} is the probability of type of management r in at time t and π_{si} is the probability of the reference management type, where x_{ri} are a set of explanatory variables

3.3.2 Discontinuation Analysis

The unit of analysis of the discontinuation data is the episode. The response variable contains four different categories: discontinuation due to method related reasons, discontinuation due to failure/access, discontinuation for non-method related reasons, and continuation. The study focuses on the first 12 months of use since discontinuation due to side effects is most likely to occur during this time.

The analysis of the discontinuation data necessitates a hazard model, which is in essence, a multinomial logistic regression model with the inclusion of time as a categorical covariate. By including time, it is possible to control for the duration of the episode of use

The model is specified as:

$$\log\left(\frac{\pi_{rit}}{\pi_{sit}}\right) = x'_{rit}\beta_r + \alpha_{ri} \quad r = 1, 2$$

where π_{rit} is the probability that event r occurs in time t in episode i and where α_{ri} are a set of explanatory variables.

3.4 Independent variables

There are a number of advantages of using the calendar in terms of examining contraceptive use dynamics. However, due to the retrospective nature of the data collection the event of study may have occurred up to six years prior to the survey. It is therefore necessary to take great care when selecting the independent variables for inclusion in any statistical model.

There are two types of variable to consider: time varying covariates and current status covariates.

A confusing aspect of these terms is that they can be defined theoretically and according to the data collection methodology. For instance, place residence is potentially time varying covariate but unless migration history is adequately covered in the survey it would not be possible to make it time varying covariate and, therefore it has to remain a current status variable.

3.4.1 Current status covariates

Current status covariates are the more straightforward of the two variables. They are those covariates that do not vary over time, eg the sex of the respondent or (possibly) their education status. The treatment of these variables is straightforward and they can be included in statistical models regardless of when the event in question occurred in the calendar.

3.4.2 Time varying covariates

Time varying covariates, as the name suggests, are variables that can change over time, for example woman's age, family size and sex composition of the family. These variables are theoretically straightforward but are often computationally complicated to create from the DHS datafiles. For example, the creation of a variable indicating family size at some time during the calendar, requires the current status, ie time of survey report of family size to be linked to the pregnancy history. In addition the pregnancy history has to be linked in terms of births and deaths.

The problem with time varying covariates arises when a variable is theoretically time varying but the way that the data have been collected prevents it from being varied over time, in this case varied during the calendar. For example, 'have you discussed family planning with your husband?' has a time varying component. However, unless a detailed history of discussions with husband is collected all that is known from this variable is that at the time of the survey the woman had discussed family planning with her husband.

Specific variables that were included in the modelling are discussed in the relevant chapters, and the validity of including some covariates that are theoretically time varying but in the case of the calendar data cannot be made time varying is also discussed.

3.5 Statistical model building strategy

The overall strategy for model build was to obtain a parsimonious, policy relevant model. The aim of parsimony affected how the model was constructed and the policy relevance influenced the variables included in the model. The variables included in each model are discussed in the relevant chapters and the approach to model building discussed below.

In all of the statistical models presented in this thesis forward variable selection procedures were used. The variables included in the final models had to be significant at the 95% level the log likelihood test for the model was used (Retherford and Minja Choe (1993), Hausman and McFadden (1984)). The modelling was undertaken in SPSS (Statistical Package for Social Scientists).

The main effects models presented in this thesis are proportional hazards models, however it is possible to imagine a situation where the hazards are not proportional. For example, in logistic model of contraceptive use or non use it is possible that there could be a interaction between age and socio-economic status, where the effects of these variables combined are greater than the main effects of age and socio economic status. For example, young women of the lowest socio economic status are more likely not to be using a method than the main effects of age and socio-economic status would indicate. In order to investigate this possibility in this thesis, interactions between the predictor variables were fitted systematically into the models. None of the interactions tested were found to be statistically significant, primarily due to the small samples. Therefore in this thesis proportional hazards are presented.

Chapter 4 Postpartum Contraceptive Adoption

The aim of this thesis is to examine contraceptive management in Bangladesh. One part of contraceptive management that can be examined is when a woman adopts a method. By investigating when a woman adopts relative to becoming at risk of an unplanned pregnancy it is possible to examine effective and ineffective contraceptive management. There are a number different junctures that could be used to examine if a woman adopts a method effectively in response to the risk of an unplanned pregnancy.

One of these junctures is when a woman first starts to have sex. In a conservative country like Bangladesh, few women have sex prior to marriage and, if they did, they are unlikely to admit to this in a survey. In situations like this marriage is frequently used as a proxy for sexual initiation. From the perspective of examining contraceptive management, there is a problem with looking at the adoption of a method following marriage since adoption of a method at this time is likely to be strongly influenced by fertility preference. Those who want to wait and have children later, i.e. those who adopt a method at this time, being significantly different to those who do not, and this difference is likely to affect any analysis that examines method adoption following marriage.

An alternative time period to examine is the adoption of a method postpartum. Due to the recognition of long birth intervals as an essential component of maternal and child health, examining contraceptive adoption postpartum is not as prone to the influence of fertility preference described above. This is because women who want another child and those who do not should ideally both to adopt postpartum, one to achieve a long birth interval and the other to limit her fertility.

The maintenance of long birth intervals through the use of contraception is necessary in Bangladesh because breastfeeding practices are not sufficient to maintain long birth intervals. While women breastfeed for a prolonged duration- in 1996/97 the median duration of any breastfeeding was 32.8 months- the duration of exclusive breastfeeding is much shorter, 3.7 months in 1996/97 (BDHS 1996/97). As discussed in Chapter 2, it is the intensity of breastfeeding not duration, that maintains PPA and infecundity.

Another advantage of focusing on postpartum adoption is proven fertility. The women know that they are physiologically able to have a child, having just had one. When their fecundity returns, postpartum is a more complicated issue.

Chapter 2 discussed the return of menstruation and adoption of contraception postpartum. While the number of studies is limited, the evidence, that many women use the return of menstruation as an indicator of the return of their fecundity, is convincing.

This chapter examines who adopts a method at the return of menstruation and who adopts after that, in order to examine who adopts when they perceive themselves to have become at risk and whom delays adoption despite menstruation returning. Those who do not adopt a method between the resumption of menses and either the survey or a subsequent pregnancy are also included as a 'nonusers' category in the dependent variable. The author acknowledges that the return of menstruation is not necessarily the most accurate measure of the return of fecundity; however, this study is examining contraceptive management, and how a woman manages her contraceptive use. Therefore, it is essential to measure her 'at risk' state using the indicators that she has available to her.

4.1 The Data

Two different parts of the BDHS were used to form the indicator of effective postpartum contraceptive management. Data on the resumption of menses postpartum were obtained from the pregnancy history, where information is collected on factors such as the durations of breastfeeding, postpartum sexual abstinence and PPA (postpartum amenorrhoea). This information was then linked to the contraceptive calendar from which it is possible to obtain the duration of contraceptive non-use postpartum.

The data used for the postpartum analysis are in an episode-based file, since a woman may experience more than one pregnancy during the calendar. In order to reduce the impact of recall bias only those births between April 1990[1] and the survey in the 1993/94 DHS[2], and April 1993 and the survey for the 1996/97 DHS are included. The unit of analysis in this study is pregnancy as opposed to birth and therefore multiple births are treated the same as singleton births.

Births to women who were not married at the time of the survey are excluded because current marital status was a criterion for being asked certain questions in the BDHS that were viewed as potential explanatory variables in the analysis. For example, in the 1996 DHS only currently married women were asked about their freedom of movement.

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[1] March was the final month of interviewing in both surveys.

Contraceptive use following a birth that resulted in a termination or a stillbirth is not examined here the return of menstruation following these pregnancies was not investigated in the pregnancy history. The sample sizes resulting from the criteria above were 3454 and 3451 women (for 1993/94 and 1996/97 respectively), who experienced at least one livebirth in the three years prior to the survey.

4.1.1 Postpartum Amenorrhoea

In the case of this chapter the term 'postpartum amenorrhoea' is used to cover the duration of all amenorrhoea following birth. This includes both lactational amenorrhoea, resulting from the fecundity reducing effects of breastfeeding and the amenorrhoea that occurs postpartum, even in the absence of breastfeeding.

4.1.1.1 Censored episodes

The return of menstruation postpartum and a woman's reaction to it is the basis of this part of the study. Therefore, the occurrence of this event is of prime importance and, if menstruation had not yet occurred by the time of the survey or did not occur postpartum prior to pregnancy or the information was missing, these episodes are excluded. The availability of this information is examined in Table 4.1.

Table 4.1 Episodes excluded due to missing information or menstruation had not returned.

	DHS survey	
	1993/94	1996/97
Most recent birth interval		
Menses has not returned by time of survey (left censored)	1130	835
Menses did not return before subsequent conception	27	23
Duration of amenorrhoea missing	3	2
Episodes where duration is available	2294	2590
Total episodes	3454	3451
Previous birth interval		
Menses did not returned postpartum	32	49
Duration of amenorrhoea missing	7	7
Episodes where duration is available	210	703
Total episodes	249	761
The first of three birth intervals		
Menses did not returned postpartum	1	4
Duration of amenorrhoea missing		1
Episodes where duration is available		36
Total episodes	1	41

A maximum of three postpartum periods was found. Most women gave birth to only one child during this time, but some experienced two live births and fewer still experienced three.

[2] In the 1993/94 BDHS the pregnancy history was only collected for the three years prior to the survey. Therefore, while the primary motivation to limit the pregnancies included to the three years prior to the survey was to limit

While a biological possibility, the potential impact on a woman's health of having three full term pregnancies in as many years is profound, not to mention the impact on her children's lives.

By far the greatest number of episodes excluded are those where menstruation had not resumed by the time of the survey. In a total of 1130 and 835 open birth intervals, in 1993/94 and 1996/97 respectively, menstruation had not returned by the time of the survey. The cases where menstruation did not occur during a closed birth interval are described as *muria* or *mura* pregnancies by women in Bangladesh (Salway, 1996). In Table 4.1, among those who had two births in the three years preceding the survey, 32 women in the 1993/94 survey and 49 in the 1996/97 survey experienced a *muria* or *mura* pregnancy. In the case of the most recent birth interval, the figure is much lower due to the fact that so many cases are censored both in terms of the return of menstruation and *muria* or *mura* pregnancies.

From these results, *muria* or *mura* pregnancies do not appear to be as rare as the women in Salway's study may have thought, with around one in 20 next to last births being followed by conception prior to the resumption of menses. However, these figures are likely to over-estimate the incidence of these types of pregnancy, since *mura* or *muria* pregnancies are more likely to occur in this three-year period than other pregnancies. This is due to the short birth interval associated with pregnancies of this type.

The way that the data have been manipulated for this analysis is not appropriate to get an accurate assessment of *muria* or *mura* pregnancies. For an accurate assessment, the sample should be limited to the most recent births for which either menstruation has returned or the woman has experienced a *muria* or *mura* pregnancy, and where contraceptive methods were not adopted. The exclusion of the censored cases in Table 4.1 is likely to introduce bias since those censored are in fact more likely to experience a *muria* or *mura* pregnancy. This is due to the fact that they are likely to have a longer than average duration of PPA and, according to the evidence discussed in Chapter 2, are therefore more likely to ovulate prior to the return of menstruation. Therefore, should this group use the return of menstruation as an indicator of their returning fecundity and wait for it to occur prior to adopting a contraceptive method, they are more likely to experience a *muria* or *mura* pregnancy due to their longer duration of PPA.

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recall bias, it also facilitates consistency in the datasets used for 1993/94 and 1996/97.

4.1.1.2 Duration of postpartum amenorrhoea

There are a number of issues that have to be considered when using postpartum amenorrhoea data. One is the fact that heaping at six monthly intervals is common. Another is the occurrence of *lochia,* postpartum bleeding unrelated to menstruation, which is often confused with the return of menstruation. If this confusion should occur, the duration of postpartum amenorrhoea will be under estimated.

Large-scale studies in populations that have long average durations of PPA have found a bimodal distribution in its duration. The bimodal distribution is due to a peak at one month. In prospective studies this initial peak is due to the incidence of *lochia*[3] described above. In retrospective surveys it is due to both *lochia* and the rounding down of durations of 5 or 6 weeks to one month (Lesthaeghe, 1980). A study of five villages in India found that 46 percent of the women reported a duration of PPA of one month (Yadava and Kain, 1998)[4]. In both retrospective and prospective studies, neonatal mortality is another source of the bimodal nature of the distribution.

Since this study examines the relationship between the return of menstruation postpartum and the subsequent adoption of contraception, the issue of *lochia* is less important than it might be in other studies. This is due to the fact that the study examines what a woman does when she *thinks* that she is at risk of an unplanned pregnancy. Therefore, even if the bleeding is not linked to the return of fecundity, if the woman perceives that it indicates the return of her fecundity then it is her reaction to it that is important.

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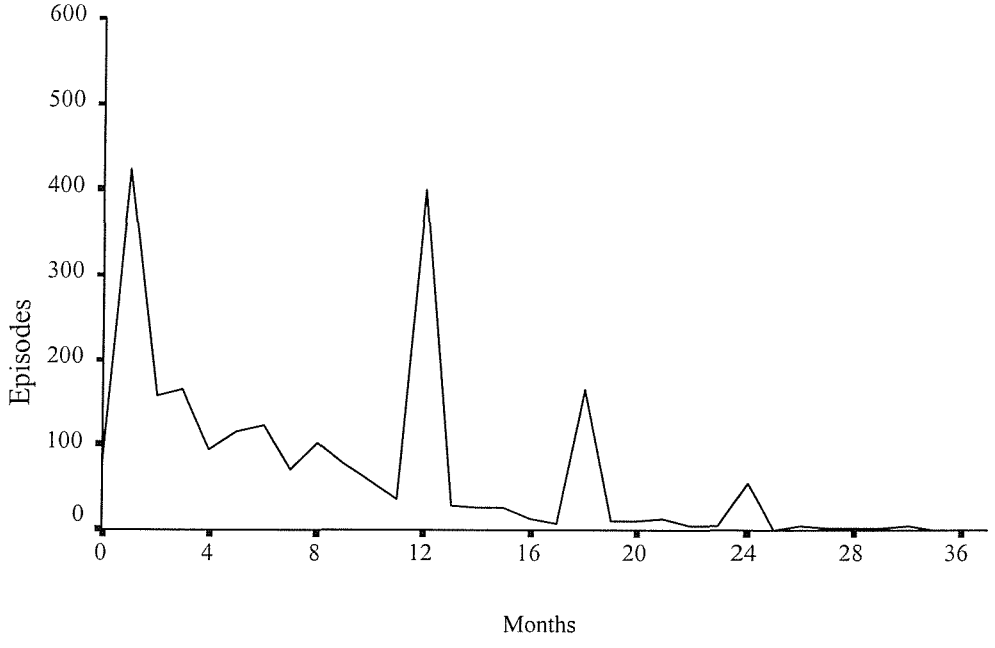
[3] The incidence of *Locia* being misreported as the resumption of menstruation could be strongly affected by the interviewer and study design, in terms of whether one month is taken as an acceptable duration of PPA or not.
[4] Unfortunately the study does not quote any summary measure of the duration of breastfeeding in this population.

Graph 4.1 Duration of Postpartum Amenorrhoea

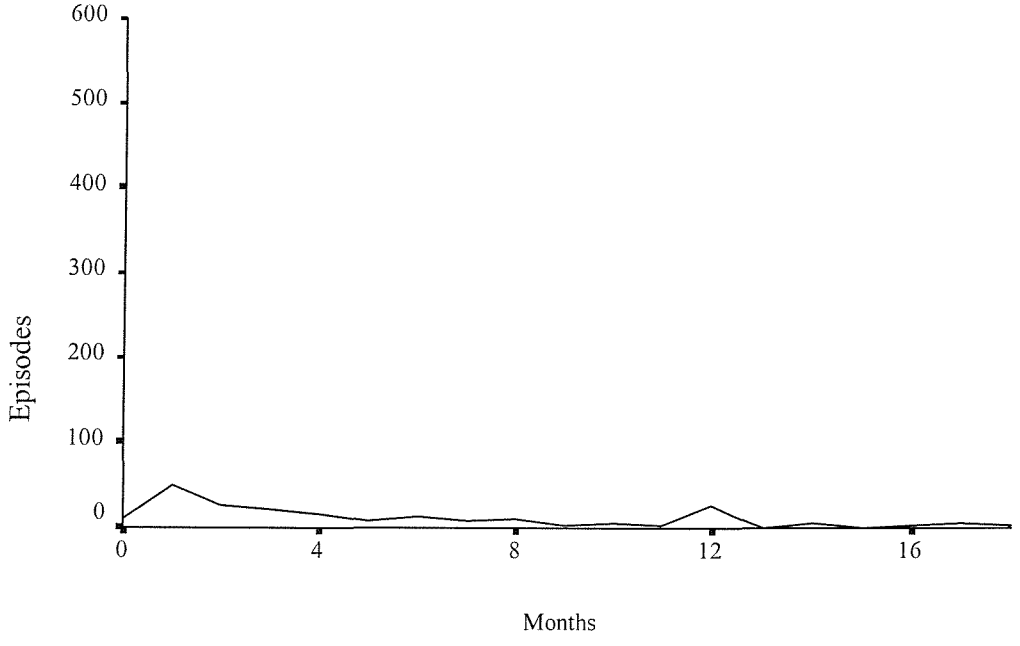
Following most recent birth (BDHS 1993/94)



Based on 2294 episodes

Graph 4.2 Duration of Postpartum Amenorrhoea

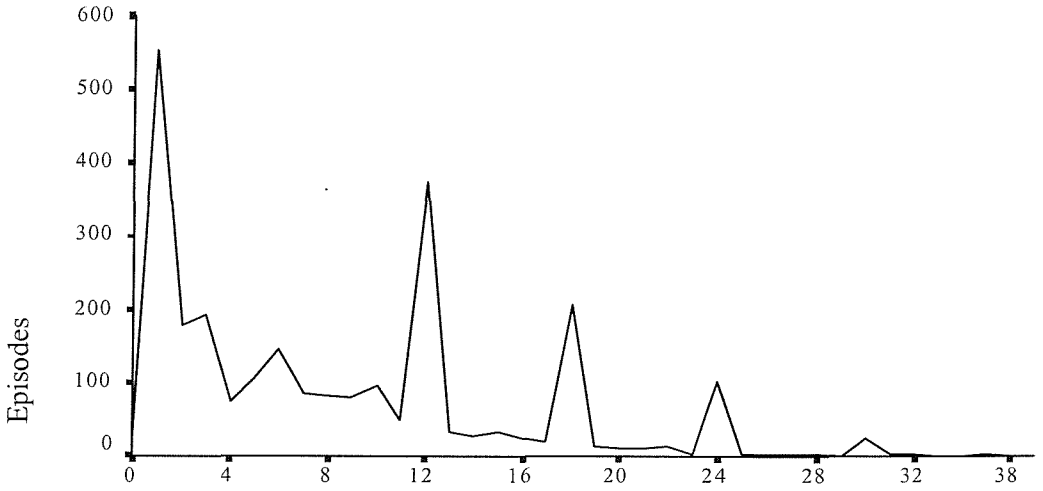
Following previous birth (BDHS 1993/94)



Based on 210 episodes

Graph 4.3 Duration of Postpartum Amenorrhoea

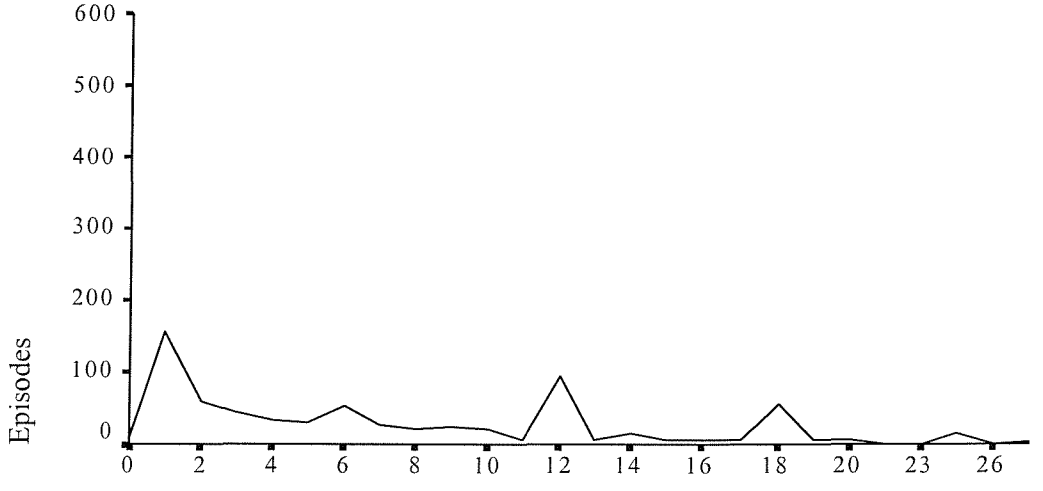
Following most recent birth (BDHS 1996/97)



Based on 2590 episodes

Graph 4.4 Duration of Postpartum Amenorrhoea

Following previous birth (BDHS 1996/97)



Based on 703 episodes

Graphs 4.1, 4.3, and 4.4 clearly show the heaping on one month postpartum. In the absence of breastfeeding menses resumes at 4-6 weeks postpartum (Kennedy and Trussell, 1998) and the recommendations of the Bellagio Conference state that bleeding before 56 days

postpartum should be ignored. Therefore, in a population where universal and exclusive breastfeeding is the norm for the first few months, it is interesting to examine which women would appear to be either (a) confusing *lochia* with the return of menstruation, and/or (b) rounding down the return of menses to four weeks.

Tables 4.2 and 4.3 examine the proportion of episodes where the return of menstruation was stated to be one month postpartum.

Table 4.2 Proportion of episodes reporting menstruation returning in the first month postpartum 1993/94

	Most recent birth, menses has returned	Following previous birth
Residence		
Urban	22.8	27.0
Rural	17.7	23.1
Education		
Secondary +	23.2	36.1
Primary only	19.8	39.1
None	16.0	14.8
ALL	18.4	23.8
N	2294	210

Table 4.3 Proportion of episodes reporting menstruation returning in the first month postpartum 1996/97

	Most recent birth, menses has returned	Following previous birth
Residence		
Urban	28.95	26.25
Rural	20.09	21.51
Education		
Secondary +	28.95	25.71
Primary only	22.21	24.86
None	18.15	19.90
All	21.39	22.05
N	2590	703

It is possible that this reflects a decline in the Muslim tradition of 40 days postpartum sexual abstinence in the urban areas and among more educated women. The perception that menstruation has returned being more important during this period to those who were not abstaining. Alternatively, most women resume sexual activities before 40 days postpartum (Gazi *et al.*, 2000) but the more educated and/or urban women are more likely to admit to this. Another possibility is that these women are breastfeeding for a shorter duration, or are better nourished and therefore are more likely to resume menstruation earlier than other women do. Having resumed menstruation at an earlier time they are therefore more prone to this type of rounding error. Finally, it seems unlikely that neonatal mortality accounts for a large proportion of the urban and more educated women reporting the return of menstruation in the first month postpartum.

The other data issue, digit preference, is also evident in Graphs 4.1, 4.2, 4.3 and 4.4. While the literature on amenorrhoea data frequently mentions the bimodality of the data, the Bangladesh data would appear to be trimodal, the modes being at 1,12 and 18 months.

There are two possible explanations for the heaping of the PPA data. One is behavioural, in that women may introduce supplements and/or discontinue breastfeeding at specific intervals postpartum. Previous studies, e.g. McNeilly (1993) found that the introduction of supplements and subsequent decline in the intensity and/or frequency of suckling led to a more rapid return to fecundity postpartum. Therefore, if women introduce supplements and/or wean at specific times it is possible that menstruation would occur at a similar time for most women.

The second explanation for the heaping is simply digit preference by individual women and/or prompting by the interviewer. If this is the case, it is necessary to investigate if any group of women are more prone to heaping. Tables 4.4 and 4.5 examine differences by residence and education level.

Table 4. 4 Digit preference in the postpartum amenorrhoea data BDHS 1993/94

	Most recent birth, menses has not returned				Most recent birth, menses has returned			
	6	12	18	24	6	12	18	24
Residence								
Urban	-	-	-	-	1.34	3.39	-	-
Rural	1.00	1.04	1.05	-	1.21	3.68	4.00	3.83
Education								
Secondary +	-	-	-	-	1.45	3.19	-	-
Primary only	0.83	0.97	-	-	1.23	3.61	-	-
None	1.04	1.02	1.03	-	1.14	3.78	3.80	
ALL	0.97	1.09	1.03	-	1.27	3.65	3.87	4.04
Episodes[1]	314	247	78	-	505	548	209	68

- This indicates that the sum of the five durations <50, and therefore excluded.
[1] These figures indicate the number of episodes used in the index, it does not therefore contain all episodes.

Table 4. 5 Digit preference in the postpartum amenorrhoea data BDHS 1996/97

	Most recent birth, menses has not returned				Most recent birth, menses has returned				Previous birth			
	6	12	18	24	6	12	18	24	6	12	18	24
Residence												
Urban	-	-	-	-	1.93	9.00	-	-	-	-	-	-
Rural	1.01	1.17	0.73	-	1.61	7.14	12	16	1.98	7.40	9.39	-
Education												
Secondary +	1.4	-	-	-	1.18	5.42	-	-	-	-	-	-
Primary only	1.01	-	-	-	2.04	6.81	9.83	-	-	-	-	-
None	0.96	1.24	0.54	-	1.71	8.25	12.70	15.10	1.85	6.75	-	-
ALL	1.07	1.13	0.70	-	1.68	7.32	11.94	11.48	2.00	7.52	9.5	-
Episodes[1]	283	218	81	34	494	580	275	128	159	144	57	81

- This indicates that the sum of the five durations <50, and therefore excluded.
[1] These figures indicate the number of episodes used in the index, it does not therefore contain all episodes.

The index of heaping is calculated by the number in the reported duration, divided by the average number in the four surrounding durations. For example, in the case of six months, those with durations of four, five, seven and eight months are divided by four, the assumptions being that the true figures are rectangularly distributed. An index of 1 indicates no concentration on the duration, whereas greater than one indicates heaping (Shyrock and Siegel 1973).

The censored durations for the most recent interval are included for comparison purposes. It is a good comparison group since the data are less likely to be heaped as the figure is simply the imputed figure of time since last birth, rather than the figure provided by the woman.

The incidence of digit preference is much greater for the 12, 18 and 24-month durations than for 6 months. However, it should be remembered that the data are skewed towards the shorter durations and therefore there are fewer women at the right hand end of the distribution; from the current status data, by 12 months postpartum only 36.5 percent of women were amenorrhoeic in 1996/97 (BDHS1996/97). The nature of the distribution also means that the underlying assumption of the figures being rectangularly distributed is not true. However, the index is still useful to examine the level of heaping.

There are insufficient data really to examine residential variations in digit preference. However, in the 1993/94 data, the difference was smaller than in the 1996/97 data. In both surveys urban women appear more likely to show a digit preference. More data are available to examine digit preference by the respondent's education level. It would appear that digit preference is more associated with lower education attainment.

The DHS reports use current status data to calculate the durations of PPA; this means that only data for those women who are amenorrhoeic at the time of the survey are used. The current status method is used to overcome the problem of digit preference in retrospective data (Akin *et al.*,.1986) as illustrated above. This method over-estimates the durations because those women who resume menstruation early are self-selected out of this group. However, the use of closed intervals for the calculations is likely to under-estimate the duration of PPA, due to the fact that those women who have a long duration of PPA are more likely to be censored from the analysis (Weis, 1993). The data for this study are based on closed intervals due to the fact that women's reaction to the return of menstruation is the focus of the study.

Table 4.6 presents the median duration of PPA from data included in this study and the DHS reports. Considering the potential impact of the two different bases for calculating the duration of PPA, it is safest to say that in 1996 the overall duration in the population was between 6.0 and 8.4 months.

Table 4.6 Median duration of postpartum amenorrhoea

Duration of amenorrhoea	1993/94 Median	1996/97 Median
From this data		
Last birth, menses has returned	6.0	7.0
Following last but one birth	3.0	6.0
Quoted in the DHS report[1]		
Median Duration of postpartum amenorrhoea		
Residence		
Urban	*	5.6
Rural	10.6	8.8
Education		
No education	11.8	10.6
Primary incomplete	(10.0)	7.6
Primary complete	*	5.5
Secondary +	(6.3)	6.7
All	10.3	8.4

[1] Based in current status data
Note: the figures in brackets are based on 25-49 children;
* figure based on fewer than 25 children and therefore suppressed
Source: BDHS 1993/94 and BDHS 1996/97

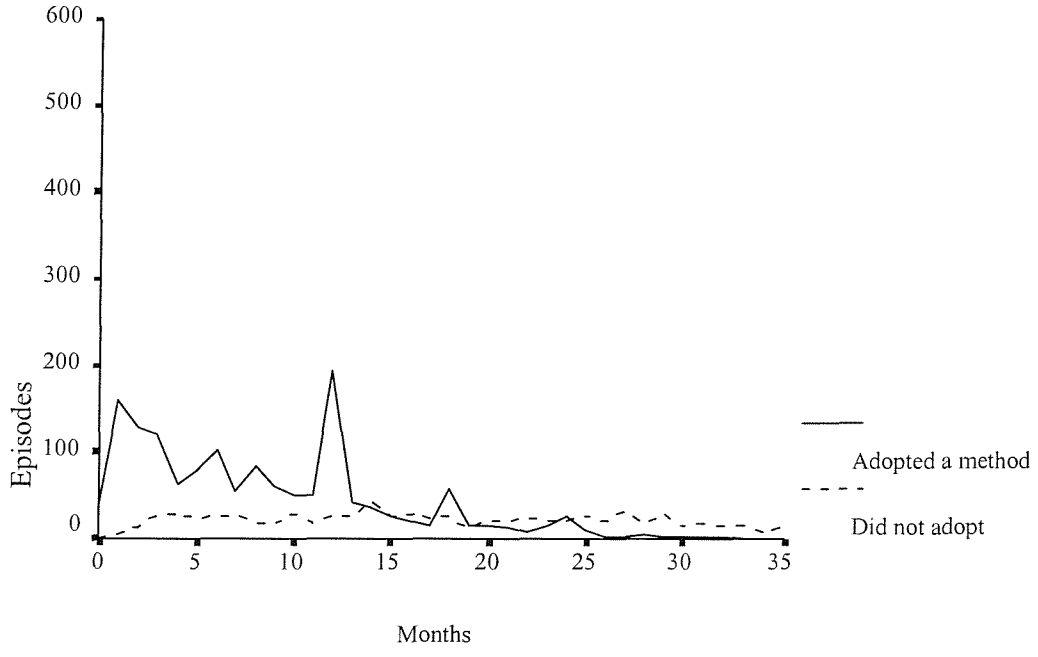
Table 4.6 reveals differences in the duration of PPA by different groups based on current status data. It is to be expected that urban, more educated women may have lower durations of PPA. What is not clear, however, is how much of this difference in median duration is due to the misidentification of *lochia* and rounding errors at 6 weeks as identified in Tables 4.2 and 4.3, and how much is due to different breastfeeding and weaning practices in these groups.

4.1.2 Duration of Non-use of Contraception Postpartum

In this section the episodes are divided into those who adopted a method postpartum and those who did not. If the woman has not adopted postpartum and is either not using or becomes pregnant again, the likelihood of heaping is reduced due to the fact that the duration of non-use is imputed as the time since last birth or pregnancy interval as opposed to being stated by the woman. Therefore, the duration is more likely to be implicitly obtained from the calendar, rather than explicitly asked by the interviewer, and therefore not as prone to misreporting.

Graph 4.5 Duration of non use postpartum

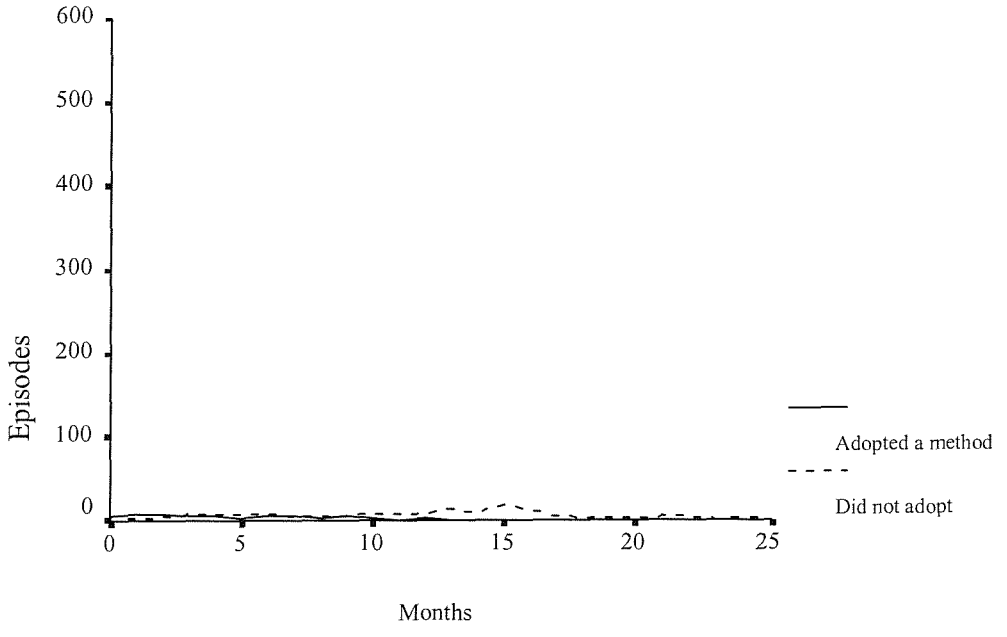
Following most recent birth (BDHS 1993/94)



based on 2294 episodes

Graph 4.6 Duration of non use postpartum

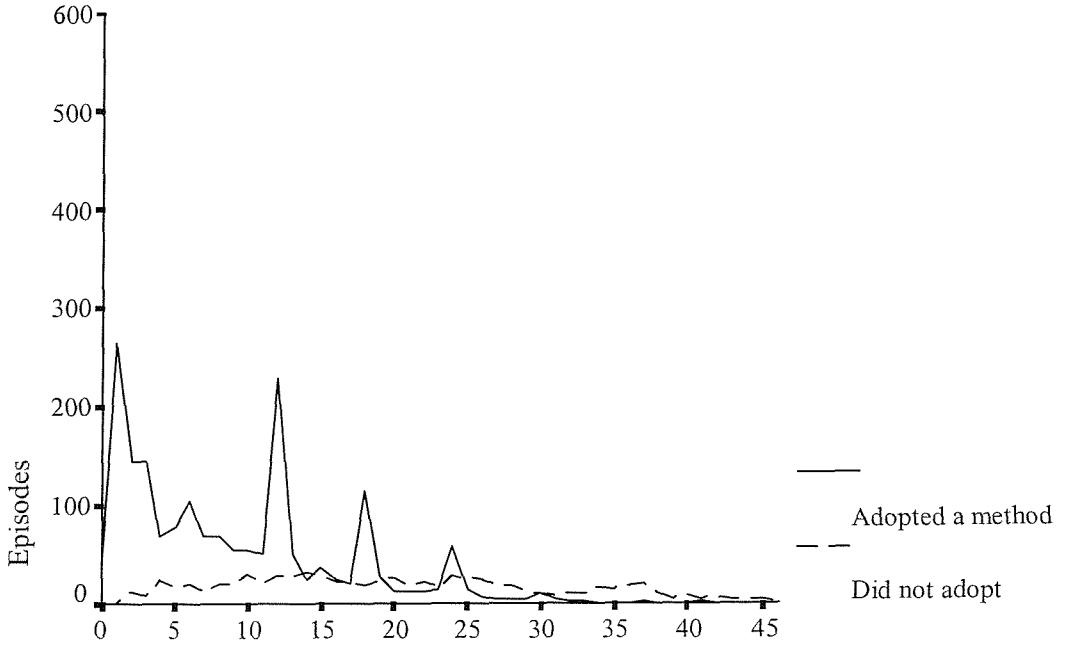
Following previous birth (BDHS 1993/94)



based on 210 episodes

Graph 4.7 Duration of non use Postpartum

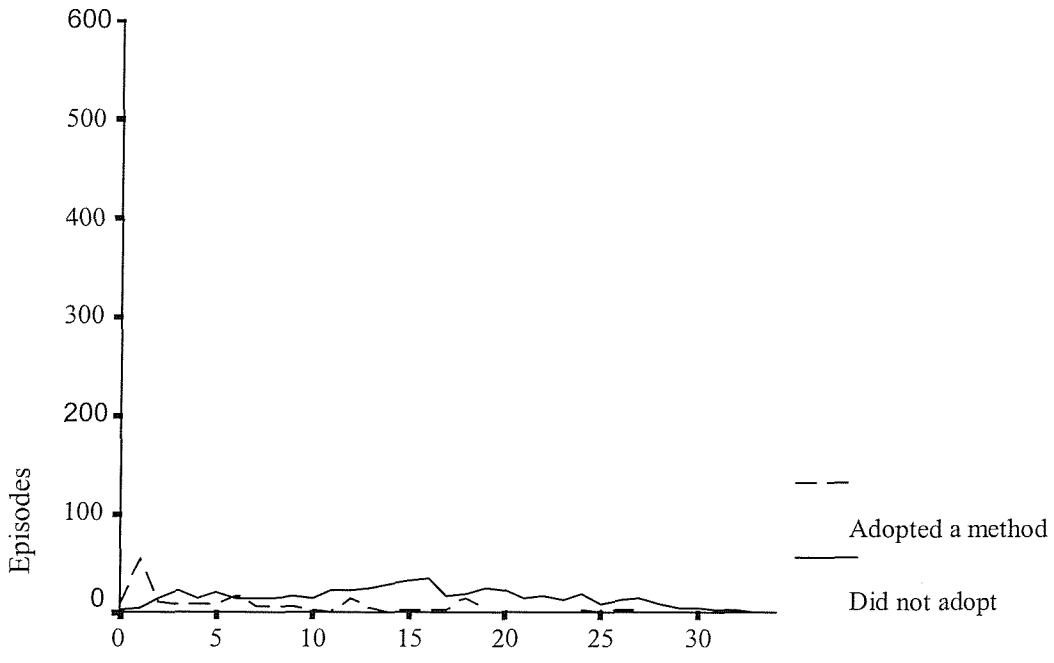
Following most recent birth (BDHS 1996/97)



Based on 2590 episodes

Graph 4.8 Duration of non use postpartum

Following previous birth (BDHS 1996/97)



Duration of non use postpartum (months)

Based on 703 episodes

The duration of non use postpartum comes from the contraceptive calendar, and the difference in heaping between those who adopt a method and those who do not can be explained by examining how these data are obtained, and what they relate to. In the case of non-use and the contraceptive calendar, the woman is asked if she has adopted anything postpartum. If she says no, the duration of non-use is simply the number of months between birth and either the survey or a subsequent conception. In the case of postpartum adoption, in the calendar the respondent will be asked when after the birth she adopted, and how long after the birth of 'x' this occurred. Therefore, it is a figure more prone to recall error than if the woman had not adopted a method.

The data from those who have adopted a contraceptive method postpartum are much more heaped than those from those who have not adopted a method. Like the PPA data there is heaping on durations of one and twelve months. The heaping on one month is evident in both Graphs 4.5 and 4.7. This heaping is possibly a result of the Bangladesh Family Planning Programme's policy of promoting the adoption of contraception at 40 days postpartum, and possibly the reaction of women to *lochia,* which they perceive to indicate the return of their fecundity.

The heaping on the other durations among those who adopted a method is either due solely to digit preference or is due to a perception by women of when they should adopt a method or

possibly a reaction to their menstruation returning. What is clear from the graphs is the difference in data quality between those who adopted a method and those who did not, for this particular variable.

Table 4.7 and 4.8 examine the heaping on one month. As in Table 4.2, the percentages listed are the proportions of all episodes reported as lasting one month.

Table 4.7 Proportion of episodes reporting duration of non-use postpartum as one month (BDHS 1993/94)

	Following most recent birth	
	Adopted	Did not adopt
Residence		
Urban		-
Rural	9.7	-
Education		
Secondary +	16.7	22.2
Primary only	11.5	22.8
None	6.9	17.0
ALL		19.0
N	1517	777

- based on less that 50 cases and therefore suppressed.
Previous birth not included because all numerators <50

Table 4.8 Proportion of episodes reporting duration of non-use postpartum as one month (BDHS 1996/97)

	Following most recent birth		Following previous birth	
	Adopted	Did not adopt	Adopted	Did not adopt
Residence				
Urban	18.9	0.0	25.0	-
Rural	13.5	0.2	30.2	0.6
Education				
Secondary +	17.7	0.0	32.7	-
Primary only	13.8	0.0	-	0.8
None	13.2	0.2	28.2	0.9
All	14.4	0.2	29.1	1.0
N	1839	751	185	518

- based on less that 50 cases and therefore suppressed.

In the case of the duration of one month it is more likely that the heaping is due to behaviour rather than digit preference. As previously mentioned, the BFPP (Bangladesh Family Planning Programme) promotes the adoption of a method at 40 days postpartum and it is possible that this is rounded down to one month.

Of those who did adopt a method in the most recent birth interval, urban women as well as and those who had received secondary/plus education are more likely to adopt at one month postpartum, i.e. report a duration of postpartum non-use of one. The fact that it is these women who show this preference supports the ideas put forward in the discussion of Table 4.2; namely that urban and more educated women are possibly more likely to break taboos,

such as 40 days postpartum sexual abstinence. However, if the taboo is widespread it is likely that these women will be highly motivated to prevent others from knowing that they have broken the taboo and therefore adopt a method at one month postpartum.

Another explanation could be that urban and more educated women are more aware that the return of menstruation signifies the return of fecundity and are more likely to misidentify *lochia* as the return of menstruation, and subsequently adopt. Finally, it is possible that the urban and more educated women are more influenced by the Bangladesh Family Planning Programme (BFPP).

Tables 4.9 and 4.10 examines the digit preference in the duration of postpartum non-use data. Only information for the most recent birth interval is included because, due to the number of sub divisions few figures are meaningful for the previous birth interval.

Table 4. 9 Digit preference in the postpartum non-use data, following most recent birth BDHS 1993/94

	Adopted any method				Did not adopt a method			
	6	12	18	24	6	12	18	
Residence								
Urban	1.30	-	-		-	-	-	
Rural	1.33	2.63	2.30	2.30	1.06	0.96	1.21	
Education								
Secondary +	1.43	2.25	-		-	-	-	
Primary only	1.20	2.54	-		1.30	0.83	1.21	
None	1.34	2.74	2.11		1.13			
All	1.32	2.60	2.30	2.30	0.95	0.93	1.02	
N	346	380	123		159	168	86	

This indicates that the sum of the five durations is less than 50 and therefore excluded 24months is deleted because all the sample sizes too small

Table 4. 10 Digit preference in the postpartum non-use data, following most recent birth BDHS 1996/97

	Adopted any method				Did not adopt a method			
	6	12	18	24	6	12	18	24
Residence								
Urban	1.46	4.31	-	-	-	-	-	-
Rural	1.47	5.22	5.50	5.17	1.21	1.15	0.70	1.39
Education								
Secondary +	0.83	3.56	-	-	-	-	-	-
Primary only	1.91	4.35	4.53	-	-	-	-	-
None	1.64	6.34	5.30	4.96	-	1.09	0.81	1.25
All	1.47	5.08	5.43	5.04	1.33	1.23	0.74	1.26
N	390	409	198	78	60	102	90	64

This indicates that the sum of the five durations is less than 50 and therefore excluded.

In both Tables 4.9 and 4.10 there is no evidence of differentials in postpartum non-use digit preference by residence. The relationship between education and digit preference does not appear straightforward. Those who stated that the duration of postpartum non use was six months in the 1993/94 survey were more likely to have secondary or higher education and least likely to have secondary education. In the 1996/97 data, this relationship is reversed. The likelihood of reporting a duration of 12 or 18 months decreased with education level in both surveys.

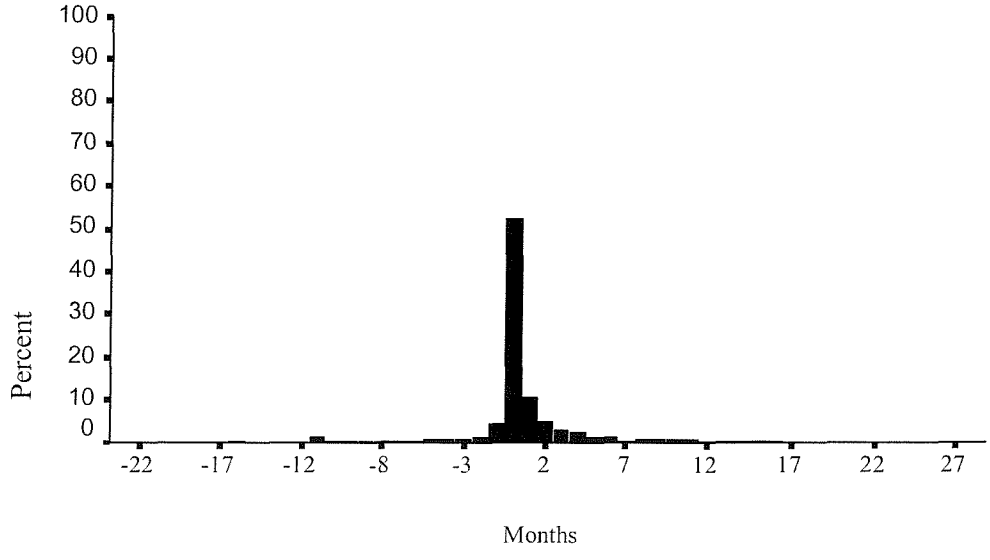
4.1.3 The difference between the duration of non-use and postpartum amenorrhoea

In order to examine the relationship between the resumption of menses and the adoption of contraception postpartum, the duration of PPA was subtracted from the duration of non-use postpartum. Therefore, the value of zero indicates that the method was adopted in the same month that menstruation returned, a value greater than zero indicates that the method was adopted after the return of menstruation. The variable of the difference between these two durations has been created as this is the basis for the categorisation of the dependent variable. Therefore, it is the distribution of this variable that is shown, and not the graphical relationship between these two variables. The following charts show the distribution of the 'difference' variable.

Figure 4.1

Adoption of Contraception relative to return of menstruation

Following most recent birth (BDHS 1993/94)

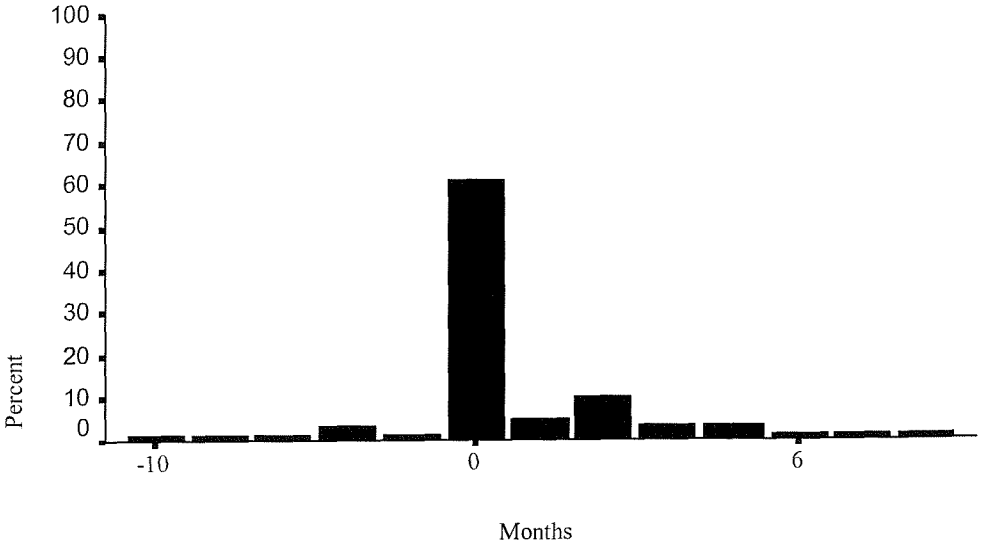


Based on 1517 episodes

Figure 4.2

Adoption of Contraception relative to return of menstruation

Following previous birth (BDHS 1993/94)

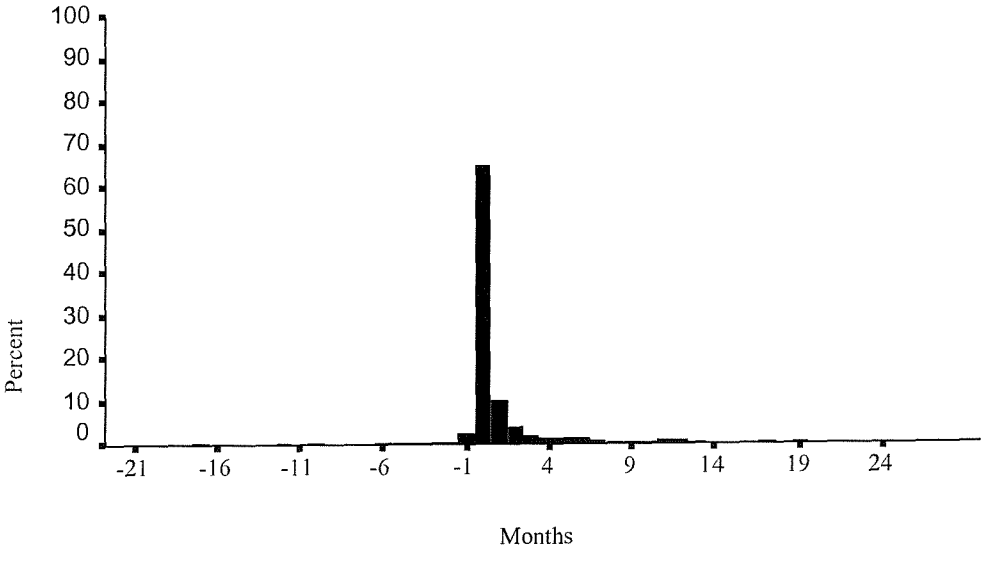


Based on 57 episodes

Figure 4.3

Adoption of Contraception relative to return of menstruation

Following most recent birth (BDHS 1996/97)

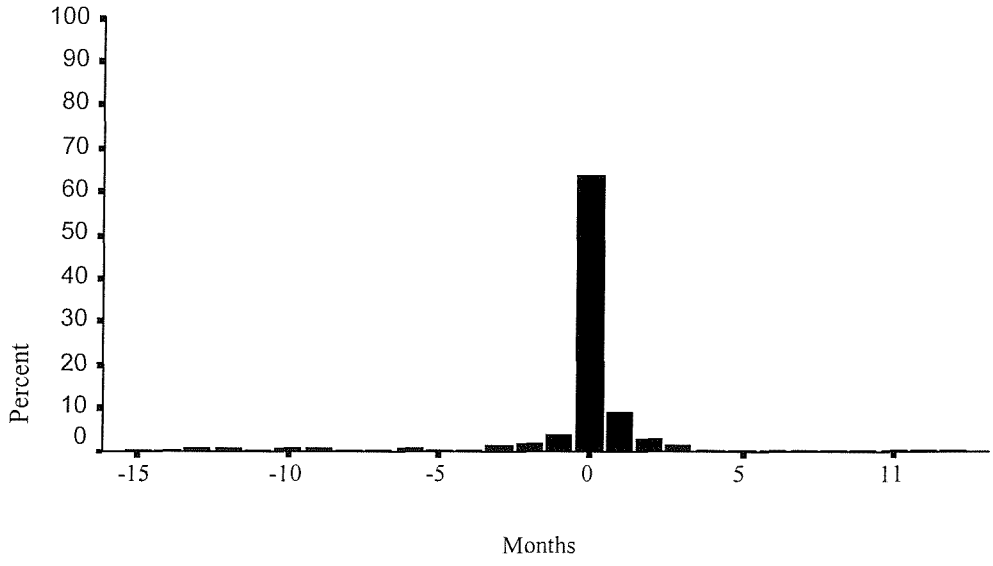


Based on 1839 episodes

Figure 4.4

Adoption of Contraception relative to return of menstruation

Following previous birth (BDHS 1996/97)



Based on 185 episodes

It is important to highlight again that the information collected on duration of PPA and postpartum non-use are collected in different sections of the DHS questionnaire, and are collected in different ways. The information on PPA comes from the pregnancy and breastfeeding history where women were asked about behaviours such as breastfeeding and events such as weaning and the resumption of menses. The duration of postpartum non-use is obtained from the contraceptive calendar. This calendar includes all pregnancies in the 5-6 years prior to the survey and from this it is possible to obtain duration of non-use. While this difference was highlighted earlier in this chapter with reference to data quality issues, the fact that the data are collected in different sections and in different ways is important when considering Graphs 4.1 to 4.4.

The charts clearly show a peak on zero; i.e. the majority of those women who adopted a method postpartum did so in the same month as they reported the return of menstruation postpartum. Considering the strength of the evidence in these graphs of the link between the return of menstruation and the adoption of a contraceptive method, the fact that the data are collected in different parts of the survey adds credence rather than detracts from this evidence.

This relationship supports the findings from Bangkok (Laukaran and Winikoff 1985), Bangladesh (Salway, 1996) and Thailand (Knodel *et al.*, 1985, Knodel *et al.*, 1989) where

amenorrhoeic women were found to be less likely to be using a method compared to those who had resumed menstruation. In addition, the graphs support the theory put forward by other commentators that the return of menstruation is a stimulus for the adoption of a contraceptive method postpartum. Unfortunately, due to the fact that in this data set the time is measured in discrete time periods, months, it is not possible to state which happened first, adoption or menstruation.

In favour of menstruation occurring before the adoption of contraception is the fact that instructions on the adoption of oral contraceptives are for their adoption either on the 1st or 5th day of the menstrual period. This is due to the fact that this is a) a specific time in a woman's cycle that she can easily identify, and b) coincides with evidence that she is not pregnant. While menstrual bleeding is not a faultless indicator of a non-pregnant state, it is the best there is outside the realm of urine or blood assays. The initial dose of Depo-Provera, the injectable hormonal contraceptive, is also given on the 5th day of the menstrual cycle.

In the case of the adoption of the pill, the relationship between contraceptive adoption and the return of menstruation is complicated by the action of the pill. In Bangladesh, the progesterone only or minipill is not widely available, combined oral contraceptives being much more common. The combined pills contain oestrogen that simulates endometrial growth and there is a decline in oestrogen levels in the body at the end of a cycle of pills. A decline in the level of oestrogen, whether it occurs naturally or is simulated by the pill, causes the breakdown of the endometrium and menstruation. Therefore, if a woman adopts the pill while amenorrhoeic she is likely to hasten the return of menstruation and to menstruate in the same cycle as she starts to take the pill.

In the previous sentence the word cycle is used due to problems in the perception and definition of a 'month'. Here three definitions are important: a month as a discrete time period of either four weeks or 30 days, a calendar month and a menstrual month. In the case of the DHS a month is a calendar month, so women who adopt a method do so in, for example, January. However, in terms of menstruation the 'month' is very probably a menstrual month. For example, if a woman experiences menstruation and then adopts a method two weeks later, even if these did not occur in the same calendar month they may be perceived to occur in the same month. It is possible that in the DHS a menstrual month is reported as a calendar month.

Focusing on the pill, injectable, condom and periodic abstinence, due to the small sample sizes of other methods, it is clear from Tables 4.11 and 4.12 that there is no great difference in

the patterns of contraceptive adoption, relative to the return of menstruation, by method. The pill is the only method that would hasten the return of menstruation if taken while amenorrhoeic. Therefore, these tables support the theory that menstruation precedes the adoption of a method because it does not appear that a notably larger proportion of pill adopters report the return of menstruation in the same month as they adopt contraception compared to other methods.

Table 4.11 Time, relative to the return of menstruation that method adopted 1993/94

Adoption	Prior to resumption of menses %	In same month that menses return %	After menses returned %	Total %	Total N
Pill	8.4	56.9	34.7	100	826
IUD	31.9	38.9	29.2	100	113
Injections	14.9	40.0	45.1	100	175
Condoms	17.0	52.6	30.4	100	137
Female Sterilisation	-	-	-	100	1
Males Sterilisation	-	-	-	100	3
Periodic abstinence	13.9	66.0	21.1	100	147
Withdrawal	21.1	46.5	32.4	100	71
Other	29.4	35.3	35.3	100	34
Total	13.8	52.7	33.5	100	1517

The dominance of the pill in these tables is typical of contraceptive use in Bangladesh, but its adoption postpartum has important implications. The use of combined oral contraceptives (COCs) which containing oestrogen, is not recommended in the early postpartum period due to an elevated risk of thrombosis (Hatcher and Guilleband, 1998). However, this is limited to two-three weeks postpartum.

Table 4.12 Time, relative to the return of menstruation that method adopted.1996/97

Adoption	Prior to resumption of menses %	In same month that menses return %	After menses returned %	Total %	Total N
Pill	4.6	68.1	27.4	100	1019
IUD	7.8	49.4	42.9	100	77
Injections	5.6	59.2	35.3	100	306
Condoms	14.9	65.4	19.7	100	208
Female Sterilisation	53.3	23.3	23.3	100	30
Males Sterilisation	83.3	-	16.7	100	6
Periodic abstinence	9.6	77.1	13.3	100	180
Withdrawal	6.7	70.0	23.3	100	83
Other	26.1	52.2	21.7	100	23
Total	8.1	64.9	26.9	100	1838

A more important factor, in a country that has a strong tradition of breastfeeding, is the fact that the oestrogen in COCs has been found to reduce lactation in breastfeeding women (Guilleband, 1997). A randomised double blind study of the effect of hormonal contraceptive use on lactation was carried out by WHO in two centres in Thailand and one in Hungary (WHO, 1988). The study concluded that combined oral contraceptives appear to disturb the physiology of lactation, resulting in a reduction in milk volume, a deficiency in calories and changes to the mineral content of the milk. Indeed, breastfeeding is listed as a contra-indication for the adoption of combined OCs in Mims.

Therefore, the fact that women are reacting to the return of menstruation postpartum as a stimulus to adopt contraception is an advantage. It is very possible that the policy of promoting the adoption of contraception at 40 days postpartum, especially combined oral contraception, is having detrimental effects on breastfeeding in Bangladesh.

4.2 Barriers and opportunities to improved contraceptive management- women's reaction to the return of menstruation postpartum

The data on duration of postpartum amenorrhoea and duration of non-use partum show strong evidence of digit preference. In the case of postpartum amenorrhoea, the heaping on one month is evidence of both the confusion *lochia* with the return of menstruation and the rounding down of 5-6 weeks to one month. Graphs 4.5 and 4.7 show the clearest evidence of misreporting. The data of those that adopted a method, and therefore had to state the duration of non-use postpartum, show pronounced heaping. The data for those who did not adopt a method, for whom the data was computed from directly from the calendar as opposed to an explicit response, does not exhibit heaping.

In the 1993/94 data, 52.7 percent of those who adopted a method postpartum did so in the month that menstruation returned and, in the 1996/97, data the figure was 64.9 percent. This, and the fact that only 13.8 percent in 1993/94 and 8.1 percent in 1996/97 of those who adopted postpartum did so before the return of menstruation, is clear evidence that to many women in Bangladesh the first menses postpartum indicates the return of fecundity and a need to adopt a contraceptive method. This evidence is clear despite the evidence of data heaping, as women are reporting adopting in the same month as menstruation returns, indicating their perceived optimal reaction to the event even if in practice this maybe misreported and the two events do not in fact occur in the same month.

The fact that women clearly react to the return of menstruation postpartum has to be considered within the context of postpartum policy. Two policies are considered, the current Bangladeshi policy of adoption at 40-45 days postpartum, and policies based on the lactation amenorrhoea method.

Bangladesh has a policy of encouraging women to adopt to adopt at 40-45 days postpartum (Salway and Nurani, 1996). At this time, even women who do not breastfeed are unlikely to be fecund (Consensus statement, 1989). There is therefore an overlap in postpartum infecundity, whether this is due to breastfeeding or not, and contraceptive use. As pointed out by other commentators e.g. Salway and Nurani (op cit), and Curtis (1996) in a context of low contraceptive continuation, any overlap between postpartum infecundity and contraceptive use may have negligible or even a positive impact on fertility. In the first instance, early adoption of a method and subsequent discontinuation may all occur prior to the return of fertility, hence the negligible impact. A positive effect on fertility arises when contraceptive use leads to shorter birth intervals (Bhatia and Kim, 1984). In this case, the use of the combined pill induces fecundity to return earlier. Therefore, in this case, should the woman discontinue after a short time frame, the birth interval will be less than it would have been in the absence of pill use.

Promotion of the adoption of methods early in the postpartum period in a context of near universal and extended breastfeeding is likely to have a negative impact on child health unless care is taken in the methods offered to women. Oestrogen is known to have a negative impact on breastfeeding, both in terms of the quality and quantity of breast milk produced. In Bangladesh, the pill is the most frequently used method, and there is little progesterone only pill use; the combined pill, containing oestrogen, is far more common.

A policy that uses the LAM guidelines first set down at the Bellagio conference would reduce the overlap between postpartum infecundity and contraceptive use. These guidelines encourage the adoption of a method at six months postpartum if the woman is exclusively breastfeeding and menstruation has not returned. Should menstruation return before six months, a method should be adopted at that time. A key problem with the LAM guidelines is that they are not context specific. What is required is more detailed information for each country, so that more comprehensive guidelines can be formulated. For example, Salway (1998) found that the cumulative risk of conception among amenorrhoeic women was less than 2 percent at six months and less than 3 percent at 9 months, regardless of breastfeeding status in Bangladesh. This could be the basis of a more flexible approach than the six month

cut off point, and take LAM a stage further by informing women of the aggregate level risks of conception at different times postpartum.

In addition to being provided with more information on risk of conception at different times postpartum, women must be able to compare these risks to the failure rates for other methods. The failure rates, contraceptive method and LAM, should at least be country specific, and ideally disaggregated by factors such as urban/rural status and, in the case of LAM, by duration of exclusive breastfeeding. Only when a woman has balanced this information and voiced her own preference, can she be said to have made an informed choice. Any singular focus on the increased risk of amenorrhoeic women becoming pregnant in the six to 12 months postpartum is at odds with the post ICPD agenda.

In summary, women in Bangladesh react to the return of menstruation; it is the only indicator that they have of their re-entry into a fecund state. Postpartum policy in Bangladesh has the opportunity to build on this fact. Women already behave according to part of LAM guidelines, that a method should be adopted when menstruation returns. In order to build on this, more information is required on the risks of conception for an amenorrhoeic woman at seven, eight, nine, ten, eleven and twelve months postpartum. This information, along with contraceptive failure rates, will equip women to make decisions about when, in the absence of menstruation, they should adopt a method postpartum and what that method should be.

4.3 The postpartum analysis

Having described in detail the frequency distributions of, duration of postpartum amenorrhoea and, duration of non-use postpartum, and the relationship between the two variables, these two variables now form the basis of the statistical analysis of postpartum contraceptive adoption. Prior to examining the statistical models and their design, it is necessary to discuss data heaping with reference to the use of these two variables in the creation of a dependent variable. (The creation of this dependent variable is further discussed in the section 4.3.1).

The nature of the heaping, as shown in Graphs 4.1, 4.3, 4.4, 4.5 and 4.7, show no evidence of differential, as opposed to random, heaping. Differential heaping would be, for example, all in one direction, and therefore non random. However, the random nature of the heaping makes the combination of the two variables into a dependent variable less of a cause for concern.

Secondly, Diamond *et al.*, (1986), when examining the effect of different grouped durations of heaped data found the effects to be limited. In their analysis of weaning, they found that

the different groupings of child's age, from 19 categories to three, had little effect on the parameter estimates in their model. This is additional evidence that the heaped data is not necessarily a cause for concern.

Finally, if nothing else the heaping of the two variables, and the resultant concentration of women who report adopting in the same month as menstruation returned, indicates a strong attitudinal preference even if this is was not translated into behaviour.

This analysis examines two datasets, the 1994/93 and 1996/97 BDHS to study postpartum contraceptive behaviour. The analysis focuses on a woman's reaction to the return of menstruation postpartum, which is the only indicator she has of her return to a fecund state. The timing of adoption relative to the return of menstruation can therefore be used as an indicator of effective contraceptive management.

The analysis is based on a dependent variable with three categories: effective postpartum adoption, ineffective postpartum adoption and non-adoption of a method postpartum. Two different models are presented for each data set, each using a slightly different definition of effective adoption.

4.3.1 The data

The data were limited to the most recent birth of those women who gave birth in the three years prior to the survey. An alternative could have been to include all those postpartum episodes where menstruation had returned. However, it is more robust to simply select the last birth to all women. This is because there is likely to be a selection bias since if with information for a previous birth are included, as this group is likely to be different from those for whom data on a previous birth are not available.

4.3.2 The Dependent Variable

The first model defines effective postpartum adoption as episodes where a contraceptive method was adopted prior to, or in the month that menstruation resumed postpartum. This first model assumes that the menstruation and adoption occur in the same calendar month for the episode to be defined as effective. In the second model a different time duration is used for differentiating between effective and ineffective adoption; episodes are defined as effective if adoption occurs prior to, or in the month following the return of menstruation.

This second definition allows for the inclusion of a different definition of the month[5] that menstruation returned and a method was adopted. For example, in an episode where menstruation returned at the end of May and a method was adopted at the beginning of June is classified as effective according to the second definition whereas it would not in the first definition. The evidence presented earlier in this chapter suggests that many women do report adopting a contraceptive method in the same calendar month as their menstruation returns postpartum. However, this second definition allows flexibility that those who report the events happening in the same menstrual but different calendar months are defined as effective. It is accepted that this definition will include some women who adopted in the following menstrual month, but it is important to examine both definitions.

4.3.2.1 Censoring

There are two types of left censoring[6] pertinent to this analysis. One type of left censoring in this study is where menstruation has not yet occurred postpartum and, the other, where menstruation has not returned and the woman has experienced a *muria or mura* pregnancy. In both cases the woman has not experienced menstruation, her reaction to which is the basis of this analysis. Table 4.13 show the number of episodes involved in this type of left censoring.

Table 4.13 Episodes excluded due to missing information or menstruation had not returned.

	DHS survey	
	1993/94	1996/97
Menses has not returned by time of survey (left censored)	1130	835
Menses did not return before subsequent conception	27	23
Duration of amenorrhoea missing	3	2
Episodes where duration is available	2294	2590
Total episodes	3454	3451

Another example of left censoring important to this analysis is where menstruation has returned postpartum but a method has not been adopted. Some of those who at the time of the survey had not adopted a method will go on to do so, and therefore could be incorrectly categorised.

There are two types of incorrect categorisation that could occur. One involves those women whose menstruation returned in the month of the survey and who were not using at the time of the survey. In the case of the first definition of effective management, some of the women may have gone on to adopt a method that month, or in the case of the second definition may

[5] The differing definitions of 'month' have been discussed earlier in Section 4.1.3.

have adopted in the month following the survey. These would have been defined as non-users when potentially they are in fact they are effective adopters. All episodes where menstruation returned in the month of the survey are excluded from the analysis, and in the case of the second definition all those episodes where menstruation resumed in the month preceding the survey are also excluded.

The other group is those for whom menstruation had returned in the months preceding the survey, and who have not adopted a method but may do so after the survey date. In this case these episodes would be incorrectly classified as non-users when, in fact, they could go on to be ineffective adopters.

Table 4.14 Episodes censored from the postpartum analysis

	1993/94	1996/97
Total episodes available for analysis	2294	2590
Missing values for explanatory variables, cases excluded	26	66
Menstruation returns in the two months preceding survey (definition 1)	39	147
Number of episode in definition 1 model	**2229**	**2377**
Menstruation returns in the five months preceding survey (definition 2)	83	256
Number of episode in definition 2 model	**2185**	**2268**

In order to draw an allbeit arbitrary line to exclude such episodes, the median value of time to adoption of those women who did adopt ineffectively in the open birth interval was examined for both definitions of effective contraceptive management. The median duration for the first definition was two months. Therefore all non-users whose menstruation had returned in the two months preceding the survey were excluded. In the case of the second definition of effective contraceptive management, the median time to adoption among the ineffective group in the open interval was five months. Therefore, those non-users for whom menstruation had returned in the five months preceding the survey were excluded. The number of episodes for which the relevant information was available is shown in Table 4.14.

4.3.3 The explanatory variables

Table 4.15 contains the explanatory variables that were used to form the final postpartum models. The variables represent a range of aspects of a woman's life that may facilitate or inhibit effective contraceptive management. In addition to examining previously found correlates of contraceptive use dynamics, this analysis includes contextual variables likely to

[6] Left censoring is the term to describe when the event in question has not occurred by a certain point in time, in this case the survey.

encourage or inhibit effective contraceptive management, and those variables most amenable to policy intervention[7].

Table 4.15 Variables used in the modelling of postpartum contraceptive use.

Episode level variables	
Time varying co-variates	Mother's age at birth
	Sex composition of family
	Sex of child
	"Wantedness' of birth
	Number of children
Woman level variables	
Socio- economic variables	Woman's education
	Urban or rural residence
	Has Electricity
	Region of residence
	Religion
	Husband's education
	Literacy
Media exposure	Listens to radio every week
	Watches TV every week
Reproductive variables	Age at first marriage
	Age at first birth
	Ever terminated a pregnancy
Automy/ Mobility	Has been shopping since marriage
	Allowed to go out alone
	Membership of credit organisation
	Allowed to go to health facility
Family planning in the marriage	Has discussed family planning with husband
	Respondent in favour of family planning
	Visited by family planning worker in 6 months prior to the survey
Cluster level variables	
Proximity to urban centres	Distance to Thana HQ
	Distance to District HQ

Fertility preference is asked in the DHS but is measured at the time of the survey. Since fertility preference may change during the calendar, the 'wantedness' of the index pregnancy is used instead of the fertility preference variable. The 'wantedness' variable is not without its own problems, since it is an opinion of an event that happened in the past. However, in this analysis the woman's behaviour following the 'index' pregnancy is examined. Those who stated that they had not wanted any more children in reference to their previous birth, may be expected to be more likely to adopt a method postpartum than those who stated that they had wanted the pregnancy.

The variable 'being visited by a family planning worker in the previous six months' is also open to criticism due to the fact that it only refers to the six months prior to the survey, and

[7] Chapter Three discussed the difficulties of using some explanatory variables to analyse the calendar.

not the three years prior to the survey covered in this analysis. However, limiting the sample to the most recent birth to women who delivered in the three years prior to the survey does focus on events closer to the survey. That stated the criticism is acknowledged, but women's access to methods in Bangladesh is largely dependent on family planning workers, therefore it is an obvious barrier should the women not be contacted.

4.3.4 The Final models

In the models of postpartum contraceptive adoption, predicted probabilities are presented as opposed to the coefficients. This is due to the fact that interpretation of the coefficients is not straightforward. Therefore, instead of focusing on the odds (Retherford and Choe 1993) the predicted probabilities are used to illustrate the effects of the predictor variables. The estimated probability for any particular variable is calculated by holding the value for all others at the mean. It is therefore interpreted as the estimated probability for women with a particular characteristic, for example, the impact on the probabilities of effective, ineffective or non-adoption postpartum adoption if all women had secondary education.

The regression coefficients are included in tables at the end of this chapter, in these tables the level of significance of the explanatory variables are indicated. The reference categories are indicated in all tables.

In the discussion that follows, for each dataset, the definition 1 model is discussed and then is compared to the definition 2 model to avoid replication. Finally the models for the two different datasets will be compared and, the effect of the two different definitions discussed.

The models are set up to obtain estimates of the difference between effective and ineffective management. In order to do this, effective management was made the reference category for the dependent variable. Due to this the discussion includes factors associated with non-use. This sometimes appears clumsy in the text, for example less likely not to adopt, but this approach was essential to examine ineffective as opposed to effective management.

4.3.4.1 1993/94 Data

Definition 1

Women were more likely not to a adopt a method postpartum if they stated that they had wanted the birth to occur when it did, compared to those women who stated that they had wanted no more children (See Table 4.16). It is likely that these women were less motivated to adopt a method as the child was either planned for that time or the women was content with

the timing of the unplanned pregnancy. However, women who stated that they had wanted the birth later, as opposed to not at all, were also more likely not to adopt postpartum.

Table 4.16 Predicted percentage probabilities postpartum adoption 1993/94 definition 1

	Did not adopt	Ineffective adoption	Effective adoption (r)
Overall average	29.6	24.9	45.4
Wanted index pregnancy			
Then	33.0	23.8	43.2
Later	26.1	26.9	47.0
Wanted no more (r)	18.9	27.1	53.9
Education			
No education	35.8	23.3	40.9
Primary education only	27.2	26.9	46.0
Secondary + education (r)	18.7	25.0	56.2
Discussed family planning with husband			
Never	59.1	17.7	23.2
Once or twice	28.9	24.6	46.5
More often (r)	18.6	26.5	54.9
Visited by a FP worker in last 6 months			
Not visited	40.4	20.5	39.1
Yes – 6 months (r)	22.1	28.3	49.6
Division			
Barisal	26.8	19.4	53.7
Chittagong	43.8	23.4	32.8
Dhaka	30.7	28.0	41.3
Khulna	21.1	26.4	52.4
Rajshahi (r)	22.2	23.0	54.8
Distance to Thana HQ (mean 5.4 km)			
0	25.6	25.1	49.3
21	42.8	23.2	34.0
Distance to District HQ (mean 16.11 km)			
0	26.9	25.4	47.7
52	36.1	23.7	40.1

(r) indicates reference category

The education level of the women was negatively associated with the non-adoption of a method postpartum. Women with no education were more likely not to adopt postpartum compared to those with secondary education. Education is a common determinant of contraceptive use (Entwisle et al 1986, Weinberger 1987, Guilkey and Jayne 1997 and Hagen et al 1999), and in this model the relationship between not adopting a method postpartum and education level is as expected.

While significant, the impact of education on ineffective adoption postpartum was small. Women with no education were less likely to adopt ineffectively postpartum compared to those with secondary or further education, and those with primary education were slightly more likely to adopt ineffectively postpartum.

The two contextual variables related to family planning, frequency of discussion with husband about family planning and being visited by a family planning worker had the strongest impact on non-adoption of a method postpartum. These two variables are considered to be contextual as opposed to event specific since they should both be time varying and yet in the DHS are measured only at the time of the survey. Therefore, they are interpreted as facilitating or inhibiting factors as opposed to being event specific.

The reported frequency of discussion about family planning with husband was negatively associated with the non-adoption postpartum. Women who had never discussed family planning with their husbands were much more likely not to adopt a method compared to those who had discussed it more than once or twice. This result suggests that the use of method for delaying or spacing births may not be the norm and in some couples discussion may not occur until the limitation of family size becomes an issue.

Ineffective postpartum adoption was positively associated with frequency of discussion of family planning with husband. Women who had never discussed family planning with their husbands were less likely to adopt ineffectively postpartum that those who had discussed family planning with their husband on more than once or twice.

Those women who reported that they had not been visited by a family planning worker in the six months prior to the survey were more likely not to adopt a method postpartum than those who had been visited. This most likely reflects reduced access to services, both information and methods, for these women but may also be due to health workers awareness of the reluctance of couples to use a method, resulting in the health worker not visiting.

Women resident in Chittagong were more likely not to adopt a method postpartum than those resident in Rajshahi. This is unsurprising considering that in 1993/94 Chittagong was the most conservative area of Bangladesh with the lowest contraceptive prevalence. Women living the Dhaka division were also more likely not to adopt postpartum than women resident in Rajshahi.

Ineffective adoption was also significantly associated with division of residence. Women in Chittagong were slightly more likely to adopt ineffectively than women in Rajshahi. Residence in the Dhaka division was associated with an increased likelihood of ineffective postpartum adoption.

Proximity to local centres was significantly associated with non-adoption postpartum but not with ineffective adoption. Those women living further away from the Thana and District headquarters were more likely not to adopt a method postpartum.

Definition 2

The difference between the two models is in the definition of effective adoption. The second model (see Table 4.17) uses a more relaxed definition, where women who adopt in the month following the return of menstruation, as opposed to the month that menstruation returns, are defined as effective adopters. The difference is therefore in effective and ineffective adoption as opposed to non-adoption[8].

The variables, which were associated with ineffective adoption in both the definition 1 and definition 2 models, and their impacts, were broadly similar. The only difference is that distance to Thana HQ was significantly associated with ineffective adoption in the model of the second definition.

[8] Any difference to the category of 'non-adoption' is due to the censoring additional births in the months prior to the survey that should be random.

Table 4.17 Predicted percentage probabilities postpartum adoption 1993/94 definition 2

	Did not adopt	Ineffective adoption	Effective adoption (r)
Overall average	27.9	17.2	55.0
Wanted index pregnancy			
Then	40.1	15.7	44.7
Later	31.7	17.7	50.5
Wanted no more (r)	22.6	17.5	59.9
Education			
No education	35.9	15.9	48.2
Primary education only	26.9	18.6	54.4
Secondary + education (r)	18.6	14.7	66.8
Discussed family planning with husband			
Never	60.9	10.9	28.2
Once or twice	28.4	16.6	55.0
More often (r)	18.4	18.1	63.5
Visited by a FP worker last 6 months			
Not visited	38.5	14.1	47.4
Yes – 6 months (r)	20.6	19.5	59.9
Division			
Barisal	24.9	16.4	58.7
Chittagong	42.4	18.4	39.2
Dhaka	28.4	17.8	53.8
Khulna	19.6	16.4	64.0
Rajshahi (r)	21.0	14.8	64.2
Distance to Thana HQ (mean= 5.38kms)			
0	24.2	16.1	59.7
21	39.8	19.4	40.8
Distance to District HQ (mean= 16.14kms)			
0	24.6	17.5	57.9
52	36.0	16.1	47.9

(r) indicates reference category

4.3.4.2 1996/97 data

Definition 1

In the model for definition 1 of effective contraceptive management, the timing of the birth was significantly associated with the likelihood of not adopting postpartum, but was not significantly associated with ineffective postpartum adoption. Those women who reported that they were happy with the timing of the birth were more likely not to adopt a method postpartum compared to those who had not wanted any more children.

Education was significantly associated with both non-adoption postpartum and ineffective adoption. Education had a negative relationship to the likelihood of non-adoption postpartum, women with no education were more likely not to adopt a method than those with secondary education or higher. Women with primary education were also more likely not to adopt postpartum than those with secondary education or higher. Women with no education

were marginally, but significantly, more likely to adopt ineffectively postpartum compared to women with secondary education or higher.

Table 4.18 Predicted percentage probabilities postpartum adoption 1996/97 definition 1

		Did not adopt	Ineffective adoption	Effective adoption(r)
Overall average		17.6	23.6	58.8
Wanted index pregnancy				
Then		21.1	21.8	57.1
Later		12.2	27.8	60.0
Wanted no more (r)		11.2	25.9	62.9
Education				
No education		23.3	23.5	53.2
Primary education only		15.8	22.8	61.4
Secondary + education (r)		9.5	23.4	67.0
Discussed family planning with husband				
Never		36.1	19.6	44.3
Once or twice		11.7	24.7	63.6
More often (r)		7.8	24.0	68.1
Visited by a FP worker last 6 months				
Not visited		26.3	20.3	53.4
Yes – 6 months (r)		12.1	26.0	62.0
Division				
Sylhet		40.3	22.0	37.6
Chittagong		19.9	24.2	55.8
Barisal		21.7	25.4	52.9
Dhaka		17.0	23.1	59.9
Khulna		8.6	21.3	70.0
Rajshahi (r)		13.2	22.3	64.4
Distance to Thana HQ (Mean 5.49)	0	15.7	24.5	59.8
	25	25.9	20.0	54.1
Distance to District HQ (Mean 17)	0	14.7	22.6	62.6
	70	28.9	25.3	45.9

(r) indicates reference category

The frequency with which a woman reported discussing family planning with her husband had one of the strongest impacts on the likelihood of non-adoption. Women who had never discussed family planning with their husband were much more likely not to adopt compared to those who discussed it more than once or twice. Those women who had discussed it only once or twice were also more likely not to adopt postpartum, but the difference was smaller. Those women who reported that they had not been visited by a family planning worker in the six months prior to the survey were significantly more likely not to adopt postpartum than those who had been visited.

All of the divisions were significantly associated with non-adoption postpartum, and residence in Sylhet and Barisal was associated with ineffective adoption postpartum. Women resident in Sylhet were most likely not to adopt postpartum compared to those living in

Rajshahi, and this was the greatest impact of residence on non-adoption. Residence in Chittagong, Barisal and Dhaka was also associated with an increased likelihood of non-adoption compared to Rajshahi. Khulna was the only division of residence where the likelihood of non-adoption was less than in Rajshahi. As in the 1993/94 data, Rajshahi and Khulna were the two divisions with the highest contraceptive prevalence rates in the 1996/97 BDHS. In the case of ineffective adoption postpartum, women resident in Sylhet were slightly less likely and women resident in Barisal slightly more likely to adopt ineffectively postpartum compared to those resident in Rajshahi.

Proximity to Thana and District Headquarters was significantly associated with non-adoption postpartum but not with ineffective adoption. Those living closer to these centres were less likely not to adopt postpartum.

Definition 2

The predictive variables associated with non-adoption postpartum were the same in the models for definition 1 (see Table 4.18) and definition 2 (see Table 4.19). In addition, the direction of impact of these variables was the same, apart from residence in Khulna. In the definition 1 model this was associated with a reduced likelihood of non-adoption, compared to residence in Rajshahi, but in the model for definition 2 residence in Khulna was associated with an increased likelihood of non-adoption postpartum.

In the model for definition 2, but not the definition 1, both contextual variables were associated with ineffective adoption postpartum. Those who had never discussed family planning with their husband were less likely to adopt ineffectively postpartum than those who had discussed with their husband more than once or twice. Those who had not been visited by a family planning worker in the six months prior to the survey were less likely to adopt ineffectively postpartum.

In the model of the second definition, residence in Chittagong and Barisal were significantly associated with ineffective adoption compared to Sylhet and Barisal in the model of definition 1. In the second model women resident in both Chittagong and Barisal were more likely to adopt ineffectively postpartum compared to those resident in Rajshahi.

Table 4.19 Predicted percentage probabilities postpartum adoption 1996/97 definition 2

	Did not adopt	Ineffective adoption	Effective adoption(r)
Overall average	13.7	15.2	71.1
Wanted index pregnancy			
Then	16.8	14.4	68.8
Later	9.0	17.8	73.1
Wanted no more (r)	8.7	14.9	76.4
Education			
No education	18.0	16.3	65.7
Primary education only	12.8	13.8	73.4
Secondary + education (r)	7.3	14.3	78.4
Discussed family planning with husband			
Never	31.5	13.8	54.6
Once or twice	8.3	15.3	76.4
More often (r)	6.2	14.3	79.5
Visited by a FP worker last 6 months			
Not visited	20.4	12.6	67.1
Yes – 6 months (r)	8.5	18.3	73.2
Division			
Sylhet	26.5	15.3	58.2
Chittagong	14.8	19.9	65.4
Barisal	16.7	18.4	64.9
Dhaka	14.3	13.9	71.8
Khulna	10.8	13.7	75.5
Rajshahi (r)	6.8	12.6	80.6
Distance to Thana HQ (5.48)			
0	12.0	15.8	72.2
25	21.8	13.0	65.3
Distance to District HQ (16.89)			
0	11.3	15.8	72.9
70	24.2	13.0	62.8

(r) indicates reference category

4.3.5 Conclusion

The key finding from all four of the multinomial models presented in this chapter is that the explanatory variables included are more predictive of non-adoption postpartum than of ineffective adoption. In all four models the same explanatory variables were associated with non-adoption postpartum. These variables span four different aspects of a woman's life.

The timing of the previous birth can indicate both the woman's fertility intention, for example had wanted no more children, or indicate her previous fertility management, had wanted to have the child later. In all of the models women who reported being happy with the timing of the index birth were more likely not to adopt postpartum than those who stated that they had not wanted to have another child. This shows that those women reported excess fertility are, unsurprisingly, more likely to adopt a method postpartum than those who were happy with the timing of the birth.

In the 1996/97 models women who stated that they would have preferred to have had the index child later were only marginally more likely not to adopt postpartum than those women who reported excess fertility. This indicates that in these data women were similarly motivated by both the timing of child bearing and the number of children to adopt postpartum.

The wantedness/timing of the index birth was not significantly associated with ineffective adoption postpartum in any of the four models presented. It might have been expected that feelings about the timing/wantedness of the birth may have influenced the timing of the adoption postpartum but this was not the case, other factors account for this.

Education was another aspect of a woman's life found to be associated with both non-adoption and ineffective adoption postpartum. Education indicates both access to knowledge and contract with the world outside the household, this second impact of education facilitates the accessing of services through familiarity with negotiating the world outside the household.

In all four models education level was negatively associated with the likelihood of not adopting a method postpartum, women with no education were most likely not to adopt a method postpartum. As discussed previously, education is frequently associated with contraceptive use and this relationship is clearly in all four models. Ineffective adoption as well as non-adoption was associated with the woman's education level. In the 1993/94 data women with primary education were more likely than those with secondary education to adopt ineffectively postpartum. In definition one of the 1993/94 data, women with no education were less likely to adopt ineffectively postpartum than those with secondary education. In the model for definition two for 1993/94 women with no education were more likely to ineffectively adopt postpartum compared to those with secondary/further education or greater.

In the 1996/97 data the overall relationship between education and ineffective adoption postpartum was reversed, and women with primary education were least likely to adopt ineffective postpartum compared with women secondary /further education. Women with no education were associated with a greater likelihood of ineffective adoption compared to women with secondary/further education, although in definition one the effect was small.

This switch in the relationship between education and ineffective contraceptive management may reflect the change contraceptive use and users over time. The contraceptive prevalence

in Bangladesh increased from 39.9% in 1991[9] to 49.2% in 1996/97 (BDHS 1996/97), and over the same period the prevalence of female sterilisation declined from 9.1% to 7.6% due to the reduction in the availability of this method. This time period therefore represents a spell of increased temporary contraceptive method use and it is possible that at the start of this time period more women with primary education first started to use a method. By 1996/97 this group has become a more effective group of users. This reasoning is supported by the evidence in the models that the difference in impact on non-adoption and effective adoption postpartum, between those whom who have primary and those who have secondary/further education narrowed between 1993/94 and 1996/97. Indicating a greater similarity in the behaviour of women with both primary and secondary/further education.

In addition to this the women included in the models are likely to be younger that those in the whole population due to the fact that the sample is limited to those who gave birth in the three years prior to the survey. Therefore, these women are more likely to be less experienced contraceptive users.

The third aspect of a woman's life found to be related to postpartum adoption is the woman's access to family planning. Two variables reflect this access. One is the frequency of discussion about family planning with husband, which in Bangladesh may primarily reflect the husband's willingness to discuss family planning, but may also reflect the stage of family formation of the couple. The frequency of discussion with husband about family planning has a strong impact on the likelihood of non-adoption postpartum in all four models. There is a negative association between frequency of discussion and non-adoption of family planning postpartum, women who have never discussed family planning with their husbands are most likely not to adopt a method postpartum. Women who have only discussed family planning once or twice are also more likely than those who have discussed it more than once or twice to not adopt a method postpartum, but this difference is less marked especially in the 1996/97 data. This relationship is to be expected since those using a method are more likely to have discussed family planning with their husband's and not discussing family planning with her husband implies a barrier to use either due to time in family formation and/or the reluctance of one or both sides of the couple to discuss family planning.

In the 1993/94 data ineffective contraceptive management was associated with frequency of discussion with husband. Women who had never discussed family planning were less likely to adopt ineffectively postpartum than those who had discussed family planning more often

[9] Figures for 1991 are given since the 1993/94 analysis covers the period 1990/91 since it includes the

than once or twice. In the 1996/97 data, discussion with husband was only significant in the model of the second definition. Those who had never discussed family planning with their husbands were less likely to adopt ineffectively postpartum than those who had discussed family planning more frequently than once or twice.

The second variable related to access is more direct, if the woman was visited by a family planning worker in the six months prior to the survey. As with discussion about family planning, this variable also had a strong impact on the likelihood of non-adoption postpartum, those women who had not been visited by a family planning worker in the six months prior to the survey were more likely not to adopt a method postpartum. Only in the 1996/97 definition 2 model was being visited by a family planning worker significantly associated with ineffective postpartum adoption. In this model women who were not visited were less likely to adopt ineffectively postpartum compared to those who had been visited.

The fourth part of women's lives which was found to be significantly associated with postpartum adoption was the division in which she lived and her proximity to urban centres, Thana and District HQ's, in that division. Division of residence was significantly related to non-adoption postpartum in all four of the models. In the 1993/94 models women resident in Chittagong and Dhaka were more likely not to adopt postpartum than those resident in Rajshahi. In the 1996/97 dataset women resident in all divisions apart from Khulna were more likely not to adopt postpartum than those resident in Rajshahi. The result from the 1996/97 data supports the earlier study by Amin *et al,.* (2000) that found higher than expected contraceptive use along Bangladesh's western border. The two divisions on this border are Khulna and Rajshahi. The Amin *et al.,* study, which is based on 1993/94 BDHS data, also found lower than expected contraceptive use along the eastern border. It is on the eastern border that Chittagong in 1993/94 and Chittagong and Sylhet in 1996/97 are located[10]. In the case of Chittagong and Sylhet, their conservative nature and associated lower contraceptive use has been discussed earlier in this thesis.

Division of residence was also significantly associated with ineffective adoption postpartum in all four of the models. Women resident in Chittagong and Dhaka in the 1993/94 data and in Sylhet and Barisal in the 1996/97 data were more likely to adopt ineffectively postpartum than women resident in Rajshahi. Therefore, in the 1993/94 data not only are women from

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three years prior to the survey.

[10] The division of Chittagong was split into Chittagong and Sylhet between the two surveys.

Chittagong and Dhaka more likely not to adopt postpartum they are also more likely to adopt ineffectively.

The impact of the change in definition in the 1996/97 data has an impact on both the size of impact of residence in Sylhet on the likelihood of non-adoption postpartum, and the change reverses the effect of residence in Sylhet on the likelihood of ineffective adoption. These changes suggest that a significant group of women in Sylhet are adopting a method in the month following the return of menstruation. This is possibly a result of the reduced motivation to use a method in this region shifting from non-adoption, as seen in the 1993/94 models showing the impact of Chittagong residence, to delayed adoption in the 1996/97 data. An alternative explanation could be that within Sylhet there are different beliefs about the important of the return of menstruation as an indicator of the return to fecundity. This later explanation seems less likely.

Finally, proximity to urban centres was significantly related to non-adoption postpartum in all four models. Those women who lived closer to from these centres were less likely not to adopt a method postpartum. Proximity to urban centres was only associated with ineffective adoption in the 1993/94 model for definition 2, in this case women living closer to the urban centres were less likely to adopt ineffectively compared to those women who lived further away.

4.4 Barriers and Opportunities for improved postpartum contraceptive management- evidence from the models

The striking evidence from the four models of postpartum contraceptive adoption is that despite the success of the Bangladesh Family Planning programme and the blanketing of the country by the network of health workers, low education levels and accessibility are still association with low contraceptive uptake postpartum. Two accessibility variables are in the models access to a health service provider in own home and the woman's proximity to Thana and District HQs. The other variables found to be associated with non-adoption are linked to more individual factors such as motivation and the discussion of family planning with husband. Therefore in terms of opportunities greater focus should be put on reaching specific groups, those with lower education levels and those who do not have good access to services. The impact of division of residence on contraceptive adoption indicates the success of some division and the barriers that still exist in others, it is possible that lesson could be learnt from Rajshahi and Khulna and transferred to Chittagong, Dhaka and Sylhet.

The investigation of the difference between ineffective and effective postpartum adoption was less enlightening. It is acknowledged that modelling this variable was optimistic in terms of attaining a clear understanding of the difference in reaction to what is a very personal event, and the result confirm this. The reasons behind this are potentially numerous but are likely to be primarily associated with the difficulty of picking up such a subtle difference in behaviour using a quantitative research instrument that covers such as variety of different topics. Evidence from qualitative work in Bangladesh indicate the belief that it is not possible to become pregnant during postpartum amenorrhoea, and the likelihood of becoming pregnant at this time runs in families (Salway and Nurani 1998). Therefore, the factors associated with the timing of adoption may be related to family experience or previous experience of a *muria* pregnancy. Such contextual factors are rarely included in any quantitative research instrument.

Finally, the evidence presented in the first part of this chapter clearly show that most women report adopting a method in the month that menstruation returns. It is possible that in the context of such a wide spread belief system, those reporting adoption after this time do so due to a number of factors including, their partner being absent and the clinic being closed/not having the woman's method of choice. The opportunity is to build on the fact that women do appear to react to the return of menstruation postpartum, further research is required to examine why some women delay adoption.

4.5 Regression coefficient tables for postpartum analysis

Table 4.20 Multinomial regression coefficient estimates Postpartum Adoption Analysis 1993/94 (Definition 1)

	Did not adopt		Ineffective adoption	
	ß	SE	ß	SE
Constant	-3.609***	0.281	-1.365***	0.240
Wanted index pregnancy				
Then	0.781***	0.178	0.092	0.164
Later	0.46**	0.212	0.13	0.191
Wanted no more(r)				
Discussed family planning with husband				
Never	2.018***	0.166	0.461**	0.189
Once or twice	0.606***	0.128	0.094	0.118
More often (r)				
Visited by a FP worker last 6 months				
Not visited	0.84***	0.113	-0.088	0.117
Yes – 6 months(r)				
Education				
No education	0.966***	0.165	0.249*	0.150
Primary education only	0.572***	0.178	0.272*	0.158
Secondary + education(r)				
Division				
Barisal	0.211	0.211	-0.150	0.209
Chittagong	1.194***	0.160	0.531***	0.167
Dhaka	0.608***	0.155	0.479***	0.149
Khulna	-0.002	0.204	0.184	0.183
Rajshahi(r)				
Distance to Thana HQ	0.042***	0.013	0.014	0.013
Distance to District HQ	0.009*	0.005	0.002	0.005

* p<0.05 ** p<0.01 *** p<0.001

(r) indicates the reference category

Table 4.21 Multinomial regression coefficient estimates Postpartum Adoption Analysis 1993/94 (Definition 2)

	Did not adopt		Ineffective adoption	
	ß	SE	ß	SE
Constant	3.902***	0.2842	2.202***	0.2736
Wanted index pregnancy				
Then	0.8641***	0.1753	0.1581	0.1804
Later	0.5562**	0.2079	0.2123	0.2108
Wanted no more(r)				
Discussed family planning with husband				
Never	2.011***	0.1508	0.3506*	0.192
Once or twice	0.5788***	0.1271	0.09249	0.1302
More often (r)				
Visited by a FP worker last 6 months				
Not visited	0.7782***	0.1082	-0.1341	0.126
Yes – 6 months(r)				
Education				
No education	0.9757***	0.1638	0.4008***	0.1718
Primary education only	0.5313***	0.1772	0.4334***	0.1794
Secondary + education(r)				
Division				
Barisal	0.233	0.2281	0.1826	0.2307
Chittagong	1.174***	0.1662	0.7373***	0.1796
Dhaka	0.4353***	0.1645	0.3638**	0.172
Rajshahi	-0.1261	0.2212	0.07018	0.2164
Khulna(r)				
Distance to Thana HQ	0.0457***	0.01339	0.03001**	0.0141
Distance to District HQ	0.01199**	0.005371	0.002231	0.005781

* p<0.05 ** p<0.01 *** p<0.001

(r) indicates the reference category

Table 4.22 Multinomial regression coefficient estimates Postpartum Adoption Analysis 1996/97 (Definition 1)

	Did not adopt		Ineffective adoption	
	ß	SE	ß	SE
Constant	-4.606***	0.333	-1.331***	0.241
Wanted index pregnancy				
Then	0.728***	0.190	-0.078	0.158
Later	0.131	0.230	0.116	0.18
Wanted no more(r)				
Discussed family planning with husband				
Never	1.958***	0.183	0.225	0.145
Once or twice	0.472**	0.194	0.098	0.134
More often (r)				
Visited by a FP worker last 6 months				
Not visited	0.924***	0.123	-0.094	0.109
Yes – 6 months(r)				
Education				
No education	1.126***	0.180	0.234*	0.142
Primary education only	0.598***	0.194	0.063	0.152
Secondary + education(r)				
Division				
Sylhet	1.650***	0.215	0.524**	0.222
Chittagong	0.552***	0.187	0.227	0.17
Barisal	0.690***	0.221	0.328*	0.192
Dhaka	0.320*	0.168	0.105	0.148
Khulna	-0.508**	0.246	-0.128	0.194
Rajshahi(r)				
Distance to Thana HQ	0.024**	0.012	-0.004	0.012
Distance to District HQ	0.014***	0.005	0.006	0.005

* p<0.05 ** p<0.01 *** p<0.001
(r) indicates the reference category

Table 4.23 Multinomial regression coefficient estimates Postpartum Adoption Analysis 1996/97 (Definition 2)

	Did not adopt		Ineffective adoption	
	ß	SE	ß	SE
Constant	-4.993***	0.363	-1.952***	0.288
Wanted index pregnancy				
Then	0.768***	0.204	0.073	0.190
Later	0.088	0.249	0.224	0.215
Wanted no more(r)				
Discussed family planning with husband				
Never	2.002***	0.198	0.341**	0.171
Once or twice	0.333	0.215	0.105	0.160
More often (r)				
Visited by a FP worker last 6 months				
Not visited	0.963***	0.135	-0.292**	0.129
Yes – 6 months(r)				
Education				
No education	1.073***	0.196	0.311*	0.169
Primary education only	0.624***	0.210	0.033	0.183
Secondary + education(r)				
Division				
Sylhet	1.616***	0.221	0.373	0.265
Chittagong	0.593***	0.201	0.448**	0.196
Barisal	0.460*	0.245	0.516**	0.221
Dhaka	0.336*	0.181	0.063	0.178
Khulna	-0.522**	0.266	-0.147	0.235
Rajshahi (r)				
Distance to Thana HQ	0.028**	0.013	-0.004	0.014
Distance to District HQ	0.013***	0.005	-0.0007	0.06

* p<0.05 ** p<0.01 *** p<0.001

(r) indicates the reference category

Chapter 5 Contraceptive discontinuation

The previous chapter used quantitative techniques to examine contraceptive management in the postpartum period, focusing specifically on effective and ineffective contraceptive management. This chapter examines a different component of contraceptive management, outcome of use. As discussed in Chapter 1, in terms of management, duration of use can be viewed as less important than the outcome of use. A woman who discontinues to have a child is managing her contraceptive use in line with her reproductive intentions regardless of duration. Conversely, a woman who discontinued due to side effects is not managing her contraceptive use in according to her reproductive intentions. Regardless of duration, the woman who discontinues due to side effects has encountered an obstacle to achieving her reproductive intention with that particular method.

This chapter presents the analysis of method discontinuation, using the BDHS for 1993/94 and 1996/97. Initially, the data manipulation required for this analysis is discussed, follow by the dependent and independent variables included in the analysis. Finally the model are presented and discussed. This chapter focuses on two methods, the pill and the injectable, and does not present models for other methods. This is due to dominance of these two methods in Bangladesh and their high rates of discontinuation for reasons unrelated to fertility preference.

5.1 Data Manipulation

Episodes of contraceptive use that began in the three years prior to each survey, 1993/94 and 1996/97, were included in the analysis. The time limit of three years, as opposed to using the whole five year calendar, is to both limit recall bias and to ensure the data is comparable to that in the postpartum chapter[1]. While only models for the injectable and the pill are presented, the initial description of the data manipulation includes all episodes of contraceptive use.

Only those episodes that began in the three years prior to the survey are include, since those that began prior to that are left censored and the duration of the episode is therefore potentially unknown. 'Potentially' because some of these left censored episodes may have started in the two excluded years of the calendar and therefore their duration is in fact known. Duration of use is an essential variable to include in the models examining contraceptive

[1] In the 1993/94 data set the pregnancy history was only collected for the three years prior to the survey and therefore the analysis only refers to this period.

discontinuation, as will be illustrated later in this chapter, as duration is closely related to reason for discontinuation.

A total of 3212 women in the 1993/94 and 3545 in 1996/97 initiated an episode of contraceptive use in the three years prior to the survey (See Table 5.1). These women contributed a total of 4511 and 4042 episodes of use in 1993/94 and 1996/97 respectively.

Table 5.1 Number of women episodes selected for discontinuation analysis

	BDHS 1993/94	BDHS 1996/97
Number of women	3212	3545
Number of episodes	4511	4042

Table 5.2 divides the episodes by method. In both surveys nearly half of the episodes started in the three years prior to the survey were of pill use. The next most frequently reported methods were the injectable and the condom. The large number of condom episodes, relative to the contraceptive prevalence 3.9% in 1996/97 (BDHS), is due to the fact that this method is available via doorstep delivery in most of Bangladesh. In addition and more importantly, the condom, like withdrawal, is a coitus dependent method and therefore by its very nature can be used for shorter durations compared to other methods. Its ability to be used for shorter durations means that all other things being equal, condom episodes are more likely to occur during a three year period.

Table 5.2 Episodes in previous three years, by method

	1993/94		1996/97	
	N	%	N	%
Pill	2161	47.9	1979	49.0
IUD	224	5.0	140	3.5
Injectable	575	12.7	678	16.8
Condom	565	12.5	551	13.6
Female Sterilisation	89	2.0	44	1.1
Male Sterilisation	8	0.2	8	0.2
Periodic Abstinence	488	10.8	400	9.9
Withdrawal	281	6.2	196	4.8
Other	120	2.7	46	1.1
Total	4511	100	4042	100

Tables 5.3 and 5.4 focus on the injectable and the pill and show the number of episodes contributed by women. Over 90% of women had only one episode of either the pill or injectable in the three years prior to the survey.[2] In both 1883/94 and 1996/97 more women had multiple pill episodes compared injectable episodes in the three years prior to the survey.

[2] The women may however have had other episodes of contraceptive use during this time.

Table 5.3 Distribution of episodes by number of women BDHS 1993/94

	Pill		Injectable	
Number of episodes	N of women	%	N of women	%
1	1749	91.1	536	96.6
2	138	7.2	18	3.2
3	15	0.8	1	0.2
4	14	0.7	-	-
5	1	0.1	-	-
6	1	0.1	-	-
7	-	-	-	-
8+	2	0.1	-	-
Total	1920	100	555	100

Table 5.4 Distribution of episodes by number of women BDHS 1996/97

	Pill		Injectable	
Number of episodes	N of women	%	N of women	%
1	1644	92.8	626	96.3
2	100	5.6	21	3.2
3	12	0.7	2	0.3
4	3	0.2	1	0.2
5	4	0.2	-	-
6	2	0.1	-	-
7	2	0.1	-	-
8+	4	0.3	-	-
Total	1771	100	650	100

5.2 The dependent variable

The reasons for discontinuation collected in the BDHS are numerous, and have been grouped for this analysis, see Table 5.5. Two of the categories in the BDHS were maintained: continuation and method failure. The remaining factors are grouped into three categories: method–related reasons, access/availability and non-method related reasons.

The category of method related reasons included, side effects, health concerns, wanted more effective method and inconvenient to use. In Chapter 2 the high proportion of women discontinuing hormonal method due to side effects was highlighted. Understanding this is key to understanding a significant barrier to effective contraceptive management in Bangladesh. That stated, it may appear incongruous that 'wanted more effective method' and 'inconvenient to use' are grouped with side effects and health concerns. The reason for this is that despite the focus of this study the dependent variable must be robust and able to reflect behavioural differentials. Discussion of the two remaining categories will illustrate these differentials.

Table 5.5 Outcome of use, pill and injectable 1996/97

	Calendar reason for discontinuation	1993/94	1996/97
Continued		✔	✔
Method Failure		✔	✔
Method related reason	Side effects	✔	✔
	Health concerns	✔	✔
	Wanted more effective method	✔	✔
	Inconvenient to use	✔	✔
Access/availability	Access/availability	✔	✔
	Husband disapproved	✔	✔
	Cost	✔	✔
Non-method related reason	Wanted to become pregnant	✔	✔
	Infrequent sex/husband away	✔	✔
	Difficult to get pregnant/menopause	✔	✔
	Marital dissolution/separation		✔
	Fatalistic	✔	
	'Other'	✔	✔
	'?'	✔	✔

The category of access and availability most clearly illustrates barriers to a woman's contraceptive management: access to, and availability of a method, husband's disapproval and cost of the method. In the case of this category these factors are outside a woman's control.

The category of non-method related reasons is largely comprised of reduced need for contraception: wanted to become pregnant, infrequent sex, difficult to become pregnant, and marital dissolution. Also included in this category are 'other' reasons and episodes for which the reason of discontinuation is unknown.

Table 5.6 and 5.7 show the outcome of all the pill and injectable episodes, categorised as described above and shown in Table 5.5. The results for the condom have been included to highlight in a simplistic manner the effect of method on outcome of use.

In over half of the pill and injectable episodes were continuing at the time of the survey, compared to only 35.6% of condom episodes in 1993/94, and 39.4% in 1996/97. In the case of the pill and the injectable, discontinuation due to side effects dominates the reasons for discontinuation. Over 70% of pill episodes and over 80% of injectable episodes either continued or discontinued due to side effects.

Table 5.6 Outcome of use, pill and injectable 1993/94

Outcome grouped	Calendar reason for discontinuation	Pill		Injectable		Condom	
		N	%	N	%	N	%
Continued		1116	**51.6**	321	**55.8**	201	**35.6**
Method Failure		42	**1.9**	9	**1.6**	27	**4.8**
Method related reason	Side effects	511	**23.6**	162	**28.2**	43	**7.6**
	Health concerns	90	**4.2**	17	**3.0**	23	**4.1**
	Wanted more effective method	19	**0.9**	4	**0.7**	33	**5.8**
	Inconvenient to use	4	**0.2**	1	**0.2**	15	**2.7**
Access/availability	Access/availability	32	**1.5**	20	**3.5**	3	**0.5**
	Husband disapproved	18	**0.8**	3	**0.5**	89	**15.8**
	Cost	7	**0.3**	-		2	**0.4**
Non-method related reason	Wanted to become pregnant	162	**7.5**	14	**2.4**	64	**11.3**
	Infrequent sex/husband away	70	**3.2**	3	**0.5**	20	**3.5**
	Difficult to get pregnant/menopause	2	**0.1**	1	**0.2**	1	**0.2**
	Fatalistic	-		-	-	1	**0.2**
	''Other'	57	**2.6**	13	**2.3**	30	**5.3**
	'?'	31	**1.4**	7	**1.2**	13	**2.3**
Total episodes		2161	**100**	575	**100**	565	**100**

In the case of condom, discontinuation due to husband's disapproval was the most frequently reported reasons for discontinuation in 1993/94 and in 1996/97 discontinuation to have a child was the most frequent reason. In the case of condom, continuation and discontinuation for either of these two factors, only accounts for around 50% of contraceptive outcomes.

In the 1993/94 survey women who had achieved their family size or who reported excess fertility were less likely to discontinue due to non-method related reasons. This is expected since the category of non-method related reasons is dominated by discontinuation in order to become pregnant.

Table 5.7 Outcome of use, pill and injectable 1996/97

Outcome grouped	Calendar reason for discontinuation	Pill		Injectable		Condom	
		N	%	N	%	N	%
Continued		1013	**51.2**	337	**52.8**	217	**39.4**
Method Failure		64	**3.2**	7	**1.1**	28	**5.1**
Method related reason	Side effects	436	**22.0**	192	**30.1**	37	**6.7**
	Health concerns	59	**3.0**	18	**2.8**	21	**3.8**
	Wanted more effective method	12	**0.6**	-		23	**4.2**
	Inconvenient to use	13	**0.7**	2	**0.3**	46	**8.3**
Access/availability	Access/availability	25	**1.3**	10	**1.6**	3	**0.5**
	Husband disapproved	19	**1.0**	4	**0.6**	51	**9.3**
	Cost	2	**0.1**	-		1	**0.2**
Non-method related reason	Wanted to become pregnant	168	**8.5**	35	**5.5**	56	**10.2**
	Infrequent sex/husband away	54	**2.7**	5	**0.8**	18	**3.3**
	Difficult to get pregnant/menopause	-		1	**0.2**	-	
	Marital dissolution/separation	7	**0.4**	-		-	
	'Other'	76	**3.8**	19	**3.0**	42	**7.6**
	'?'	31	**1.6**	8	**1.3**	8	**1.5**
Total episodes		1979	**100**	678	**100**	551	**100**

5.3 Explanatory variables

Table 5.8 lists the explanatory variables examined in the analysis of outcome of use. The variables are organised both by the level at which they operate, and in the case of women level variables, by the different types of variable, for example socio-economic or autonomy variables.

The variable at the lowest level of the hierarchy is time. For this analysis each episode was divided into 0-3, 4-6, 7-9, 10-12, and 13+ month segments. These durations were used due to the fact that in Bangladesh a single dose of the injectable lasts 3 months, and therefore this method can only be discontinued at 3,6,9 etc months.

The next level of explanatory variable contains the episode level variables. These variables are all calculated at the time of method discontinuation or if the episode is right censored at the time of the survey. There are methodological problems with the use of fertility preference in the analysis of the DHS calendar, since the DHS fertility preference variable is measured at the time of the survey and may therefore reflect a preference, potentially up to five years out of date. This study compares ideal family size at survey with changing family size during the calendar to create a proxy of fertility preference. It is acknowledged that there will be some post rationalisation involved in women's responses. In the 1993/94 data a fourth category

was created comprising those who gave a non-numeric response when asked their ideal family size. The non-numeric was primarily fatalistic 'it is up to god'. In the 1996/97 data these women were excluded due to the very small number giving this response.

Table 5.8 Explanatory variable included in the discontinuation analysis

Episode level variables	
Time varying co-variates	Mothers age at survey or discontinuation
	Fertility preference
	Number of girls
	Number of boys
	Family size
Woman level variables	
Socio- economic variables	Woman's education
	Urban or rural residence
	Has electricity
	Has radio
	Region of residence
	Religion
	Husband's education
	Literacy
Media exposure	Listens to radio every week
	Heard FP on radio in last months
	Saw FP in poster in last months
Reproductive variables	Age at first marriage
	Ever had an unwanted pregnancy
	Ever terminated a pregnancy
	Children at first use
Automy/ Mobility	Has been shopping since marriage
	Allowed to go out alone
	Visits other areas in locality
	Membership of credit organisation
	Allowed to go to health facility
Family planning in the marriage	Has discussed family planning with husband
	Visited by family planning worker in 6 months prior to the survey

Five different types of woman level variables were tested in the model, all of which could influence or affect a woman's ability to manage her contraceptive use. The five categories include: socio-economic variables, media exposure in terms of family planning messages, reproductive variables, indicators of freedom of movement and contact with other women, and finally family planning within marriage.

5.4 The models

This chapter focuses on discontinuation due to side effects, the dominant component of discontinuation due to method related reasons. Therefore, in the following sections the injectable models from both datasets are discussed, then the pill models before focusing on the variables associated with discontinuation due to method related reasons.

5.4.1 Injectable Discontinuation 1993/94 and 1996/97.

Due to small sample sizes the outcome of injectable episodes is divided into three as opposed to four categories. The categories are: continued, discontinued for method related reasons (as shown in Table 5.5) and discontinuation for non-method reasons, i.e. all other reasons.

In both the 1993/94 and 1996/97 data (see Tables 5.9 and 5.10) women were less likely to discontinue due to method related reasons at durations 4-6 and 7-9 months. Discontinuation due non-method related reasons was less likely at the later durations of 7-9 and 10-12 months in the 1993/94 data and at 4-6 months in the 1996/97 dataset. In both data sets discontinuation was greatest at durations of greater than 12 months.

Fertility preference was related to discontinuation due to method related reasons in both datasets. In the 1996/97 data the variable of fertility preference is divided in three: wants more (children), achieved family size and excess fertility. In 1993/94 there is an addition category called 'other' which includes a sizeable number of women who gave a non-numerical response when asked about the desired family size. Due to the number of women giving this non-numerical response, the category was maintained. In both data sets women who wanted to have more children were more likely to discontinue due to method related reasons, and in the 1993 data those women who did not quantify their fertility preference were also more likely to discontinue due to method related reasons. Discontinuation due to non-method related reasons was not significantly associated with fertility preference in either the 1993/94 or 1996/97 datasets.

In the 1993/94 survey woman's age was associated with injectable discontinuation. The likelihood of discontinuation due to non-method related reasons and method related reasons declined with age. Having controlled for fertility preference in the model, older women are still less likely to discontinue for any reason. This may be due to a greater willingness of younger women to switch method (Steele and Diamond 1999) or due to older women's greater experience of contraceptive use.

Table 5.9 Predicted percentage probabilities of injectable discontinuation 1993/94

		Discontinued		Continued
		Non-method related	Method related reason	
	Overall average	3.7	11.1	85.1
Time (months)	1-3	4.2	10.4	85.4
	4-6	4.1	9.6	86.3
	7-9	2.6	9.8	87.5
	10-12	2.3	14.3	83.4
	13+ (r)	6.9	19	74.0
Time varying covariates				
Fertility preference	Wants more	4.1	15.2	80.7
	Achieved family size	2.7	9.1	88.2
	Excess fertility	4.3	10.1	85.6
	'Other' (r)	2.6	17.1	80.2
Woman's age	<20	8.0	24.5	67.5
	20-24	5.8	15.3	79.0
	25-29	4.8	10.8	84.3
	30+ (r)	2.0	7.8	90.1
Woman level variables				
N of children at first use	0	3.3	8.7	88.0
	1	3.4	8.5	88.1
	2	4.0	12.2	83.9
	3	1.6	13.5	85.0
	4+ (r)	6.7	12.1	81.2
Literacy	Reads easily	3.1	16.0	80.8
	Reads with difficulty	3.6	13.1	83.3
	Cannot read (r)	4.0	9.6	86.4

(r) indicates the reference category

Table 5.10 Predicted percentage probabilities of injectable discontinuation 1996/97

		Discontinued		
		Non-method related reason	Method related reason	continued
	Overall average	3.6	10.7	85.7
Time (months)	1-3	3.6	12.0	84.4
	4-6	2.8	9.7	87.5
	7-9	3.5	8.0	88.5
	10-12	3.8	10.5	85.6
	13+ (r)	7.6	15.0	77.4
Time varying covariates				
Fertility preference	Wants more	6.9	12.9	80.2
	Achieved family size	3.2	10.8	85.9
	Excess fertility (r)	2.6	9.3	88.2
Woman level variables				
Literacy	Reads easily	3.6	15.7	80.7
	Reads with difficulty	1.9	9.2	88.9
	Cannot read (r)	4.0	9.8	86.2
Region	Barisal	1.5	10.4	88.1
	Chittagong	4.3	11.0	84.7
	Dhaka	4.5	11.7	83.8
	Khulna (r)	2.7	8.8	88.4
	Rajshahi	3.7	11.3	85.0
	Sylhet	8.7	8.6	82.7

(r) indicates the reference category

In the 1993/94 data the number of children a woman had at first use of contraception was significantly related to discontinuation due to non-method related reasons. Those women who adopted when they had three children were least likely to discontinue for this reason. It is possible that these women first adopt a method to limit as opposed to space their births and are therefore less likely to discontinue in order to have another child. The same can not be said for those who adopted when they had four or more children, this group were more likely to discontinue for non-method related reasons than those with three or less children.

Women who were able to read easily were more likely to discontinue for method related reasons in both of the surveys. This is in line with others who have found this group to be better able to manage side effects, often by switching to another method (Bongaarts and Bruce 1995, Steele and Diamond 1999), due to their greater access to and knowledge of family planning services.

In 1996/97 the woman's division of residence was significantly associated with discontinuation due to non-method related reasons. Women in Sylhet were more likely to discontinue for this reason. Sylhet division was formed from part of the old Chittagong division between the two surveys, and therefore did not exist as a separate entity in the 1993/94 data. Prior to the formation of Sylhet, Chittagong was considered to be the most conservative area of Bangladesh. Now, however, Sylhet is the most conservative, in 1996/97 the contraceptive prevalence in currently married women was 20.1% compared to 49.2% in Bangladesh as a whole. Access to services is also lower in this division, in Sylhet a family planning worker had visited only 20.2% of women in the 6 months prior to the survey compared to 35.2% for the whole population of Bangladesh. In this environment women are more likely to discontinue due to non-method related reasons, including problems related to access or in order to have another child.

5.4.1.1 Injectable discontinuation due to method related reasons

While the following discussion concerns discontinuation due to method related reasons it should be remembered that discontinuation due to side effects dominates this group (see Table 5.6 and 5.7). Discontinuation due to method related reasons was less likely in both surveys at durations of 4-6 and 7-9 months. The injectable in Bangaldesh is of three months duration so this result means that women are less likely to discontinue due to method related reasons, predominantly due to side effects, after the second and third dose. These results suggest that side effects may be less at this time or the side effects that occur are tolerable.

In both surveys women who want more children are more likely to discontinue due to method related reasons. It is likely that these women are less motivated to use a contraceptive method, and should side effects occur are more likely to discontinue use.

Literacy is the other variable that was significantly associated with discontinuation due to method related reasons in both surveys. Women who were able to read easily were more likely to discontinue due to method related reasons. This group of women has been found in other studies to be better able to switch methods, due to their greater ability to know of and access services should they be unhappy with their current method.

In the 1993/94 data an additional variable was found to be significantly associated with injectable discontinuation due to method related reasons, woman's age. The likelihood of discontinuing for this reason declines with age. A previous explanation for this finding is that older women have a greater ability to tolerate side effects. However, it is likely to be more complicated than this single factor. It is possible that older women, who have additional domestic help from their daughters in law, potentially have a better health status than younger women due to greater access to resources including food, and may therefore be less likely to experience side effects. Alternatively, older women have previously used a variety of methods and now chosen the one that suits them best, or the cultural implications of risking discontinuation, and therefore a pregnancy, make them less able to discontinue due to side effects.

5.4.2 Pill discontinuation 1993/94 and 1996/97.

Time had a significant impact on pill discontinuation in both surveys. A 'U' shaped relationship between time and all categories of discontinuation was found, women were more likely to discontinue the pill in the first three months of use and after 12 months (Table 5.11 and 5.12). The category of discontinuation for non-method related reasons is dominated by discontinuation to have another child and it may have been expected that discontinuation due to non-method related reasons might increase with time as women achieve their desired birth interval. However, as with the injectable the U shaped relationship exists. In 1993/both surveys discontinuation due to non-method related reasons was greatest at durations of over 12 months.

Table 5.11 Predicted percentage probabilities of pill discontinuation 1993/94

		Reason for discontinuation			Continued
		Failure/access	Non-method related reason	Method related reason	
	Overall average	1.4	3.8	9.3	85.5
Time (months)	1-3	1.6	4.6	14.7	79.1
	4-6	1.1	3.3	6.8	88.8
	7-9	0.8	2.3	5.1	91.7
	10-12	1.1	3.1	6.4	89.4
	(r) 13+	3.4	8.1	16.4	72.0
Time varying covariates					
Fertility preference	Wants more	1.6	6.1	9.0	83.4
	Achieved family size	0.9	3.2	9.0	86.9
	Excess fertility	1.7	2.4	9.9	85.9
	(r) 'Other'	1.2	7.1	8.7	83.0
Woman's age	<20	2.4	6.4	16.4	74.8
	20-24	1.7	3.8	10.1	84.4
	25-29	1.3	3.0	8.9	86.8
	(r) 30+	0.7	3.6	6.4	89.2
Woman level variables					
N of children at first use	0	0.9	5.3	7.7	86.1
	1	1.5	3.2	8.6	86.7
	2	1.6	4.1	8.4	85.9
	3	1.1	4.0	11.4	83.5
	(r) 4+	1.6	3.4	12.7	82.3
Literacy	Reads easily	1.5	5.8	10.7	82.0
	Reads with difficulty	0.9	3.9	9.3	85.9
	(r) Cannot read	1.4	2.9	8.5	87.3

Table 5.12 Predicted percentage probabilities of pill discontinuation 1996/97

		Reason for discontinuation			Continued
		Failure/access	Non-method related reason	Method related reason	
	Overall average	1.5	3.7	8.4	86.4
Time (months)	1-3	2.1	5.4	15.0	77.5
	4-6	0.9	2.5	7.2	89.4
	7-9	1.0	1.9	3.5	93.6
	10-12	1.4	2.4	5.5	90.8
	(r) 13+	3.2	10.4	11.2	75.3
Time varying covariates					
Family size	<2	1.1	5.3	7.1	86.5
	2	1.1	3.6	6.3	89.0
	3	2.5	3.1	13.2	81.2
	(r) 4+	2.8	2.3	11.0	83.8
Number of sons	0	1.4	6.2	7.7	84.8
	1-2	1.6	3.3	8.7	86.4
	(r) 3+	1.7	1.8	8.4	88.1
Woman's age	<20	4.1	5.2	13.1	77.6
	20-24	1.9	3.0	9.0	86.2
	25-29	1.0	4.3	7.2	87.5
	(r) 30+	0.8	3.0	6.1	90.1
Woman level variables					
Family planning worker visited in 6 months prior to survey					
	Yes	1.1	2.7	7.3	88.9
	(r) No/Don't know	2.3	5.5	10.0	82.3

(r) indicates the reference category

In the 1993/94 survey women who had achieved their family size or who reported excess fertility were less likely to discontinue due to non-method related reasons. This is expected since the category of non-method related reasons is dominated by discontinuation in order to become pregnant.

In the 1996/97 data family size was significantly associated to all types of discontinuation. As would be expected women who had less than two children were more likely to discontinue for non-method related reasons, including the desire to become pregnant. Increasing family size was positively related to both discontinuation due to failure/access and discontinuation due to method related reasons.

The number of sons a woman had at the time of use was significantly related to discontinuation due to non-method related reasons in the 1996/97 survey. Similar to the significance of fertility preference in the 1993/94 data, this reflects the great propensity of women who have no sons to discontinue in order to have another child, regardless of family size.

The age of the woman at the time of use was significantly associated with all types of discontinuation in both surveys. In all three categories of pill discontinuation older women, those over 30, were less likely to discontinue use.

In the 1993/94 survey, the number of children at first use of contraception was significantly related to discontinuation for method related reasons. Women who started to use a method when they had two children or less were less likely to discontinue due to method related reasons.

As in the injectable models, literacy was associated with discontinuation. In the 1993/94 pill model literacy was positively related to both non-method and method related reasons. Women who reported that they could read easily were more likely to discontinue use due to both method and non-method related reasons.

Only in the 1996/97 pill model was being visited by a family planning worker related to discontinuation. As this model examines contraceptive use in the three years prior to the survey it is possible that this variable refers to an event occurring after the episode of use. Therefore this variable is interpreted in terms of a facilitating environment as opposed to being a specific event. Those women who stated that they were visited in the six months prior to the survey were less likely to discontinue use for any reason.

5.4.2.1 Pill discontinuation due to method related reasons

In both the 1993/94 and the 1996/97 surveys time and woman's age were significantly related to pill discontinuation due to method related reasons. Women were less likely to discontinue the pill due to method related reasons at durations of 4-6, 7-9 and 10-12 months. In the 1993/94 data women were most likely to discontinue due to method related reasons at durations of more than 12 months, while in 1996/97 women were most likely to discontinue in the first three months.

In both of the survey data older women were less likely to discontinue due to method related reasons compared to younger women. Explanations for this result were put forward in section 5.4.1.1, and include that older women may experience fewer side effects and/or may have experience of a number of methods and by this time have chosen the one that suits them best.

Neither fertility preference nor number of sons was significantly associated with discontinuation due to method related reasons in 1993/94. However, the number of children at first use of contraception was: women who first adopted a method when they had two children or less were less likely to discontinue due to method related reasons. This is possibly due to a combination of experience, motivation and increased ability to manage their contraceptive uses. Many of these women will have first adopted a method for spacing as opposed to limiting their fertility, potentially indicating a greater experience of contraceptive use and motivation to use family planning.

In 1996/97 family size was found to be significantly related to discontinuation due to method related reasons. This is more comparable to a fertility preference variable compared to number of sons. Those women who had two children or less at the time of the episode were less likely to discontinue due to non-method related reasons. This maybe due to the fact that they are more likely to discontinue for other reasons, although the relationship between this variable and discontinuation due to failure/access or non-method related reasons was not significant.

As was found in the injectable discontinuation models, in 1996/97 literacy was significantly associated with discontinuation due to method related reasons. Women who are able to read easily are more likely to discontinue for this reason.

Finally, only in the pill model for the 1996/97 survey was contact with a family planning worker found to be associated with discontinuation. Discontinuation for all three discontinuation categories was lower if the woman reported being visited by as field worker

in the six months prior to the survey. As previously stated, the episode in question may have occurred before this time, this variable is interpreted as contextual as opposed to event specific.

5.5 Barriers and opportunities for improved contraceptive management

As stated at the beginning of this chapter, the reason for discontinuation is more important than duration of use when examining the issue of contraceptive management. This is because a woman discontinuing contraceptive use for reasons unrelated to her fertility preference has experienced a barrier to her contraceptive use, and by examining these barriers it maybe possible to improve women's ability to manage their contraceptive use.

In the case of Bangladesh, a country with a high reliance on hormonal methods and a high level of discontinuation of these methods due to side effects, discontinuation due to method related reasons is a barrier to effective contraceptive management. This chapter investigates this barrier.

While the determinants of duration of use is not examined, women are more likely to discontinue due to method related reasons, primarily side effects, at certain durations. This may be due to different side effects occurring at different times during an episode or that some side effects can be tolerated for a certain duration but then use is discontinued. In the 1996/97 injectable model and both the pill models women were more likely to discontinue due to method related reasons in the first three months of use. In both of the pill models, women were less likely to discontinue due to method related reasons at durations of 4-6, 7-9 and 10-12 months. In the case of the injectable, discontinuation for this reason was less likely at 4-6 and 7-9 months.

This 'U' shaped relationship of discontinuation suggests that some women experience initial side effects that are intolerable, leading to discontinuation in the first months of use. There follows a period of use when either side effects are less or when they are more tolerable, before either more side effects occurring or them becoming less tolerable. This pattern is striking, occurring for both methods in both surveys. This result highlights the need for service providers to inform women about side effects and support women's hormonal contraceptive use, especially in the first few months of use. In addition, service providers need to be aware of the greater propensity of pill users to discontinue after a year of use and injectable users after nine months. From the DHS it is not possible to examine the side effects for which women discontinue, as a result these quantitative results simply highlight

the durations at which women are more likely to discontinue, and therefore the times when it is key to provide support and information on alternative methods or means to alleviate side effects.

Considering both the dominance of discontinuation due to side effects and the effect of duration on this, and therefore the potential for health worker support to influence discontinuation, it is surprising that being visited by a family planning worker was not significant in all of the models. Instead this relationship was only found in the 1996/97 pill model.

The dynamic between women's age and discontinuation for method related reasons requires further investigation. Is it that older women are more able to tolerate side effects or that they are less likely to experience them? While the study highlights the need for greater support for younger, and potentially less experienced users, health workers should be aware that older women are less likely to discontinue due to method related reasons, potentially due to the cultural implications should they experience an unplanned pregnancy, and possibly suggest alternatives in the event that the woman is simply tolerating the side effects.

Similarly the fact that women who are able to read easily are more likely to discontinue due to side effects does not mean that other women do not experience side effects or do not experience severe side effects. While encouragement to switch by health service providers may make aggregate contraceptive management indicators appear less effective, it is likely that less educated women, despite experiencing side effects, are ill equipped with knowledge and resources to change to a more appropriate method.

In the case of the impact of fertility preference on discontinuation due to method related reasons, service providers should emphasis the importance of long birth intervals such that women who want to have more children attain such intervals and do not simply discontinue due to side effects as it does not matter if they become pregnant.

To give comprehensive support to women in the contraceptive use requires knowledge of the side effects they experience, the impact of these side effects and which side effects result in discontinuation. This is beyond the scope of a quantitative survey; qualitative methods are required. The next four chapters present the qualitative component of this study, using in-depth interview to examine women's contraceptive use in Bangladesh.

5.6 Regression coefficient tables for discontinuation analysis

Table 5.13 Regression coefficients injectable discontinuation 1993/94

	Non-method related		Method related	
	ß	se	ß	Se
Constant	-2.667***	0.717	-1.296***	0.404
Time (months)				
1-3	-0.651*	0.393	-0.754	0271
4-6	-0.680	0.415	-0.843***	0.288
7-9	-1.131**	0.495	-0.834***	0.309
10-12	-1.224**	0.567	-0.410	0.310
13+ (r)				
Fertility preference				
Wants more	0.434	0.663	-0.121	0.332
Achieved family size	-0.064	0.677	-0.729**	0.344
Excess fertility	0.435	0.634	-0.591*	0.325
'Other' (r)				
Woman's age				
<20	1.671***	0.591	1.427***	0.362
20-24	1.185***	0.455	0.798***	0.273
25-29	0.939***	0.353	0.390*	0.232
30+ (r)				
Number of children at first use				
0	-0.771	0.585	-0.412	0.367
1	-0.750	0.461	-0.436	0.313
2	-0.546	0.424	-0.03	0.290
3	-1.498***	0.521	0.059	0.265
4+ (r)				
Literacy				
Reads easily	-0.175	0.348	0.58***	0.194
Reads with difficulty	-0.063	0.381	0.344	0.238
Cannot read (r)				

* p<0.05 ** p<0.01 *** p<0.001
(r) indicates the reference category

Table 5.14 Regression coefficients injectable discontinuation 1996/7

	non-method related reason		Method related reason	
	ß	se	ß	Se
Constant	-2.901	0.483	-2.120	0.318
Time (months)				
1-3	-0.838**	0.338	-0.309	0.247
4-6	-1.121***	0.379	-0.560**	0.266
7-9	-0.906**	0.392	-0.771***	0.293
10-12	-0.790*	0.419	-0.4757	0.301
13+(r)				
Fertility preference				
Wants more	1.0771	0.2662	0.4282**	0.1776
Achieved family size	0.2578	0.3027	0.1813	0.1837
Excess fertility (r)				
Literacy				
Reads easily	-0.0632	0.2886	0.5433***	0.1730
Reads with difficulty	-0.7589	0.4781	-0.0929	0.2522
Cannot read (r)				
Region				
Sylhet	1.2141***	0.4519	0.0423	0.3492
Chittagong	0.4924	0.4651	0.2641	0.2879
Dhaka	0.5363	0.4254	0.3349	0.2623
Rajshahi	0.3242	0.4226	0.2832	0.2573
Barisal	-0.6332	0.6241	0.1695	0.3021
Khulna (r)				

* p<0.05 ** p<0.01 *** p<0.001
(r) indicates the reference category

Table 5.15 Regression coefficients pill discontinuation 1993/94

	Failure		Non-method related		Method related	
	ß	se	ß	se	ß	Se
Constant	-3.543***	0.596	-2.01	0.323	-1.699	0.241
Time (months)						
1-3	-0.896***	0.263	-0.676***	0.166	-0.203***	0.122
4-6	-1.373***	0.313	-1.125***	0.190	-1.087***	0.147
7-9	-1.642***	0.365	-1.522***	0.224	-1.405***	0.169
10-12	-1.383***	0.365	-1.195***	0.224	-1.152***	0.17
13+ (r)						
Fertility preference						
Wants more	0.249	0.484	-0.158	0.217	0.023	0.201
Achieved family size	-0.407	0.518	-0.824***	0.240	-0.013	0.205
Excess fertility	0.309	0.519	-1.109***	0.268	0.096	0.209
'Other' (r)						
Woman's age						
<20	1.297***	0.432	0.756***	0.239	1.119***	0.176
20-24	0.855**	0.368	0.108	0.216	0.515***	0.145
25-29	0.583*	0.341	-0.152	0.212	0.354***	0.131
30+ (r)						
N of children at first use						
0	-0.594	0.489	0.390	0.306	-0.541***	0.192
1	-0.066	0.417	-0.127	0.294	-0.443***	0.169
2	0.004	0.416	0.135	0.294	-0.456***	0.172
3	-0.362	0.443	0.143	0.312	-0.124	0.161
4+ (r)						
Literacy						
Reads easily	0.161	0.227	0.758***	0.135	0.297***	0.097
Reads with difficulty	-0.436	0.382	0.310	0.200	0.113	0.135
Cannot read (r)						

* p<0.05 ** p<0.01 *** p<0.001
(r) indicates the reference category

Table 5.16 Regression coefficients pill discontinuation 1996/97

	Failure		Non-method related		Method related	
	ß	se	ß	se	ß	Se
Constant	-3.4798***	0.3685	-3.7594	0.3865	-2.1576	0.1925
Time (months)						
1-3	-.4410	0.2697	-0.6759***	0.1571	0.2656	0.1487
4-6	-1.4301***	0.3520	-1.5717***	0.1990	-0.6207***	0.1725
7-9	-1.3488***	0.3684	-1.9221***	0.2397	-1.3874***	0.2198
10-12	-1.0150***	0.3599	-1.6594***	0.2406	-0.9054**	0.2060
13+ (r)						
Number of sons						
0	-0.2047	0.4332	1.2763***	0.4296	-0.0495	0.2128
1-2	-0.0605	0.3662	0.6240	0.4130	0.0632	0.1800
3+(r)						
Woman's age						
<20	1.7721***	0.4479	0.6944**	0.2720	0.9134***	0.2080
20-24	0.8821**	0.3843	0.0522	0.2566	0.4283**	0.1772
25-29	0.2876	0.3335	0.3839	0.2373	0.1977	0.1515
30+ (r)						
Family size						
<2	-1.001***	0.4614	0.7991**	0.3182	-0.4762**	0.2120
2	-1.0042***	0.4190	0.3753	0.3014	-0.6274***	0.1877
3	-0.0941	0.3652	0.3189	0.3102	0.2084	0.1757
4+						
Family planning worker visited						
No/don't know	0.8090***	0.2025	0.7879***	0.1239	0.3951***	0.0958
Yes						

* p<0.05 ** p<0.01 *** p<0.001

(r) indicates the reference category

Chapter 6 Investigating why women discontinue contraceptive use due to side effects.

In the previous chapter the factors associated with discontinuation due to side effects were examined using statistical modelling. The results reveal that there does not appear to be a population group who are more prone to discontinuation, nor does it appear that community and/or health service provision factors explain discontinuation due to side effects in Bangladesh.

While a quantitative analysis can examine the factors associated with discontinuation due to side effects, it does not facilitate the study of 'why' women discontinue due to side effects; for this a qualitative approach is required.

This chapter is divided into three component parts. The first describes different methodological approaches that could be used, discusses an existing conceptual framework of the consequences for women of family planning decisions and then illustrates the utility of both the approach and the framework using the example of menstruation. The example of menstruation includes literature pertinent to the qualitative study and is therefore, in part, a literature review. This literature was not included in Chapter 2 due to its utility in highlighting the need for a qualitative approach. In addition, it provides background information to the reader immediately prior to the qualitative results.

The second component of this chapter describes the framework used to inform the design and analysis of the qualitative research. Following the structure of this framework, previous work examining side effects is discussed. As with the literature on menstruation, this component is also part literature review.

The third, and final, component of this chapter describes the qualitative study undertaken. This includes the study and sample design, the development of the question route, the translation of the transcripts, the fieldwork and finally the analysis.

6.1 Methodological approaches

There are a number of approaches from social cognitive psychology that were briefly considered to inform the design of the qualitative research.

The Theory of Reasoned Action (TRA), a theory used in the study of human behaviour (Ajzen and Fishbein 1980), puts forward a framework to understand and predict behaviour. According to this theory, individuals' behaviour is determined by their *intention* to engage in that specific behaviour. This intention is determined by both the individual's *attitudes* to the behaviour and their wish to adhere to the beliefs of '*significant others*' about their undertaking the behaviour. The model uses attitudinal measures to predict behaviour; the behaviour being specified, ideally at least, in terms of action, object, time and context.

The Health Belief Model looks in detail at the perceptions and beliefs of the individual, the premise being that, at an individual level, it may be possible to encourage specific types of health behaviour by influencing or informing the perceptions and beliefs of the individual. The variables included in this model are of a number of different types: perception of threat, perception of benefits and costs, motivation and other modifying factors (Becker 1974).

In the case of both the TRA and the Health Belief Model quantitative methods are used to examine the behaviour of interest. The use of quantitative methods necessitate a clear understanding of the behaviour, both to pose the question, and appropriately to define all the relevant issues. In the case of discontinuation due to side effects this understanding is lacking. At present there is insufficient understanding of the factors associated with discontinuation due to side effects to adequately inform the design of the quantitative research instrument. In addition, the type(s) of cost benefit analysis that an individual undertakes when deciding to discontinue due to side effects, and the examination of subjective norms, other people's beliefs/attitudes, are too complex to be adequately captured on an attitudinal score (Ingham *et al.* 1999*)*

On a practical level if knowledge of the behaviour under study is limited, the use of closed questions can either perpetuate the limited understanding or the responses may be inexplicable. The perpetuation of limited understanding would result from the respondent being restricted in a given question and, if the question was based on an incorrect assumption it may be answered by respondents in a way that cannot be explained in the analysis (Ingham *et al.* 1999*)*.

6.1.1 Contextual Approach

In view of the limitations of these approaches, a wider contextual approach was adopted. This was viewed as essential in order to place discontinuation due to side effects firmly within the fuller context of the woman's life.

The contextual approach is essential to this study. Take as an example, the type of work that a woman undertakes. In the case of feeling weak due to hormonal contraceptive use, the ability to rest may depend on whether the woman works outside the household or not. Further, if she works within the household, the support available to her within the household may dictate if she can rest or not. On a broader scale, the cultural context is also important. For example, in Muslim cultures restrictions are placed on sexual relations during menstruation. Therefore, in this context the side effect of increased bleeding is likely to have a greater impact than it would in a context where such restrictions do not exist.

In order to ensure that the full range of potential impacts was examined, the conceptual framework of the Woman's Studies Project (WSP) was consulted.

6.1.1.1 Women's Studies Project: Conceptual Framework

In 1993, the WSP was launched by Family Health International (FHI) to investigate the effects of contraceptive use on women's lives.
The objectives of the WSP were as follows:
"To support social and behavioural research on the consequences for women of family planning decisions and, second, to provide information to help strengthen reproductive health policies and programs though better understanding of women's needs and perspectives".
(http://www.fhi.org/en/wsp/wspubs/concept.html 1997)

One important aspect of the WSP was the amalgamation of a number of frameworks on the different roles that women have, or domains of which they are part, to provide a theoretical framework for the studies.

The framework (see Table 6.1) clearly illustrates the different levels at which contraceptive use may impact on a woman's life. These impacts can be both positive and negative. For example, the use of contraception may enable a woman to take a greater role in labour market, which may be viewed positively. However, this in turn may have detrimental effects on her role within the family or household if her work outside the household is not condoned, or if others wish her to have more children (WSP 1999). The value of this conceptual framework is that it enables examination of how women place family planning in the broader context of their own lives, and how family planning can influence a much broader realm than simply that of a woman's reproductive health.

Women in the developing world are more likely to have the least amount of time for themselves as individuals, and their self perception is likely to be largely formed by their ability to fulfil other roles (Dixon-Mueller 1989). Therefore, the adoption of a model, such as that proposed by the WSP, is especially relevant when examining the impact of contraceptive side effects in Bangladesh.

Table 6.1 A Comparison of Selected Frameworks to Assess Domains of Women's Lives

Oppong: Seven Roles of Women	**Hong/Seltzer : Impact of Family Planning on Women**	**Schuler and Hashemi: Women's Empowerment**	**Quality of Life Dimensions**	**Women's Studies Project: Dimensions of Women's Lives**
Individual	Autonomy/ self-esteem	Sense of self/vision of future	Psychological status and well-being	Individual physical and psychological factors
	Health status		Physical status and functioning	
Parental Conjugal Domestic Kinship	Familial relations	Status and decision-making in the household	Social interactions	Household and family roles
Community	Public standing	Ability to interact in public sphere Participation in non-family groups Mobility/visibility		Community and social roles (including education and economic)
Occupational	Education and economic	Economic security (including education)	Economic status and functioning (including education)	

Source: http://www.fhi.org/en/wsp/wspubs/concept.html

In addition to the impact on the four levels, individual, parental/conjugal/domestic/ kinship, community and occupational, shown in Table 6.1, the contexts of women's lives in terms of the social, political, religious and macroeconomic factors, as well as gender norms, also impact on her contraceptive use. For example, social and political support or opposition to family planning will impact on the ease or difficulty that the woman experiences in using a method. Gender norms are likely to define women's roles and the value placed on these roles by society. In the case of Bangladesh, the code of *purdah – "the moral obligation of women to live in seclusion, in submission and with modesty"*(NOVARTIS 2000), restricts women's movement outside the household which will impact on the ability of women to seek advice should they experience side effects.

The WSP was not the first to highlight the importance of examining the impact of contraception on women's lives. Prior to this, women's health advocates stressed the need to view contraceptive use in the context of women's lives (Hardon 1992). The development of this focus was a response to policymakers who stressed that the risk of childbearing should be compared to the risks of contraceptive use. Health workers stated that it was more appropriate to focus on the day to day implications of use.

The WSP framework does not claim to capture the complexity of women's lives; what it does do is provide a framework that highlights those areas most likely to be affected by contraceptive use. Some results from the WSP are discussed below following an illustration of the utility of this framework in examining the impact of menstrual bleeding on women's lives. Hardon (1992) highlighted the need to examine the impact of menstrual disturbances on women's lives, a fact not considered serious at the time. Later commentators have also dismissed these effects; in 1995, Rosenberg and colleagues describe spotting and breakthrough bleeding to be "minimal consequences" of hormonal contraceptive use. These "minimal consequences" are viewed by women's health advocates as an important disadvantage to some contraceptive methods.

6.1.1.2 The Effect of Menstruation on Women's lives

In the West menstruation is sometimes referred to as 'the curse', which is referring to the curse of Eve, God's punishment for Eve's part in the biblical fall (Buckley and Gottlieb 1988). In Muslim cultures, while no reference is found in the Koran of Eve's part in the expulsion from paradise, scholars believe that through oral traditions Eve has come to more closely resemble her Jewish and Christian image (Spellberg 1996). This has resulted in menstruation being seen as the punishment for all women because Eve gave Adam a forbidden fruit, an apple, and he ate (Spellberg op.cit). Among Hindus in India, a menstruating woman is considered to be as defiling as an untouchable, the lowest of the castes, to the ritual purity of the higher castes (Harper 1964).

In an anthropological study in Mysore, South India, Harper (1964) describes the taboos affecting a woman's life. During menstruation the woman becomes 'untouchable' and cannot touch other people or other items that conduct pollution, for example, water. In terms of touching others, naked children cannot be polluted but older children can. Therefore, during this time a woman can care for her younger children but not the older ones. Other restrictions placed on a woman during menstruation include: not changing her clothes, not going into the

house or to the temple, being able to clean rice in a bamboo basket but not to cook it, and to bring vegetables from the garden but be unable to cut them and therefore being unable to cook.

The impacts of menstruation on the woman's life are numerous and can affect her different roles. Her role as a mother can be limited depending on the age of her children, and her role in the household is limited due to being unable to cook for the household. She is also unable to tend to livestock during this time. While his wife in menstruating a husband may be forced to fulfil the female role and cook, look after the children, draw water and tend livestock, or another female relative may take over the woman's duties or the family eats elsewhere with the woman being fed by a neighbour (Harper 1964). In a more recent study in Bombay, India, women describe being informed of the avoidance behaviours associated with menstruation (George 1994). The same proscriptions were found in this study as were found by Harper 30 years previously, but some women also mentioned that they were unable to attend school while they were menstruating.

There are also proscriptions on the behaviour of women during menstruation in Muslim cultures. In Indonesia, religious activities are restricted, women are not able to pray, fast or touch holy books (Best 1998) and, in Bangladesh, Johnston (1998) also reports religious restrictions. In the Koran, menstrual blood is stated to be damaging, and therefore sexual relations during menstruation are believed to be harmful.

Among orthodox Jews, the restriction on sexual behaviour also exists, during and for the seven days following menstruation (Whelan 1975). Women in a Cambodian study (Sadana and Snow 1999) also reported a week of postmenstrual sexual abstinence.

While all of the practices described above are restrictive, women in Bombay described having a rest from household work during menstruation. A few stated that another advantage was that they normally did not have sex at this time (George 1994). In the earlier study the time of menstruation was jokingly described as a vacation (Harper 1964).

The proscriptions described above have not all been maintained in all situations and there is anecdotal evidence of their decline. Best (1998) reports a Somali physician describing that women have to perform certain chores during menstruation even if they would rather not and some of the women interviewed in Bombay discussed a relaxation of the menstrual taboos. However, as appears in the Somali example, this is largely due to material circumstances, where menstruation cannot interfere with work patterns (George 1994). There is evidence,

therefore, that the disregard of these proscriptions is more from necessity than choice, and the extent of proscriptions will vary in different situations.

What is clear is the impact of menstruation on a variety of women's roles. Should menstrual disturbances result from contraceptive use, these roles are likely to be affected and that due to her inability to fulfil these roles, relations with others in the family and household will be affected.

6.2 Framework for examining why women discontinue due to side effects.

This section presents the framework that was used to inform the research on of why women discontinue hormonal contraceptive use due to side effects. The framework in Figure 6 illustrates the different pathways that could result in method discontinuation due to side effects. The first pathway that leads to discontinuation due to side effects is where woman A experiences side effects but there is no impact. For the purposes of this framework no impact means no tangible impact outside the woman's perception of her own well-being. Woman A therefore, discontinued use to side effects that are intolerable or unacceptable to her but which did not affect her day to day life. Woman B discontinues due to the impact of the side effects on those around her, through her reduced ability to fulfil certain roles.

To take for example, excessive menstrual bleeding, woman A discontinues due to the impact of excessive bleeding on her own health and perception of well being. However, woman B discontinues due to the fact that she is unable to fulfil her household duties, or she is unable to cook for her family due to the bleeding.

The remaining two pathways involve the knowledge of and/or use of strategies. These strategies can take two forms, one is a strategy to reduce the side effect, e.g. taking painkillers to reduce a headache, and the second a strategy to reduce the impact of the side effects, for example asking someone else for help in completing her household tasks.

Again using the excessive bleeding example, woman C knows that if she ate good foods she would not feel the weakness associated with excess bleeding, and therefore would be able to complete her household duties. But she is unable to afford good food is therefore unable to use the strategy and discontinues use. Woman C discontinues either due to the impact of the side effects on herself or those around her, or both.

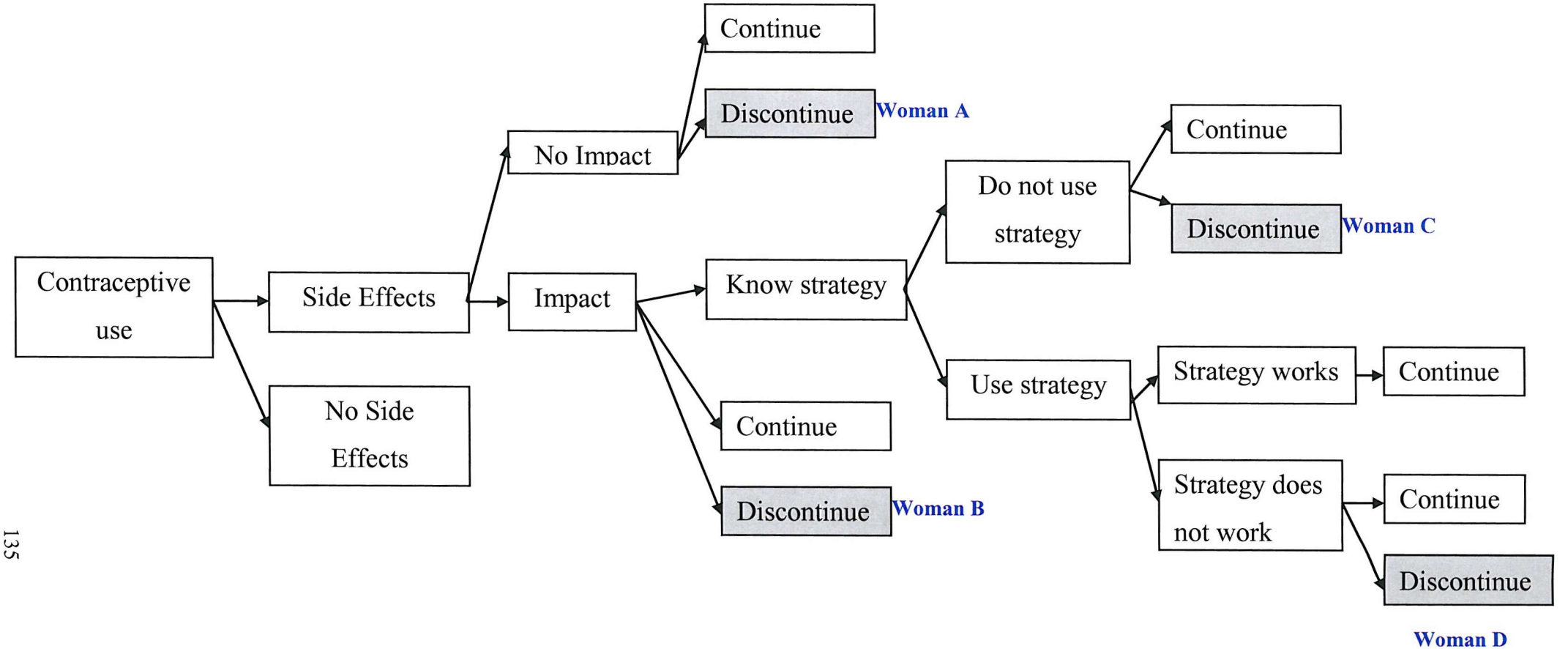
Woman D knows and uses a strategy to reduce the impact of side effects, but the strategy does not work and she discontinues. It should be noted that to discontinue is both an outcome of side effects and a strategy for them. In some cases, women consciously decide to discontinue and thereby eliminate the side effects and, in others, they simply discontinue due to lack of any alternative.

In this framework the impact of specific side effects are investigated, as opposed to side effects in general. A woman may experience more than one side effect when she uses a contraceptive method and the side effects may change over time. So, while she may successfully reduce the impact of one side effect during an episode of use, another may occur requiring a different strategy or for which she has no strategy.

By using Figure 6 it is possible to examine the impact of specific side effects on different women's lives, impacts that are likely to vary according the different contexts of their lives. The strategies that different women employ may be similar, but their ability or willingness to carry them out is likely to vary.

It should be borne in mind that the framework follows a single side effect, and in real life it is possible for more than one side effect to occur at the same time, and for different side effects to occur at different times during the episode.

Figure 6 Framework for examining why women discontinue contraceptive use due to side effects



6.2.1 Contraceptive side effects

This section discusses the side effects of hormonal contraceptive use as reported by a nationally representative sample of women, in the BDHS. The specific side effects that result in discontinuation are not collected in the DHS; however, it is possible to examine the problems reported with current use. One of the outcomes of this study is an increased understanding of which side effects lead to discontinuation.

Table 6.2 lists the problems reported with current oral and injectable contraceptive use in Bangladesh in 1993/94 and 1996/97. In both of the time periods examined, the dominant problems reported with each method are very similar. In the case of the pill, headaches are the most frequently mentioned problem, followed by feeling weak/tired, nausea and dizziness. Amenorrhoea is the most frequently mentioned problem among injectable users, followed by feeling weak/tired, headaches and dizziness.

Table 6.2 Percentage of current users reporting problem with method, BDHS

	1993/94		1996/97	
	Pill	Injectables	Pill	Injectables
Any Problem	*	*	23.2	34.2
Any health problem	32.7	47.7	*	*
Specific Problem				
Weight Gain	1.4	0.6	0.1	0.1
Weight Loss	2.7	3.5	1.4	2.2
Excessive Bleeding	2.0	4.2	0.9	3.1
Hypertension	0.3	1.3	0.4	0.7
Headache	21.6	15.4	16.1	11.7
Nausea	6.3	1.5	6.1	2.6
No Menstruation	1.0	23.6	0.9	17.7
Weak/tired	15.7	18.9	12.6	14.2
Dizziness	4.5	5.9	3.7	3.7
Husband disapproves	*	*	0.1	0.0
Other relative disapproves	*	*	0.0	0.0
Religion disapproves	*	*	0.0	0.0
Inconvenient to use	*	*	0.0	0.5
Sterilised, wants children	*	*	0.0	0.0
Abdominal pain	*	*	2.7	3.1
Other	7.3	10.6	3.4	7.0
Number of women	1560	404	1759	526

* Not included in the report.
Source: Mitra *et al.* 1993/94 and 1996/97

Studies completed in Cambodia and India illustrate potential examples of woman A in Figure 6. Sadana and Snow (1999) report that women disliked experiencing amenorrhoea, since it is negatively associated with beauty and health. The Cambodian women also viewed negatively any increase in menstrual flow, as this led to fear, discomfort and a feeling of vulnerability.

In the study in Bombay, India, women describe insufficient menstruation, including amenorrhoea, as detrimental to health (George 1994). This is due to insufficient flow making the body heavy, which is believed to cause other diseases.

6.2.2 The impact of side effects

In the case of the framework, it is the arena of impact component that borrows from most heavily from the Women's Studies Project (WSP). The WSP, as previously discussed, provides a comprehensive outline of the potential areas of impact that side effects may have. For example, the tired/weak feeling may impact on the woman's ability to fulfil a number of roles; she may feel unable to look after her partner and children, and be unable to either go out to work or to complete unpaid work, for example caring for crops or livestock.

The study carried out in Cambodia (Sadana and Snow 1999) found that while the weight gain associated with contraceptive use was positively viewed, among rural women, excessive weight gain was a problem as it interfered with their ability to work.

Bernard (1970) found that IUD discontinuation rates in Israel were five times higher among orthodox compared to non-orthodox Jews. This difference was attributed to the strong perception by the orthodox Jews that menstruation is 'unclean', and during this time regulations ban any contact between husband and wife (Whelan 1975). As a result the impact of menstrual disturbances is greater for the orthodox than the non-orthodox Jews.

6.2.3 Strategies for reducing contraceptive side effects

There are two types of strategy that can be used to reduce the impact of side effects. One is the reduction of the side effect itself, for example to take painkillers for a headache. The second component is strategies that reduce the impact that the side effect is having; for example, if the side effect is preventing the woman from being able to fulfil her domestic roles then she could ask someone else to complete the task(s) for her.

Two distinct strategies for reducing the side effects of hormonal contraception emerge from the literature. One is closely linked to perceptions that hormonal contraception and modern medicine are powerful and dangerous. As mentioned above, in order to combat this power, good food (Egypt, Declerque *et al.* 1986, and Bangladesh, Schuler *et al.* 1995), or cooling foods such as milk and strength giving foods such as eggs and milk (Sri Lanka, Nichter and

Nichter 1996, Bangladesh, Salway 1998, Pakistan Winikvust and Akhtar 1997) have to be taken.

The other strategy to reduce the impact of these medicines is to reduce the dose. In Sri Lanka the pill was not always taken everyday, in order to reduce its perceived toxicity (Nichter and Nichter 1996). In Cambodia, the injectable was discontinued for a short time so that the women could have a break, and resume normal menstruation (Sadana and Snow 1999). In Bangladesh, long term use of the pill is believed to cause sterility or other problems and, it is therefore believed to be beneficial to stop use for a short time (Schuler et al 1995). Chapter Two also described the perception that the pill causes weakness (Section 2.4.2) and the concept of taking a 'rest' from the pill.

In addition to strategies employed to reduce the side effects, women have also been found to use side effects to their own advantage. In both Iran (Delvecchio 1980) and Sri Lanka (Nichter and Nichter 1996) women reported using the pill in order to maintain amenorrhoea, and thereby be permitted to take part in religious occasions. In the case of Iran the pill was used to ensure ritual purity (amenorrhoea) during Ramadan; failure to do so would result in the woman having to fast later on.

6.3 Qualitative study design, fieldwork and analysis

The fieldwork into why women discontinue due to side effects was carried out in Bangladesh between January and June 2000, after the completion of the qualitative analysis on contraceptive discontinuation. All interviews were carried out in Bangla by trained interviewers. Informed consent to be interviewed and for the interview to be taped was obtained from all respondents. The tapes were transcribed and then translated into English for analysis.

This section describes in detail the sample design and question route, the context in which the interview took place, including both the geographical and interview setting and, finally, the analysis process is discussed.

6.3.1 Sample design

The study collected information on both injectable and pill episodes, those continuing use and those discontinuing. Table 6.3 contains the number of respondents of each type that the study aimed to interview, in both the urban and rural area.

Table 6.3 Sampling strategy

	Continued use	Discontinued use	Total
Injectable	10	10	20
Pill	10	10	20
Total	20	20	40

Respondents frequently had experience of both methods and, in order to collect information on community beliefs that were unaffected by a woman's own use, efforts were made to interview those who had either used only of the one methods, or had used a modern method, other than the pill or injectable.

The inclusion of non-users in the study would in theory be extremely useful in order to obtain information on community beliefs. However, after consideration of a number of factors this group was not included. One factor was the potential impact on non-users of explicit questioning about side effects, potentially creating or reinforcing existing negative views of the method. Secondly, it was more efficient to interview those who had only used one of the methods. Finally, this study's primary focus is what makes some women discontinue due to side effects while others continue use despite experiencing side effects, and non-users are a distinct group outside this remit.

In urban areas the respondents were identified in two different ways. The interviews took place in two clinics and eligible women attending the clinic during the study were asked to participate. Secondly, the network of health workers who brought clients to the clinic identified women from their communities and brought them in to be interviewed.

In the rural area, routinely collected data were used to identify women who had used or were using the injectable or the pill. Having identified these women, the community health workers (CHWs) were consulted to identify those women that had discontinued due to side effects. For some reason, the initial listing from the computer contained women selected on grounds other than pill or injectable use, and therefore the consultation with CHWs was even more essential. While some women were identified according to the list and CHW advice, others were identified by respondents as eligible for inclusion.

An important ethical issue when using routinely collected contraceptive use data is secret use. Two or three of the women stated that they were not using/had not used a method. It is unacceptable to go into the home of a secret user and ask her, usually in front of family members, to be interviewed about contraceptive use, and this is the situation that we found ourselves in on more than one occasion. The confusion with the list worked to our advantage

in these situations as we could simply blame the date listing. If it is not possible to identify the secret users in the records, research protocols should insist that the CHW's advice on this matter be sought prior to contacting respondents.

6.3.2 Development of the question route

A draft question route was completed in Southampton prior to departure for Bangladesh. This draft was completed following a review of the literature and the development of the framework. The quantitative modelling of discontinuation due to side effects was largely completed prior to the fieldwork. However, as was evident in Chapter 5 these findings were not useful informing the design of the question route.

The question route collected basic background and demographic information, and detailed information on each woman's three previous episodes of contraceptive use. For each episode women were asked about the circumstances of adoption, use and discontinuation. In the case of the latter two, the focus was specifically on side effects experienced; the impact of these side effects, strategies employed to mediate side effects, and key informants about side effects and strategies. The study also examined the beliefs and experiences that women had heard from other people in their family, community etc (See Appendix 6.1).

The structure of the question route was such that it first collected background and demographic characteristics. By having this at the start of the interview rapport could develop between respondent and the interviewer. While this background and demographic information is useful, part of the reason for its inclusion was to put the respondents at their ease, make them comfortable in the surroundings and introduce them to the interview process, before going on to potentially sensitive issues, associated with contraceptive use.

In the initial design, a linked time line and grid were included on which the interviewer could mark pregnancies, births and a maximum of three episodes of contraceptive use (see Appendix 6.1). Below the time line, a grid to contain reasons for stopping and any side effects was included. Having filled in the time line and grid, a single sheet of A4 furnished the interviewer with all of the questions related to episodes of contraceptive use. By having all the questions related to the episodes of contraceptive use on one page the interviewer could glance between the two sheets to ensure that all the topics for each episode of use were examined.

6.3.2.1 Changes to the question route

Changes were made to the initial design following the first translation by the Association of Community and Population Research[1] (ACPR). More used to quantitative research, discussion on a number of different occasions resulted in a modified interview schedule. In retrospect, maintaining the single sheet of questions related to contraceptive use would have been preferable. However, when starting work in an unfamiliar context advice has to be taken. In addition, the research completed for this study was relatively small compared to ACPR's other contracts and the fact that the principal investigator was a student meant that negotiation was more difficult than it might otherwise have been. That stated the first draft of the Bangla research tool was very quantitative and by the pre-test it had reverted to qualitative instrument. It is not believed that these changes impacted on the study, apart from making the process less easy for the interviewers.

The pre-test of six interviews was completed in Dhaka (See Appendix 6.2 for the question route and consent form). Following each interview the question route was discussed and on completion of all six interviews the following changes were made on the advice of Shikha, the main interviewer. The initial version contained questions on both the decision to adopt family planning in general and the decision to adopt that particular method. The women interviewed in the pre-test found these two to be indistinguishable. Therefore, rather than irritate the respondent the question on the specific method was dropped, and women were only asked about who was involved in the decision to adopt and how the woman felt about this.

To start with, the recording of the interview started after the collection of both the basic demographic and the summary contraceptive episode information on duration, side effects experienced, and reasons for discontinuation. However, having observed the length of some of the responses to these questions, the tape recording was started earlier to include this episode information. This meant that the interviewer did not have to paraphrase the woman's comments to fit them into the grid and, the complete verbatim responses were available.

In the initial question route the impact on a woman's life was asked as "*are there things that you are no longer able to do*?" Following the pre-test this was changed to "*are there things that are more difficult to do*?" In addition to this less prescriptive question, more prompts

[1] ACPR is a research agency in Dhaka, recommended by MSCS. Through ACPR the main interviewer for this study was found, the research instrument and consent form translated, subsequent changes made and some of the translations completed.

were added in the form of the different areas of a woman's life that could possible be impacted.

Further changes to the question on the impact of side effects on women's lives were made after the first translated transcripts were received. The question was restructured so that the effect of different side effects was more explicitly explored. Linked to this, the question on the initial grid on reason for discontinuation was also refined so that if side effects were mentioned, the specific side effect responsible for discontinuation was identified.
In the initial question route, following the question asking the woman if she had expected these side effects, she was then asked "*why did these things happen*?", the response of most women to this was because of the pill or injectable. This question was therefore changed to "*How did the pill/injectable cause these problems*?" Unfortunately this did not give any greater indication of women's understanding of how the contraceptive worked on her body. Most respondents replied either that they did not know or that it was for the clinic workers to understand not them.

6.3.3 Translations

ACPR was a little reticent to do all of the translations and a researcher from the London School of Hygiene and Tropical Medicine who was working at ICDDR,B recommended translator, Raj. The translations completed by Raj were richer than those from ACPR. However, Raj had a full-time job and due to limitations of time ACPR did translate transcripts throughout the study. On receipt, all translations were read and checked, so that any queries were resolved prior to leaving Bangladesh. Towards the end of the study, Raj recommended another translator in order to speed up the translation process. In a number of cases ACPR transcripts were re-translated by Raj. In any future study, identification of interviewers and translators prior to arrival in the country is viewed as essential.

A disadvantage of the fact that the interviews had to be translated is the time lag before which the transcripts were available. Since interviewing continued while the translations were being undertaken, by the time required changes were identified, other interviews had already been completed. In addition, more time elapsed before it could be checked that the changes to the question route were in fact being made.

A more immediate disadvantage was that in one rural interview a woman discussed suicide as a solution to her problems. Had the principal investigator been present and aware of this at the time she would have recommended the interview be suspended and the interviewer adopt

a more supportive role to the woman. In qualitative interviewing the establishment of rapport has to work both ways and the focus of the study must be on the individuals and not the research. In another case, in Dhaka, after the interview the respondent had concerns about adopting norplant and the interviewer accompanied the woman to meet the clinic providers to discuss her concerns. In a future study, the reciprocal nature of the interview process would be better highlighted during training, and all possible reasons for stopping the interview outlined.

6.3.4 Fieldwork

6.3.4.1 In Dhaka

The fieldwork in Dhaka was completed in the two main MSCS (Marie Stopes Clinic Society) Clinics, at Elephant Road and Mohakhali. Established in 1988, MSCS aims to provide comprehensive reproductive health services to the urban population of Bangladesh. The main focus of MSCS's work is poor, disadvantaged women. However, due to the quality of the services and the reputation of MSCS, women from all different socio-economic strata use their services.

Each of these clinics in Dhaka is associated with mini-clinics. Clients at the mini-clinics can receive the injectable, pill and condoms, in addition to a limited number of other reproductive health services, for other services clients are referred to the main clinics. It should be noted that the pill and condoms are widely available outside the reproductive health service setting in Bangladesh and therefore was unsurprising to find that in a clinical setting the injectable use was common.

In each of the clinics a room was available in the morning, but used as a male STI consulting room in the afternoon. This provided an ideal location for the interviews that caused minimal disruption to the everyday work of the clinic, and provided a confidential environment for the interview.

All the women who agreed to be interviewed in Dhaka were given a gift as a token of appreciation for their time, and they were also given some money to cover their travel costs. The clinic staff at Elephant road helped to select an appropriate gift to be given to women, and it was eventually decided that a mug was the best since this would appeal to all the women. To poorer women it would be both useful and valuable and to richer women it would be seen as a gift. The travel allowance was given to all participants, as it would have been

inappropriate to only give it to those who have been recruited by the clinic workers and brought in solely for interview.

The principal investigator was present for the majority of the interviews in Dhaka. At the beginning of the interview it was explained who she was. It is difficult to assess the impact on the respondents of her sitting in on the interviews. The respondents were made aware of the fact that the principal investigator would be present for the interview, that she was from London, and that she did not speak or understand Bangla; the women's initial reaction to this was largely one of curiosity. It is possible that the women said more as a result of her presence, although whether this would be due to an increased motivation to furnish all information or due to embellishment is unclear. It seems unlikely that in the presence of a foreigner, who does not understand Bangla that the respondents would say less than if she had not been present.

For the principal investigator, there were a number of advantages of sitting in on the interviews. Firstly, it was possible to see that starting the tape recording after the completion of the grid was losing valuable information, and this was subsequently changed. Secondly, it was possible to obtain an indication of the income level of the women by observing clothing, nose studs, shoes, and if the woman had a handbag or not. The education level of the women was evident from the time taken to answer the question on current age. For those who did not know their age this was calculated from information on key events such as age at Bangladesh Independence, or age at marriage and if this was not known, a combination of age at menarche, time after marriage that had first child, and age at first child were used.

In addition, many of the women were accompanied by a child/children at the interview. Therefore the principal investigator sought to minimise the impact of the child on the interview. Her efforts had mixed results sometimes the child was so excited by a balloon that it shrieked to the detriment of the recording, in other cases the child played peacefully. The best strategy appeared to be to give the child a banana to eat. In all cases the presence of a child lead to a shorter interview.

6.3.4.2 In Matlab

Located 50 km south west of Dhaka in Comilla district, the Matlab thana is the principle field station of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). Identified in 1963 as a cholera prone area, Matlab was initially researched by the then Cholera Research Laboratory. In 1978, the Cholera Research Laboratory became ICDDR,B and since

then Matlab has been the site of much population and health research, and has established itself as the best known population laboratory in the developing world (Fauveau V 1994).

Matlab is divided into two areas, the MCH-FP area and the comparison area. In both areas the Demographic Surveillance System (DSS) records vital events and, in the MCH-FP area there is a Record Keeping System (RKS). The RKS collects reproductive status and morbidity information on mothers and morbidity information on children. In this study the RKS was used to obtain information on contraceptive status and thereby identify respondents.

As the interviews took place in the villages the principal investigator did not sit in on the interviews, this was essential to minimise the impact of her presence. In each village a crowd gathered to look at the *'Badeshi'* (foreigner) and if she had been in the house for the interview the house would have been crowded. As it was, there were always other people listening in on the interviews, and since privacy could not be ensured, sensitive issues such as disruption to sexual relations and domestic violence are likely to be under-reported. In addition, there were far more instances in the transcripts where the recording was stated to be 'unclear' and this is most likely due to the women lowering their voices, owing to the presence of others.

In Matlab, two interviewers conducted the interviews since two respondents could easily be interviewed simultaneously compared to in Dhaka, where this was impossible. This also speeded up the fieldwork process, as Matlab can be an expensive place to work and, there was a delay before access to Matlab was granted.

It was not possible to give a gift to the respondents in Matlab, as the area is a population laboratory.

6.3.5 Analysis

All of the interviews were fully transcribed and these were all typed into Word, so that they could be imported into the analysis package, Nud*ist (Nonnumeric, Unstructured Data for Indexing, Searching and Theory building). This data package enables text to be coded according to subject or theme. In the process of coding the data, additional themes become apparent and these there then included. For example, the analysis started with coding all of the impacts of side effects simply as 'impact' and 'no impact' and over time this was sub divided according to themes emerging from the text. By coding all the impacts at the same 'node', it was very straightforward to simply go back to that node and recode the text.

Nud*ist was excellent for the examination of vertical themes, however, for examination of the horizontal themes, e.g. similarities within women or themes within episodes, a table was completed with the side effects, impact, strategies and outcome of each of the episodes of contraceptive use, nested within women.

In the following chapters all of the side effects reported by women are included, no effort was made to distinguish between 'real' and 'perceived' side effects. While it is acknowledged that just as context influences the impact that side effects can have on a woman's life, it can also influence the side effects that are reported. However, if a woman ascribed the side effect to their contraceptive use, and it therefore influenced their subsequent behaviour, the distinction is not viewed to be important in this study.

While efforts were made in the design of this study to collect all side effects, all the impacts and all the strategies it is possible that in some instances only the most severe were reported. This is especially true of the impact and strategies.

Finally, the data in its entirety are described in the following chapters, which makes them at times a little repetitive. No attempt was made to over-reduce the information as it was felt that to do this would not provide the reader with a complete picture of the experience of the respondents.

6.3.5.1 Validation of the qualitative data.

Qualitative data can be validated using a technique known as triangulation. Triangulation is achieved through: the collection data from different sources, the collection of different types of data, and a combination of the two, i.e. using different methods to collect data from different people. The data from these sources is then compared and similarities add to the credibility of the results.

In this study triangulation was possible on two results, reported side effects and reason for discontinuation of method. In the case of reported side effects, those reported in this study were compared to listed (ADR) adverse drug reactions and the side effects reported in the BDHS. The ADRs are provided by the manufacturers, the respondents for this being clinical trial participants. The BDHS is a quantitative research instrument that samples a nationally representative sample of ever-married women. These comparisons, one urban and one rural, are included in Chapters 7 and 8 respectively. The reasons for discontinuation reported in this survey are compared to those reported in the BDHS and are discussed in chapter 9.

While the aim of triangulation is to validate qualitative results, it must be acknowledged that differences in the results of different methods are to be expected. Variety in data collection mechanisms would not exist if different research questions/topics did not necessitate different techniques. Therefore while similarities do add to the validity of the qualitative results, the differences may also be insightful. For example, by comparing qualitative results to the BDHS, the 'truth' of the DHS can be explored.

6.3.6 Study limitations

A limitation of this study is the effect of context on the interviews. In the urban area the interviews took place in a clinic and it is possible that due to this side effects could have been over-stated. However, this study provides no summary measures of side effects. In the case of the rural area, the effect of context definitely had an impact on the reporting of sensitive topics such as disruption to sexual relations and scolding. On balance, if the rural interviews had taken place in a clinic it is likely that there would have been a selection bias in those who attended the clinic, and this would have influenced the rural results, as opposed to only influencing the 'sensitive' results. An ideal scenario would have been to carry out the interviews in the women's houses, but also carry out a separate, smaller study, located outside the woman's village, where the women's could speak openly on the more sensitive topics.

Another limitation of this study is that the results are only representative of the population under study and do not therefore represent Bangladesh as a whole. This is always the case in qualitative research where the intensity of the research method prohibits undertaking nationally representative samples. In the choice between qualitative and quantitative techniques there is always the conflict between the ability of quantitative methods to be nationally representative, and the detailed investigation and understanding that qualitative methods facilitate.

Chapter 7 Why do urban women discontinue hormonal contraceptive use due to side effects?

This chapter examines why urban women discontinue hormonal contraceptive use. First the reported side effects are discussed and compared to those reported by other sources. Then the different impacts that side effects have on women's lives are described, followed by a discussion of the strategies used to reduce these impacts. Finally, all outcomes are described prior to a detailed examination of those episodes discontinued due to side effects.

In each of the sections the results have been categorised. In the case of side effects, all of the side effects were first listed and then divided into different sections. All side effects mentioned are included in Table 7.1 on injectable side effects and Table 7.3 on pill side effects. The impacts that side effects have, the strategies used to reduce the impact of side effects and the outcomes of the episodes of use were all coded into categories that emerged during the coding process.

In some of the tables included in this and the following chapter the results are included as percentages. As these are derived from small numbers the percentages cannot be interpreted as referring to use in Bangladesh as a whole; they are included only for comparison purposes. The specific relevance of these comparisons is discussed in the relevant sections.

Finally, in all of the quotes included in this section, the reference numbers for the women are included. Appendix 7.1 includes tables with background information on all of the respondents; this information includes age, number of children and household type at the time of the interview. This table folds out so that the reader can view it at the same time as reading the text.

7.1 Side effects

The reported side effects have been divided into those due to injectable use and those due to pill use. When considering these reported side effects it is necessary to remember that they did not necessarily occur simultaneously and may have occurred at different times during the episode.

7.1.1 Injectable side effects

The number of side effects mentioned for a single injectable episode ranged from zero to nine, but most mentioned between one and three. Injectable side effects were grouped into six distinct groups and an 'other' group. In Tables 7.1 and 7.3 the total number in each of these groups is in bold.

The most commonly mentioned injectable side effects concerned menstrual disturbances. These include increased and reduced amount and frequency of bleeding, the most common of which

was amenorrhoea, the absence of menstruation. In 22 of the 40 episodes amenorrhoea was reported; this was the most frequently mentioned side effect.

The next most frequently mentioned group of side effects concerned pain, the most common of which was pain in the waist. The site of the pain was always specified, for example, abdominal pain and gastric/stomach pain. The women described two levels of pain, a more general pain and a severe, biting pain, sometimes described as cramp.

Weakness was also a frequently mentioned side effect of injectable use as was dizziness. The 'other' category contains a variety of complaints including vomiting tendency and reduction of health. One woman stated that injectable use resulted in

DHATOO (Semen) *goes more in quantity.* BDS 6

This is a description of increased vaginal discharge. One woman stated that her health improved as a result of injectable use.

As previously mentioned, multiple side effects could be reported and there were patterns evident among the side effects described. In ten episodes of injectable use, waist, stomach or abdominal pain accompanied amenorrhoea. Both these side effects are listed as clinical side effects, see Table 7.2; however, there is an important cultural belief likely to reinforce this pairing. The WHO study of women's beliefs about menstruation found in all cultural groups surveyed that women were unwilling to tolerate amenorrhoea as a side effect, and this was especially true in the Pakistani and Indian populations surveyed (WHO 1981a). One reason for this is that menstruation is seen at the outlet for 'bad blood'. Johnston (1999), in a qualitative study in Bangladesh, also found that women associated amenorrhoea with the storage of bad blood.

Table 7.1 Injectable side effects reported by urban women

Side effect	Frequency of mention
Menstrual Disturbance	**38**
Amenorrhoea	22
Excessive period	8
Irregular bleeding	4
Inadequate menstruation	2
Sometimes 2 periods per month, blood is black not clear	1
Duration of menstruation is longer, but quantity of blood is less	1
Pain	**26**
Pain in waist	9
Abdominal pain	3
Pain in whole body	2
Pain in spine/back	2
Biting sensation in hands and legs	2(2)[1]
Hands, legs, waist bites	1(1)
Pain in stomach during period	1
Gastric	1
Pain in thigh	1
Pain in knees	1
Shoulder pain	1
Pain in waist when there is no period	1
Abdominal pain when period time is near	1
Weakness	**12**
Weakness	10
Weak feeling 3-4 days after injection	1
Hands and feet felt weak	1
Dizziness	**8**
Burning	**4**
Burning feeling in hands and legs	2
Burning sensation in head	1
Burning sensation in palm and foot	1
Weight change	**3**
Body withers	2
Abdomen became heavy	1
Other	**12**
Hazy vision	3
Neckache	1
Body ache	1
More semen secretion	1
Vomiting tendency	1
Can't eat	1
Body shakes	1
Hair fell out	1
Reducing of health	1
Health improves	1
No side effects	**4**
Total number of episodes	40
Number of women	33

[1] The figures in parentheses indicate severe pain.

This perception was also mentioned in this study

The blood which passes during menstruation is bad blood BDS 35

A recurrent theme was that of '*clear*' menstruation

...and the colour of the blood is black, it is not clear BDS 6

it is better if the period is cleared BDS 27

The concept of 'clear' concerns bad blood 'clearing' the body.

In a country where behaviour is restricted during menstruation it is perhaps surprising that only one of the women listing amenorrhoea as a side effect reported that this was an advantage. However, it has to be remembered that (a) menstruation is a woman's indicator of a non-pregnant state, and (b) is often accompanied by pain.

A total of 33 women described an episode of injectable use, of which seven reported more than one episode. Three of the seven described the same side effects for both episodes, of which in two cases the women described one additional side effect for the least recent episode. The repeated side effects were amenorrhoea, amenorrhoea and excessive bleeding and '*the body withers*'. Three other women stated that one episode was associated with no side effects whereas the other episode was. The seventh woman described different side effects for the two episodes, weakness in one episode and pain in the other.

7.1.1.1 Comparison of injectable side effects reported in this study vs other sources

Table 7.2 shows the injectable side effects reported in this study compared to two other sources; current urban users in the BDHS, and manufacturers' adverse drug reactions (ADR). The BDHS data reports problem with current method. The data from this study are included as a percentage or, where the number is small, in parenthesis. The use of percentages is not to imply that the figures can be applied to statements about the urban population of Bangladesh. However, they aid comparison between these two different sources of data on contraceptive side effects. The ADRs reported are indicated with a √.

Consideration also needs to be made, when comparing the BDHS results and the results of this study, of the way the questions were posed. In this study women were asked if they had experienced any side effects. In both of the BDHS a filter question was used and those who reported a problem with their current method were asked further questions; in the 1993/94 BDHS they were then asked if they had any health problems, and in the 1996/97 BDHS they were asked, more generally, what the problem was. As a result, the emphasis of these two questions is different. In both cases the question was open-ended but had pre-coded responses and an open category that could be completed by the interviewer it necessary.

Finally, all of the side effects reported in this study are not included in Table 7.2, whereas all the ADRs and all the side effects mentioned in both the BDHS are. The notable omissions that were

mentioned in this study are the many different types of pain; only abdominal pain is listed in Table 7.2.

Table 7.2 Different sources of data in the injectable side effects reported by urban women.

Side effect	BDHS 1994 %	BDHS 1996 %	ADR	This study Rank
Amenorrhoea	13.3	18.2	√	1st
Weak/tired	22.2	20.0	√	2nd
Headache	11.1	12.7	√	
Dizziness	8.9	(2)	√	3rd=
Excessive bleeding	(2)	5.5	√	3rd=
Nausea	-	-	-	(1)
Weight loss	(1)	(1)	-	(3)
Hypertension	-	-	-	-
Weight gain	-	-	√	(1)
Transient infertility on discontinuation	-	-	√	-
Irregular bleeding	-	-	√	4th
Prolonged bleeding	-	-	√	(2)
Abdominal pain	N/A[1]	5.5	√	5th
Fluid retention	-	-	√	
Any side effect	35.6	32.7	-	-
Number of episodes	45	55	-	40

[1] In the 1993/94 BDHS women were not asked if abdominal pain was a problem with their current method.

There is clear overlap in the reporting of menstrual disturbances resulting from injectable use. Among the ADRs, the distinction is made between four types of menstrual change: amenorrhoea, excessive menstruation, irregular bleeding and prolonged bleeding. All of these changes were mentioned in the current study, although irregular and prolonged bleeding are not listed in the DHS[1].

The ADRs that were not mentioned by respondents in this study were headache, transient infertility on discontinuation and fluid retention. One woman did report her abdomen becoming heavy due to injectable use, and it is possible that this could indicate fluid retention. There are a number of reasons why the ADR of transient infertility on discontinuation would not be mentioned in this study including the fact that this may not being associated with use, per se, and it would not be noticed if the woman immediately switched to another method. The striking absence in this study is the reports of headaches as a side effect. There is no obvious explanation for this. However, it is possible that, similar to a study in Pakistan, headaches are so common that some women do not feel that they are worth mentioning (Winkvist and Akhter 1997).

In the BDHS, tired/weak was the most frequently reported side effect of current injectable use, and the second most common for this study. The most common in this study - amenorrhoea -

[1] It is possible that irregular and/or prolonged bleeding were mentioned by women in the BDHS but were then grouped into category 'excessive bleeding'.

was more frequently mentioned than in the BDHS. Dizziness was also more frequently mentioned in this study.

All side effects in Table 7.2, excluding headaches, were mentioned more frequently in this study than by BDHS respondents, both in terms of the of the frequency of mention and the numbers who mentioned any side effect at all. There are three methodological issues that might account for some of this difference. One is that this study focussed specifically on side effects and therefore women reported more than in response to one question in a long questionnaire. The second methodological factor is that this study asked about all side effects that occurred in the episode, while the DHS asked if there were any problems with the current method, and may therefore have elicited a current rather than an historical response. If the DHS did elicit cross section responses women would only mention the side effects that they were experiencing at the time of the interview, as opposed to all the side effects that they had ever experienced in that particular episode of use. Finally, these interviews were completed in a family planning clinic and it is possible that some of the clients/respondents had come to get information or help with side effects, thereby leading to a selection bias.

7.1.2 Pill side effects

The number of side effects mentioned ranged from zero to eight for a single episode of use. Most episodes were associated with no side effects (15) or only one side effect (17).

The main side effect reported with pill use was dizziness, and weakness/sleepy feeling the second most common; see Table 7.3. Four women stated that the dizziness or bleeding that they reported as a side effect was due to their forgetting to take the pill and therefore having to take two pills at the same time. These side effects are known to be associated with inconsistent use of the pill (Thornicroft, 1999, Mims, 2000).

As in the case of the injectable there were patterns evident when multiple side effects were reported. The most common pattern of side effects included some or all of the following: bad smell, vomiting tendency, loss of appetite, with weakness. It is a logical grouping; the reduction in appetite leading to a reduction of food intake and, therefore, a feeling of weakness.

Table 7.3 Pill side effects reported by urban women

Side effect	Total
Dizziness	**27**
Weakness/Sleepy feeling	**21**
No side effects	**15**
Vomiting	**12**
Vomiting tendency	7
Vomiting	5
Pain	**8**
Stomach pain	3
Pain in whole body	2
Pain in waist	1
Abdominal pain	1
Abdominal pain when period time is near	1
Burning	**7**
Burning in eyes	3
Stomach burns	2
Body burns	1
Face burning	1
Can't eat/no appetite	**7**
Menstrual disturbance	**6**
Excessive period	3
Irregular bleeding	2
Amenorrhoea	1
Weight change	**3**
Body withers	2
Body swollen became fatty	1
Other	**10**
Hazy vision	3
Headache	2
Bad smell	2
Heart palpitations	1
Bad feeling	1
Itches urine passage	1
Total number of episodes	55
Number of women	47

Of the 47 respondents who described an episode of pill use, 14 describe two episodes and one three episodes. Three of the women used two different brands of the pill and reported no side effects with either brand, and seven women described side effects associated with one brand but not the other. A total of five women reported side effects for more than one episode of pill use. Where an overlap in reported side effects was found, it was the commonly reported side effect, dizziness and vomiting tendency in one case, loss of appetite in another, and dizziness and vomiting in the third. These are the only three women where such a pattern was found and these three women all mentioned other side effects in addition to those that overlapped.

7.1.2.1 Comparison of pill side effects reported in this study vs. other sources

In the comparison of the BDHS side effects, the manufacturers' ADRs and the side effects reported in this study there is less overlap than was found in the case of the injectable. The closest overlap is between the BDHS and this study; hypertension was the only side effect mentioned in the BDHS but not in this study. Although mentioned in both, few women in this

study reported headaches as a side effect, compared to the large proportion that mentioned it both the BDHS.

In the BDHS, headache or weakness/tired were the most frequently mentioned side effects, while dizziness was the most frequently mentioned in this study. More women mentioned side effects in the 1993/94 BDHS than the later survey, possibly because the questions were phrased differently; the 1993/94 survey asked about *health* problems associated with current use, while the 1996/97 survey asked about any problems.

Table 7.4 Different sources of information on the pill side effects reported by urban women.

Side effect	DHS 1994 %	DHS 1996 %	ADR	This study ranks
Headache	17.9	6.1	√	(2)
Weak/tired	11.8	7.5		2nd
Nausea/vomiting tendency	6.1	2.3	√	3rd
Dizziness	5.7	2.8	-	1st
Weight loss	3.8	0.9	-	(2)
Excessive bleeding	1.4	-	-	4th
Weight gain	1.9	-	√	(1)
Amenorrhoea	1.9	1.4	-	(1)
Abdominal pain	N/A	1.9	-	(2)
Hypertension	-	-	-	-
Breast enlargement	-	-	√	-
Bloating with fluid retention	-	-	√	-
Cramps and pains in the legs	-	-	√	-
Vaginal discharge	-	-	√	-
Cervical erosion[1]	-	-	√	-
Breakthrough bleeding	-	-	√	
Chloasma[2]	-	-	√	-
Any side effects	30.2	13.6	-	-
Total number of episodes	212	214	-	55

[1] inflammation of the epithelium
[2] Changes to the pigmentation of the skin

Three of the ADRs listed by the manufacturer overlap with both the BDHS and this study, and an additional one, breakthrough bleeding, is likely to be the irregular bleeding mentioned in this study. The remainder: breast enlargement, bloating with fluid retention, cramps and pains in the legs, vaginal discharge, cervical erosion and chloasma, do not overlap.

7.1.3 Comparison of injectable and pill side effects

Table 7.5 is included to show both the similarities and differences in the categories of side effects reported for the injectable and the pill. Those side effects that were included in the 'other' category for both methods are not included.

Table 7.5 Summary of the pill and injectable side effects

	Injectable	Pill	Total
Menstrual disturbance	38	6	44
Dizziness	8	27	35
Pain	26	8	34
Weakness/Tired/sleepy feeling	12	21	33
No side effects	4	15	19
Vomiting	1	12	13
Burning	4	7	11
Loss of appetite	-	7	7
Weight change	3	3	6
Total episodes	40	55	95

It may have been easier to compare the two if the numbers were presented as percentages. However, while this can be justified in Tables 7.2 and 7.4, in this case it would have been misleading. For example, many menstrual disturbances are listed in Table 7.1 and these are grouped together in Table 7.5. Since different menstrual disturbances can occur within a single episode, it is not true to say that in 38 of the 40 injectable episodes menstrual disturbances were experienced. Instead, the total number of episodes is included to give an indication of the relative frequency of these categories.

There is a clear difference, evident in this table, between the side effects reported for the two methods. Overall, menstrual disturbances are the most common side effects, and these are primarily associated with injectable use. Dizziness is the second most common, associated more with pill than injectable use, pain is the third and mentioned more often by injectable as opposed to pill use. Weakness is the fourth most reported side effect and is less dictated by method than are the others.

Just as type of side effect is largely dictated by method, the absence of side effects is also clearly linked with method; the pill being more likely to be associated with an absence of side effects than the injectable.

The concept of weakness was a dominant theme among all respondents in this study. Nearly half (24) reported a state of general weakness unrelated to, or in addition to, the weakness resulting from contraceptive use. The majority of these (17) described a general sense of weakness and did not also report weakness as a side effect of contraceptive use. Some of this was attributed to a specific disorder or existing problem

Look I had these problems before. Even before I got married BDS 45

Others, while not mentioning weakness as a side effect, were unsure if it was due to the method or other factors

No... you see, one cannot feel the same (physically) *everyday, those who haven't taken sui* (injectable), *they also may have disease/sickness. I don't understand if it is because of sui or anything else.* BDS 16

A further group stated the weakness was due to their poor diet

No.. not after having the pills – because there not much blood in (my) *body because we cannot afford a banana or an egg – can't save money always in hand – money earned from rickshaw pulling – we would not have felt so weak if we could have rich food – but we feel weak because of our vices (*they are blaming their fate*).* BDS 13

The remaining women who described a general sense of weakness also reported weakness as a side effect. This group also included women who did not know if the weakness was due to use or not, those who blamed poor nutrition and one who had another health complaint.

In part of a larger study on the determinants of reproductive health among women living in poverty in Mumbai, India, Ramasubban and Singh (2001) noticed the repetition of weakness in the narratives of their respondents. As a result they conducted an in-depth study to investigate further. They found that weakness was very clearly defined by the respondents.

"*Ashaktapana* is an antonym for the word *shakti* (strength) derived from the Sanskrit, and the Marathi work *pan* is added to mean a state of weakness of 'feeling of weakness'" P7

This feeling of weakness was purely physical and not a weak position due to economics or gender relations. It is likely that this weakness is the same as that found among the respondents in Dhaka.

The description of a general state of weakness, unrelated to contraceptive use, has two implications. One is that the reports of weakness as a side effect are less likely to be simply due to a woman's perception of the method as 'powerful'. Secondly, the prevalence of general weakness provides an important (ill) health context[2] for the study of the impact of side effects. For, if women already perceive themselves in a weak state, any side effects that they report may be felt more acutely or impact more than if they had a more robust opinion of their health.

7.2 The impact of side effects on women's lives

Of the 95 episodes of injectable and pill use described by the respondents, 19 were not associated with any side effects and, for seven episodes, the information on impacts was missing.

[2] Weakness has been used as a sign of anaemia in a number of studies for example, Bhatia and Cleland (1995) and Bulut *et al.* (1997).

Information on the impact is therefore only available for 69 episodes. A range of impacts on women's lives was described and this section will go through this spectrum.

The impacts were defined according to the woman's self report, the objectivity of which it was not possible to check. The categorisation of the impacts became clear during the coding process. A range of impacts on the women's domestic lives is discussed and superimposed on this is, in some cases, the impact on the woman's paid employment and sexual relations.

As the various impacts of side effects are likely to vary during the episode it is likely that only the most severe impacts are reported. However, it should be remembered that, within the context of the episode, they are likely to fluctuate with the side effects experienced.

Before continuing with the qualitative results two case studies are given to give the reader an insight into the context of urban women's lives. The case studies are comprised primarily of quotes to illustrate the circumstances within which their contraceptive use occurs, and the different pressures acting on women.

Case study 1

After the birth of her first child Farida[3] thought that she could not become pregnant while she was not menstruating, but after a year and a half she found that she was pregnant. She went to the hospital to have an abortion where she was advised to be sterilised after the abortion. She refused to have both procedures and adopted the pill soon after the birth of her second child.

When she adopted the pill she reported side effects that resulting in her having to delay her daily chores. She lived with her husband and three children and while delays to work did not cause a problems as she was alone in terms of household responsibilities being unable to work caused problems with her husband. She stated that her husband did not believe that she suffered from side effects and that he told her to leave the house if she could not work. While he did not believe that she suffered side effects he complained that he could not afford, what he perceived as her frequent medical bills.

[3] Not her real name

Case study 2

Tahmina[3] is 25 years old and lives with her husband and two sons in Dhaka. While she lives in a nuclear household her parents in law still influenced her life. When she experienced pill side effects and was unable to work they told her to discontinue using the pill as she was unable to run her family. She discontinued use, domestic responsibilities taking precedent over reproductive preferences.

Following her experience of side effects following adoption of the injectable it was her husband who became angry with her, accusing her of listening to *women from the slums* and taking their advice without asking anyone else, implying it was her own fault that she was suffering. One of the side effects she experienced was spotting which prevented sexual intercourse and with the threat of violence from her husband due to this disruption she discontinued.

7.2.1 'No impact'

In 19 of the 69 episodes where side effects were reported, no impact was stated to be associated with the side effect(s). It is in fact misleading to state that the side effects had 'no impact' since this undermines the importance of disruption to a woman's own sense of health and well being. For example, if a woman experiences dizziness due to side effects it may not affect her everyday life, but the experience of dizziness for days or even weeks is potentially intolerable.

The 12 injectable episodes and seven pill episodes where no impact was reported are included in Appendix 7.2 and this includes a listing of the associated side effects. There are in an appendix in an effort to reduce the amount of text, not to undermine the importance of side effects that are reported to have no impact.

7.2.2 Had to work

Six women described six contraceptive episodes occurring in a context where side effects could not have a material impact; the women simply had to work. As with those who described the side effects as having no impact, these women did not consider the effect on themselves and their wellbeing as an impact.

> *I don't put that much emphasis on waist pain. I am a poor woman, I have to do a lot of work, I cannot but give less importance to my waist pain* BDS 12
>
> *I was bound to work. Even if I was unwell, I would have to do my job* BDS 53

All of the six women who stated that they had to work in spite of side effects lived in nuclear households. The nuclear household is not the norm in Bangladesh; it is more usual for women to

go and join their father in law's household on marriage. The lack of support available in these less traditional situations was mentioned

> *I am bound to do household work. I am the only working woman in the family. In Dhaka nobody helps one another except kith and kins* BDS 52
>
> *..As I am alone, I have to do some household work and look after the children alone* BDS 26

The side effects reported by those women who had to work despite their side effects were, in some cases, numerous. Three of the episodes were accompanied by four or more side effects and, of the remainder, two involved menstrual disturbance.

7.2.3 No impact but felt bad

The next level of impact mentioned by respondents was where there was no direct impact but the women felt bad. This is the explicit recognition of the effect of the method on their own wellbeing. Seven women described nine episodes in this way.

> *No problem is caused, I face no problem in doing my daily work. But I face physical problem* BDS 45

The impact on their own health is not able/allowed to affect their ability to fulfil their duties

> *I used to work with all these problems and with that ill health. I worked for sometimes and I laid in bed sometime* BDS 43

The last quote also touches on strategies used to reduce the side effects; these will be discussed in more depth in the next section.

Five of the nine episodes in which there was no impact but the woman felt bad were of pill use and four of injectable use. Dizziness and loss of appetite were mentioned in all of the pill episodes. Three of the injectable episodes resulted in amenorrhoea, accompanied either by weakness or pain, both having clear impact on how a woman would feel. The final injectable episode was accompanied by excessive bleeding.

One woman, who reported two episodes where there was no impact of the side effects but that she had felt bad, had used both the pill and the injectable. The only side effect she reported for pill use was dizziness, while for the injectable she reported five different side effects; amenorrhoea, irregular menstruation, gripping pain in hands and legs, body ache and waist pain.

7.2.4 Difficult to do work

While in the previous section there is a degree of resignation to the impact of side effects on a woman's health, the women in this section discuss the impact and identify the side effects as an unnecessary burden/irritation that made work difficult.

It is difficult to work, used to lie down BDS 49

Three episodes of pill use and three episodes of injectable use were associated with this impact. In one episode the impact is attributed to a specific side effect, the excessive bleeding resulting from injectable use. All of the pill episodes involved dizziness or weakness, and, in two, loss of appetite or an equivalent was also mentioned as a side effect. These side effects and combinations of side effects both have palpable impacts on an individual's perception of health and on their ability to work.

Amenorrhoea was reported in both the remaining injectable episodes, in one case accompanied by '*health improves*' and in the other by pain in abdomen and weakness. One woman reported both an episode of injectable use and pill use where there were side effects that made work difficult.

7.2.5 Unable to fulfil all domestic roles or "do properly"

This category contains two different types of impact. One is when the woman just felt that she was not able to do her work properly and disorder resulted;

I could not do household work. I could not run the family well BDS 29

Can't prepare food in time. All the household work remains in disorder, can't complete, lie in bed BDS 49

Five of the episodes were stated to result in disorder. The disorder described relates to the functioning of the household, when the woman can complete her tasks there is order, e.g. it is tidy, meal occurs on time, etc, disorder occurs when certain tasks are not completed or are not completed on time.

In the case of the other six episodes, women were unable to complete specific tasks, due to the impact of side effects

Like if I press tube-well[4]*, I become tired, then I can't grind spices* (on a stone slab) *Can fat women do it? I had these problems.* BDS 18

We find problem in doing our work

Any other problem?

We can not take the baby in our lap. We can not fetch a pitcher of water from a distant place BDS 39

In two episodes, the impact(s) was attributed to a single side effect. In one case, dizziness made it difficult to do the work and, in the other, the weight gain associated with use made movement, heavy work and work in general difficult. In addition to those who made the link between specific side effects and impact, there were also three pill episodes where only one side effect was mentioned. The three side effects were dizziness, vomiting tendency and continuous menstruation for three months.

The other episodes were associated with a large number of side effects. One pill episode was associated with seven specific side effects and two with four side effects. One of the injectable episodes was associated with seven specific side effects, one with six and one with three.

This category is the first where, to an external observer, there would appear to be a tangible impact on women's lives, in terms of side effects leading to an inability to complete some tasks. Alongside this, in some cases, came the woman's regret that she has not been able to do certain or all of her tasks, or regret that others are suffering due to her shortcomings. Five women voiced regret, largely because housework in general was not completed and one because her children suffered.

...I cooked my morning food in the afternoon. This might cause sufferings to my children. We would take our breakfast at lunchtime. BDS59

As these five women felt guilty because of what was not done; four of the women were scolded by their husbands

Do you have any problem from your husband's side?
It happens. Starts scolding. This is not in order that is not in order. What you do in the house for whole day(?). You only prepared food and take those (referring to the pill).
BDS 49

For some, the ramifications of this was greater than for others

What does your husband say?
He says "If you can not work, you can go away from my house. You can not do the household work. How can I pay for the doctors daily? If it occurs once a year, it is alright. Can one spend money during the whole year? You menstruate every couple of days" BDS 23

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[4] The tube-well is the water source in many areas of Bangladesh, a hand pump being used to obtain water from the underlying aquifer.

Since this study focuses on side effects and their impact, it is only where the women felt an impact that it is reported; therefore, any report about impacts and the husband is likely to be negative. This considered, it should be borne in mind that there are husbands who scold and there are those who do not.

Different women reported all those episodes that were associated with being unable to do their work 'properly'.

7.2.6 Economic role

Some women reported that they were able to attend work but, as in the case of domestic duties, were not able to complete their work satisfactorily. Two pill users faced problems at work.

> *I used to feel sleepy you know, my job is production orientated, if I cannot fulfil my target then my supervisor will shout me. This is the problem.* BDS 37

One injectable user stated that since her employer was a nice person, if she could not complete her duties she was allowed to leave early. The pill episodes were associated with dizziness, vomiting tendency a sleepy feeling, and weakness and dizziness. In the injectable episode amenorrhoea was identified as the side effect leading to problems.

While some women were able to do some of their economic work, some were unable to attend the work place and had their wages cut. Three pill and two injectable episodes were reported to result in missing work, with obvious implications.

> *Apa,*(sister) *we are poor- have came to Dhaka to earn two piece, now I'm off my duty for about 20 days, isn't it our loss?* BDS 6

Those who missed work reported the following side effects; one pill user experienced loss of appetite and a 'sleepy tendency', and in another's the '*body became swollen*', and in the third dizziness, weakness and loss of appetite. In the case of the injectable users, one experienced amenorrhoea for one month followed by too much blood in the following month. The final injectable user experienced pain in stomach during period, dizziness, sometime two periods in a month, blood is black not clear, hazy vision, pain in spine, weakness and more 'semen' secretion. One woman reported two episodes of contraceptive use that impacted on her job outside the household.

Those women who work outside the household for wages do so because of economic necessity in Bangladesh; remaining within the household, especially in urban areas is a luxury. Therefore, the implications of the loss of wages are severe.

Due to the side effects that they were experiencing, two women chose to fulfil their economic role at the expense of their domestic duties

I could do no household work at all. Just I used to attend office and that's all. I did not do anything at home.

That you did not do anything at home, did it cause any problem?

No problem was created in the family. But everything in the house used to be at sixes and sevens. Everything used to be dirty. BDS 30

7.2.7 Problem in sexual relations

In 14 episodes, respondents stated that there were problems in sexual relations with their husband due to side effects. In seven of these episodes sexual relations did not occur due to menstrual disturbances. As discussed in Chapter 6, sex during menstruation is considered dangerous to the man and many believe it is forbidden by Islam. Table 7.1 and 7.3 illustrate the menstrual disturbances associated with hormonal contraceptive use.

In the other seven episodes where sexual relations were affected this was due to the woman not feeling like having sex or feeling pain during intercourse. The impact of the cessation of sexual relations varied from examples where the husband did not mind or say anything to more serious impacts.

Husband used to scold (digdaril) every day,.....

What is digdari?

Like my husband became crazy for coming to me (for intercourse) BDS 11

One woman reported two pill episodes, both of which resulted in problems in sexual relations. In one of these episodes this was due to menstrual disturbance and, in the other, was due to dizziness. In seven of the episodes where sexual relations were affected, this was reported to only have a limited impact on the women's lives. However, in the remaining six episodes, the impact varied from the husband thinking it was a problem to domestic violence, rape and the threat of destitution.

7.2.8 Unable to do anything

In 15 of the 36 episodes where side effects were reported to have had an impact on the woman's life, the impact was such that the woman was unable to do anything. All of these women reported being unable to get up from the bed.

I became so weak that I could not get up from bed it was so severe dizziness, had vomiting tendency. BDS 11

I would feel bad not performing household work. I would not feel like eating, I did not like to work, I only lay in bed BDS 25

Eleven of the episodes were of oral contraceptive use and eight of all the 15 episodes reported dizziness or weakness. In terms of the number of side effects reported, four reported only one side effect, three two side effects, and two episodes were associated with five or more side effects.

Compared to the impact of cessation of sexual relations, the impact on the women being unable to do anything were smaller. One woman hinted at being scolded

It causes dizziness, can't do any work felt weak.

Later

Did your husband say anything?

Everybody wants to keep the family neat and clean. BDS 49

Another received scolding from people other than her husband.

My father and mother in law told me, " you can not tolerate pills and it does not suit you. You can not go the household work. How will the family be run?" BDS 39

One woman was scolded by her mother in law, not for her inability to work, but due to the fact that she was using the pill; this mother in law would not let her daughter in law do any household work. A further woman reported no impact of her inability to leave her bed due to the fact that at the time she was at her father's house and therefore not required to do any work.

Two women each described two different episodes of use that resulted in them being 'unable to do anything'. In both cases, the method was different for each episode, ie one pill and one injectable, and the reported side effects were also different.

7.2.9 Comparison of the impacts of injectable and pill

Table 7.6 examines the difference in impacts of the injectable and the pill. As previously discussed, pill use was more likely to be associated with no reported side effects compared to injectable use. Another clear difference between the methods is the reporting of side effects that render the user unable to do anything. In a total of 15 episodes reported in this study, the woman reported being unable to do anything; of these 15, 11 were pill episodes.

Table 7.6 Impacts of contraceptive use

Impact	Injectable	Pill	Total
No side effects	4	15	20
No impact	12	7	19
Had to work	4	2	6
No impact felt bad	4	5	9
Difficult to do work	3	3	6
Work not done properly	4	7	11
Unable to do anything	4	11	15
No information	5	5	10
Total	**40**	**55**	**95**
Economic activities	3	5	8
Sexual relations	7	7	14

Finally, one impact that might be expected to be more method dependent is impact on sexual relations, since the most common side effect reported for injectable use was menstrual disturbance. However, amenorrhoea, as opposed to increased or unexplained bleeding was the most frequently mentioned side effect, which is not affected by the taboo of sexual relations during menstruation.

7.3 Strategies

In this section the different types of strategies used are examined. First, they are discussed as single entities, following which the combinations employed within an episode are described. As with the discussion on impact, the range of strategies is discussed, starting with the episodes where no strategy to reduce side effects was employed, and finishing with those episodes where women discontinued use in order to stop the side effects.

Only those episodes where side effects were reported are examined here; of the 95 episodes reported by urban women, 19 were not associated with side effects. In addition to this, information on strategies employed was not available for seven episodes. Therefore, information on strategies is only available for 69 episodes.

7.3.1 Did nothing

As in the case of the episodes where no impact was reported, the episodes where no strategy was used are summarised in Appendix 7.3. The appendix lists the side effects, impact and strategies that were mentioned but not used.

7.3.2 Food

Certain foods were consumed in response to the side effects experienced in 12 episodes. In this section the discussion is not split into injectable and pill because the side effects that are believed to be reduced by the consumption of certain foods is clear. In nine of the ten episodes where

'good food' was eaten to reduce the side effects, only one side effect was mentioned in each episode dizziness, weakness or amenorrhoea.

Yes then I took good/rich foods and it was cured. BDS 18

The good foods that were reported to help were

I take eggs, milk and I feel well. Otherwise I feel unwell. BDS 43

If I feel weak, I take milk, egg. The medicine (injection) is very hot, for this good foods need to be taken, good foods don't make you weak. BDS 27

This final quote introduces the belief that the contraceptives are in some way powerful. Two other examples of food strategies being linked to the perception of the method were found.

I suffered from dizziness and I thought that it would be minimised if I had taken more and more cold things. BDS 30

Then used to take rest, took sour things. Felt good after taking sour BDS 49

Food was reported as a moderator of side effects in all 12 of these episodes, although in five of these episodes women could not afford to buy the foods

Yes, I heard. Many people suffer from dizziness. We have to take milk, banana and beverage. We are very poor people. We cannot eat all these things. I have to do a lot of household work but I can not take food as I am needed to. BDS 12

Listen - I do nothing – like today I'm suffering from lack of vitamins, can't go to doctor due to want of money or can't afford any good food. BDS 17

For three of the episodes, where the women could not afford the food to alleviate their side effects, no strategy was used to reduce the side effects.

7.3.3 Seek medical help and/or take medicine

Part of the advice given to the women who receive a method from the Marie Stopes clinic is that they should return to the clinic if they experience any side effects. While not all of the women in this urban based study necessarily obtained the method from a Marie Stopes clinic, the fact that the respondents were recruited in a clinic shows that the women interviewed were able to get to the clinic. This is not necessarily true of all women in Dhaka, and the mobility of the group surveyed may be greater than that among the general population.

Six of the episodes of contraceptive use where side effects were reported resulted in a doctor being consulted but medicine not being prescribed. In one of these cases, the doctor recommended that the women discontinue use and, in the other, that the women switch method. One woman was recommended the pill but she refused to take it

They said you take pill then it will stop, I said I don't take pills, people say that my baby won't get breast milk because of pills. BDS 14

One woman just stated that she went to the doctor and, in two other episodes, the women were attending the clinic due to side effects but were interviewed prior to receiving advice from the doctor.

Two of the women who sought medical attention for their side effects reported only one side effect, either vomiting or 'body withers'. Of the other four, three reported a menstrual disturbance; menstruation lasts longer but blood is less, abdomen becomes heavy and pain all over body, excessive period and amenorrhoea and physical weakness. The sixth episode was associated with five side effects: dizziness, vomiting tendency, hands and feet felt weak, can't eat and physical weakness.

The 11 episodes where a doctor was consulted and medicine prescribed provide a clear picture of what medicine is taken to reduce side effects. For the 12 episodes, where medicine was obtained but the woman did not visit the doctor, it is less clear. In one case, her mother brought the medicine, in another the husband, one woman bought herself some tablets from the pharmacy, and another had some undefined medicine obtained from the pharmacy. The remaining six episodes all reported using similar medicines to those which were prescribed by the doctors: oral contraception, vitamins and saline; these are outlined in turn.

As previously stated, oral contraception was used for three different functions: to control fertility, to regulate menstruation[5] and to induce menstruation and thereby prove that the woman is not pregnant. In six episodes of injectable use, oral contraceptives were used to regulate menstruation.

*It(*injectable) *causes amenorrhoea. But if pill is taken, 'menses' (*menstruation) *becomes clear for it.* BDS 53

In an additional two episodes of injectable use, it is likely that the 'medicine' is an oral contraceptive. In one case, the woman paid money 'to get menses', in addition to having two pregnancy tests. The side effects that were reported for these eight episodes were five cases of amenorrhoea, two of excess bleeding and, one of abdominal pain prior to menstruation.

Switching between the pill and the injectable appears to be a long-term strategy for some women.

[5] The Marie Stopes clinics recommend the treatment of menstrual irregularities with oral contraceptives

No, nothing, sometimes after 3 months I took pill and got menstruation, for one month. I then return to injection after BDS 31

Menstruation will be cleared if pill is taken in the middle of injection. Again I will take pill and again menstruation will be cleared, and then again I will take injection. BDS 22

Vitamins were taken in five episodes to relieve the side effects of contraceptive use. In the case of the two injectable episodes, the side effect that was ameliorated by vitamin syrup or tablets was specified as weakness or physical weakness. In the case of the three pill episodes this specification did not occur, although in one case only one side effect was mentioned weakness. In the other two pill episodes where vitamins were used to reduce the side effects, a large number of different side effects were mentioned.

I had dizziness sometimes, had vomiting tendency, felt sleepy.

And ?

Abdomen-pain during before period, also waist-pain. BDS 6

Occasionally I suffer from dizziness. I can not stand erect, I see dimly I feel extremely weak, there is a burning sensation in my eyes and there is excessive menstrual discharge. BDS 23

A saline drip[6] is the other treatment that was mentioned by women. This was used to reduce excessive menstruation in one injectable episode, and physical weakness in another. The saline was used to reduce irregular menstruation resulting from one pill episode, and to ameliorate the following side effects in another

Yes. It burns in my stomach, it pains into the stomach and my body has become very weak. BDS 9

Table 7.7 shows that a number of different impacts were reported for those episodes of use where women sought medical advice and/or took medicine. Compared to the overall total for all episodes, there are two impacts for which medical intervention appears to be more likely to be used: where the woman was unable to do anything, and where sexual relations are affected.

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[6] Anthropologist Rozario (1998) reports the perception of an Australian Doctor Katrina Anderson, as to why the Bangladeshi women have such faith in saline drip. Dr Anderson believed this faith stemed from the dramatic effectiveness of intravenous fluid as a treatment for diarrhoea and dehydration.

Table 7.7 Impact of side effects for those episodes where medical attention and/or treatment were used as a strategy.

Impact	Saw Doctor only	Took medicine only	Saw Doctor and took medicine	Total	Overall Total
No impact	2	1	2	5	19
Had to work	-	3	-	3	6
No impact, felt bad	-	3	1	4	9
Difficult to do work	1	-	-	1	6
Work not done properly	1	1	2	4	11
Unable to do anything	-	2	6	9	15
No information	1	1	1	3	10
Total episodes	**5**	**11**	**12**	**29**	**95**
Sex	1	3	3	7	14
Economic	-	1	1	2	8

7.3.4 Rest

Those women who rested to reduce the side effects all managed to do some household work. One of the five was unable to complete her work but the other four completed the work, three as they 'had to',

> *I had to work because I have to do it. During my work, I have to take rest after some times* BDS 8

One stated that the side effects had no impact on her work but that she felt bad completing it.

The side effects that were associated with resting as a strategy were numerous. Only one episode of the pill reported a single side effect, dizziness. The other four episodes listed between two and five side effects. The two injectable episodes listed two and four side effects and the other two pill episodes listed four and five.

7.3.5 Discontinued

When discussing the strategies used to reduce side effects, 16 women discontinued 18 episodes to reduce the side effects. There is an important distinction to be made about these women, they state that they used discontinuation as a strategy.

> *I had dizziness since I started taking pills. So, I thought it myself that I shall get rid of this side-effect if I give up taking pills* BDS 29
>
> *To reduce side effects, it is better to stop taking pills, I have stopped the use of pills* BDS 39

They did not just discontinue because of side effects, they discontinued to reduce the side effect(s). A total of 25 episodes in this study were discontinued due to side effects[7] and yet in only 18 was discontinuation specified as the strategy by which side effects were reduced.

The side effects that led to discontinuation in nine of the episodes were either the only side effect reported or were specified as the side effect that specifically led to discontinuation. Six of these episodes were of injectable use: three concerning amenorrhoea, one excessive bleeding and one excessive and irregular bleeding, and one a burning sensation in hands and legs. In the three pill episodes, dizziness caused two women to discontinue and a third discontinued because the continuous bleeding that she experienced for three months led her to feel weak.

In the nine remaining episodes, a number of side effects led to discontinuation as a strategy for relief. The two injectable episodes were accompanied by between three and five side effects: amenorrhoea, pain in waist and pain in abdomen, dizziness, vomiting tendency, can't eat, hands and legs feel weak, and no strength in body. Between two to four side effects were reported in the seven pill episodes, four of which included loss of appetite and dizziness or weakness.

The impact of the side effects that resulted in discontinuation ranged from 'no impact' to those that incapacitated the woman. The impacts of the eight injectable episodes were relatively evenly distributed between no impact felt bad, problems completing work and being unable to do work. One episode resulted in a wage cut, and four affected sexual relations. The side effects that were associated with less impact, e.g. no impact and 'no impact felt bad', were two of amenorrhoea and one of excessive and irregular bleeding. Two of the ten pill episodes were associated with problems in completing their work due to side effects, four where work was not possible, one where the women felt bad but there was no impact and, finally, two where no information was available. Disruption to economic duties and sexual relations was mentioned in two different episodes.

7.3.6 Other strategies

The main groups of strategies, or lack of them, have been described in the previous sections. This section includes a number of other strategies that were used by women to reduce the impact of side effects. One woman used oil and water to treat dizziness, another woman also reported using oil on her 'fontanel' to reduce side effects. The reason for this is explained in the following quote

> You pour hot water, massage with hot oil, use oil on head how did you know about these methods ?

[7] Multiple reasons for discontinuation were possible

My mother taught me - she told me 'you will feel dizzy if your head is dry, it will make you weak - you should use oil in head. BDS 17

The above respondent relied on her eldest daughter to help look after her other children, a strategy that she used to reduce the impact of side effects on her life. There were two other episodes where children were involved in the strategies to reduce (the impact of) side effects; in one, the eldest daughter did the housework and, in another, the children massaged their mother's waist to reduced the pain that the woman experienced.

Other individuals who helped reduce the impact of side effects by taking over some of the woman's duties include one woman's mother and, in another case, the husband looked after the children because his wife was confined to her bed.

In Chapter Two the perception that the pill is powerful and that therefore 'one needs to takes breaks or rests' from it was discussed. One woman in this study used this strategy to reduce the weakness that she reported as a side effect of shukhi.

I feel weak more and more, then I stop it for several days and after menstruation I start again. BDS 32

7.3.7 The use of multiple strategies

Of the 50 episodes where strategies were used to combat side effects, a single strategy was reported in 37 of them. In the remaining 13 episodes, 11 were associated with the use of two strategies and two with three strategies. Of the 11 who used two strategies, four attended a clinic and were recommended to discontinue use. Of the other seven episodes in which two strategies were reported, two used medicine, in one the husband bought pills that did not work and the women subsequently discontinued and in the other the woman took a saline drip and her husband looked after the children. In two of the other episodes, the eldest daughters helped their mothers, and in one the woman used oil and water and in the other she discontinued. In the three remaining episodes, a combination of the following was used - rich foods and discontinuation, rest and ate sour things and, finally, rest and discontinuation.

In the episodes where three strategies were used the following combinations were described -the use of water and oil, good foods and taking rest and, in the other, medicine, rest and mother helped the woman with her chores.

7.4 Outcome of use

There are a number of possible outcomes of an episode of contraceptive use. This section will examine the episodes of current use before going on to examine those who discontinued, by reason for discontinuation. Table 7.8 provides a summary of the outcomes of all the urban episodes of contraceptive use.

Table 7.8 Outcomes of the urban contraceptive episodes

Outcome of Episodes	Injectable	Pill	Total
Continued use	16	16	32
Discontinued			
Due to side effects	10	20	30
To have a baby	1	6	7
Missed injection date	7	-	7
Forgets to take pill	-	7	7
Cost	1	4	5
Took to check that not pregnant	-	5	5
To get method of longer duration	3	-	3
Not available	2	-	2
Other	3	12	15
Total episodes	**40**	**55**	**95**
Discontinued for combination of reasons	3	12	15

7.4.1 Continued

The most commonly reported outcome of an episode was to continue using the method. Since this study took place in a reproductive health clinic, this is unremarkable. What is important, is an understanding of the contraceptive experience of those episodes where use was maintained, so that this can be compared to the episodes discontinued due to side effects.

Comparison of the side effects reported for current episodes and those associated with discontinuing use found that there would not appear to be a pattern of a particular side effect being more frequent among those continuing as opposed to those discontinuing use. In the case of pill episodes those associated with no side effects appears more frequently associated with continued use. In addition, fewer current users of the pill report suffering from dizziness.

None of the injectable current use episodes were associated with no side effects, but the most frequent impact of side effects was that they had no impact. In the case of those who were using at the time of the interview, information on impact was available for 13 of the 16 episodes. Of this 13, eight episodes were associated with side effects that had no impact on the woman's life. In the case of current pill episodes, these were associated with a variety of impacts although, as previously mentioned, most of the current users reported that no side effects associated with use. Among the current episodes of both the injectable and the pill, not one woman reported that sexual relations had been affected by contraceptive use. Current injectable and pill use affected economic activities.

7.4.2 Discontinued

There were two dominant outcomes of the episodes of contraceptive use, to maintain use or to discontinue due to side effects (see Table 7.8). Before going on to discuss in detail discontinuation due to side effects, all other reasons for discontinuation are discussed.

Of those episodes that were discontinued, most were discontinued for a single reason but, in 12 episodes, more than one reason was given. In the following sections the specific reasons, regardless of whether it was the only reason mentioned or not, are discussed. The multiple reasons for discontinuation are discussed in a separate section.

7.4.2.1 Discontinued to have a child

Seven episodes were discontinued in order to have a child, six pill and one injectable, and in two of these, this was not the only reason for discontinuation. In one of the seven episodes there were no side effects it was simply that

Everyone tells me to take a baby BDS 46

The injectable episode reported a single side effect, body withers, but no information was available for the impact of this. One woman using the pill experienced weakness, but stated that this had no impact. She thought that if she became a mother her husband would stop beating her. Another, also using the pill, experienced weakness and had difficulties in doing both her domestic and economic duties. She used no strategy to reduce the side effects and discontinued simply to become pregnant.

In the remaining three episodes the women were unable to do anything due to side effects; in two of these episodes the desire to have a child was only one of the reasons for discontinuation given. In one case the husband, father in law and mother in law all said she should have a baby. This woman had already been to the doctor and had a saline drip to reduce the dizziness, inability to eat and irregular menstruation that she experienced. One woman was unable to do anything and also reported difficulties in sexual relations. In another, the side effects- vomiting, dizziness, loss of appetite and headaches - were stated by a neighbour to be the same as pregnancy. The neighbour stated that it would be better to have a child than experience these side effects. The husband had bought tablets but they had not worked. In the final episode, the husband stated that it was better to have a baby as the pills cause harm, whether this was a general comment or due to the bad smell, weakness and dizziness that the woman experienced is not clear.

7.4.2.2 Missed the date to have the injectable.

The seven episodes that were discontinued because the date set for the next injection was missed can be divided in two. One, including three episodes, is where the woman forgot to return to the

clinic on time. The other is that she was away in her home village at the time the injectable was supposed to be administered. Much of the urban population of Bangladesh regard the rural village in which their family live as their 'home'. While some go back to the villages every weekend, the majority return to their village for the Eid holidays and in some cases to help with the paddy (rice) harvest.

Two of the episodes that were discontinued due to the woman forgetting the date were not associated with any side effects. The remainder were associated with between one and five side effects, and the following impacts: no impact felt bad, no impact, can't do anything and two episodes where the side effects made household duties difficult.

7.4.2.3 Discontinued as forgets to take the pill

Seven episodes of the pill were discontinued as the woman forgot to take the pill on a daily basis

I forget to eat everyday BDS 37

But in one episode

Once I went to my father in law's house and forgot to take pills. BDS 41

In two of these episodes no side effects were reported. In the remaining five, the side effects involved in two episodes had no impact but the woman had felt bad, in another two, the woman had difficulties or could not work properly, and in the fifth episode the woman was unable to do anything.

7.4.2.4 Discontinued due to cost

Four pill and one injectable episode were discontinued due to cost. The issue of cost arose in a number of different ways. In one episode the cost of maya (a brand of pill) increased due to a decline in its availability, so the woman switched to another brand and, in another episode, the husband was not available to give the woman money so she could not buy the brand she wanted. In a third, due to a change in financial circumstances, the woman switched to a brand that was available for free. One woman discontinued the pill and adopted the injectable since it was cheaper. One injectable episode was discontinued because the method was simply too expensive

We are poor people. For each episode of injectable we need to pay 20 taka. So I need 20 taka at an interval of three month. I cannot bear this expense anymore.

BDS 40.

7.4.2.5 Discontinued pill as taken to check that not pregnant

In five pill episodes the explicit rationale behind taking the pill was in order for the woman to check that she was not pregnant. Therefore the women discontinued once menstruation occurred. In two episodes, the only reason for discontinuation was to prove a non pregnant state and in

these episodes the women were unable to do anything due to the impact of dizziness. One of the other episodes was discontinued due to a combination of side effects and taking the pill to prove a non-pregnant state. In this episode the woman had to work despite the side effects: body burns, stomach burns, weakness and dizziness, and sexual relations were disrupted. In the other two episodes, three reasons for discontinuation were given forgets to take, side effects and to check that not pregnant. In one of these episodes the side effects had no impact on the woman's life but she felt bad and, in the other, she found it difficult to complete tasks.

7.4.2.6 Discontinued to get a method of longer duration

Three episodes of the injectable were discontinued in order to adopt a method of longer duration. The motivations for a method of longer duration were all slightly different. In one case the woman was returning to her home village where obtaining the injectable every three months would be more difficult. In another, the woman was worried that she might forget the date for the next injection, and the third stated that the injectable was too expensive and she wished to take a longer duration method.

Two of the episodes were associated with side effects that had no impact and, in the third, the woman was unable to work properly because of the side effects.

7.4.2.7 Discontinued as the method was not available.

Three episodes of the injectable were discontinued as the clinic had run out of supplies.

7.4.2.8 'Other' reasons for discontinuation

Table 7.9 lists the 'other' reasons for discontinuation. In the case of the injectable two episodes were discontinued due to rumour and the third due to poor advice. The 'other' reasons given for pill discontinuation ranged from: hepatitis, going to become a grandmother, injectable became available again, and does not like to take every day.

Table 7.9 Other reasons for discontinuation, Urban women

Reason(s) for discontinuation	Injectable	Pill
People doing HIV testing told her that she had been using for so long that she would be covered for the next six months and therefore did not need to take it. She got pregnant and was then unable to receive menstrual regulation due to Hartals[8]	1	-
Health did not change, adopted norplant	-	1
Injectable became available again		1
Woman nearby said would get cancer if used for too long	1	-
Diabetes	-	1
Hepatitis	-	1
All doctors went home for Eid so bought other brand	-	1
Someone said that injectable use will destroy kidney	1	-
Because going to become a grandmother	-	1
Relatives said that if take pill will die	-	1
Dangerous to take for 6 months	-	1
Does not like to take everyday	-	1
Husband stays out (away)	-	1
Was told that child would get (breast)milk if took Shukhi (a different brand)	-	1
Thought that husband would stop beating her if she became pregnant	-	1
Total	**3**	**12**

7.4.2.9 Discontinuation for more than one reason

Three injectable and 12 pill episodes were discontinued for more than one reason. In the case of the injectable episodes, two episodes were discontinued due to side effects and, in one case a rumour that injectable use destroys the kidneys and, in the other episode the woman stated that she had missed the date to obtain the next injection. In the other episode the woman discontinued as the injectable was too expensive, 20 taka[9], and also because she wanted a method of longer duration.

Four of the pill episodes were discontinued due to a combination of forgetting to take the pill and side effects. Of all the episodes discontinued for more than one reason, side effects were partly responsible in nine, forgetting to take in five, cure menstrual disturbance/check that not pregnant in three, have a baby in two, cost in two and five for 'other' reasons.

7.4.2.10 Discontinued due to side effects

Eight injectable episodes and 12 pill episodes were discontinued solely due to side effects. The total number of episodes where side effects were mentioned as a factor contributing to the decision to discontinue was 30, ten injectable episodes and 20 pill episodes. The discussion on discontinuation due to side effects is divided by method due the different side effects associated with the each method.

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[8] National strikes

[9] $1= approximately 50 Taka at the time of the field work.

Injectable

In eight of the ten injectable episodes, specific side effects were identified from among those experienced, as those that lead to discontinuations. In most (7) cases only one or two side effects were mentioned. Only one of the injectable episodes resulting in discontinuation due to side effects was not associated with a menstrual disturbance. In six of the episodes amenorrhoea was reported, in three excessive menstruation and one irregular bleeding.

Table 7.10 is included to compare the side effects leading to discontinuation, to the total reports of that specific side effect. However this table does not give any clear indication of the dominance of any side effect as a reason for discontinuation.

Table 7. 10 Single side effects responsible for injectable discontinuation due to side effects

Single side effects	Episodes that discontinued due to side effects (N)	All episodes (N)
Amenorrhoea	6	22
Excess bleeding	3	8
Pain in waist	1	7
Vomiting/vomiting tendency	1	1
Dizziness	2	8
Neck ache	1	1
Abdominal pain due to amenorrhoea	1	3
Weakness	1	12
Irregular bleeding	1	4
Number of episodes	**10**	**40**

The women who discontinued the injectable due to side effects reported a range of impacts on their domestic lives, not one reported no impact. Table 7.11 shows the different impacts reported.

Table 7.11 Impact of side effects, all injectable episodes compared to episodes discontinued due to side effects

Impact	Episodes discontinued due to side effects (N)	All episodes (N)
Impact on domestic roles		
No side effects	-	4
No impact	-	12
No information	-	5
No impact felt bad	2	4
Had to work	1	4
Difficult to work	2	3
Could not do work properly	2	4
Could not do anything	3	4
Impact on other sphere		
Affected sexual relations	5	7
Affected economic role	-	3
Total Episodes	**10**	**40**

It appears that for the injectable the greater the impact of the side effects the more likely the woman is to discontinue. In addition to this close relationship there are two other factors that influence discontinuation due to side effects.

Domestic/household roles are not the only realm to be affected by contraceptive use, and the impact on other spheres also led to discontinuation due to side effects. It is clear in Table 7.11 that disruption to sexual relations is linked to discontinuation due to side effects. Of the five episodes where sexual relations were disrupted and the woman discontinued due to side effects, in one the husband was described as becoming crazy for sex and in another the woman discontinued so that her husband would stop beating her. The reason that he was beating her was that excessive and irregular bleeding was reducing the frequency of sexual relations.

Of the injectable episodes that were discontinued due to side effects, in three the women explicitly stated that they were discontinuing the injectable to adopt the pill, and thereby cure the menstrual disturbances they were experiencing. The impact of menstrual disturbances for these women was primarily on their perception of their own health, the domestic impact in these episodes were; no impact felt bad in two episodes, and had to work in one. To return to Table 7.11, if these three episodes were removed from the table, the relationship between impact of injectable side effects and discontinuation due to side effects is even more striking.

Pill

In the majority of pill episodes (12) a single side effect was responsible for discontinuation, and in only three episodes was the number of side effects responsible greater than two. Table 7.12 lists all the separate side effects that led to discontinuation; these are compared to the side effects mentioned in all of the pill episodes reported in this study.

Table 7. 12 Single side effects responsible for pill discontinuation due to side effects

Single side effects mentioned	Episode that discontinued due to side effects (N)	All episodes (N)
Dizziness	13	26
Weakness/sleepy feeling	4	21
Vomiting	3	5
Vomiting tendency	2	7
Can't eat	2	7
Pain in abdomen pre period	1	1
Hazy vision	1	1
Body burns	1	1
Body swollen	1	1
Bad smell	1	2
Stomach pain	1	3
Irregular menstruation	1	2
Excessive period	1	3
Number of episodes	20	55

As was the case for those side effects associated with injectable discontinuation, there does not appear to be a clear relationship between side effects associated with pill discontinuation and those reported in other episodes.

Unlike injectable discontinuation due to side effects, where there was a clear relationship between impact and discontinuation, in the case of pill discontinuation due to side effects the relationship is less straightforward, (see Table 7.13).

Table 7.13 Impact on domestic roles, injectable episodes

Impact	Episodes discontinued due to side effects (N)	All episodes (N)
No side effects	-	5
No impact	2	7
No information	2	4
No impact felt bad	2	5
Had to work	2	2
Difficult to work	2	3
Could not do work properly	4	7
Could not do anything	6	11
Total episodes	20	55

The impacts outside the domestic sphere have a clearer relationship to discontinuation due to side effects. In six of the seven episodes where sexual relations were affected the woman discontinued using the pill. The disruption elicited a range of responses from the husband. In one case the husband did not think that this was a problem, in another he did, and in two others when asked what her husband felt about the disruption to sexual relations, the women either replied that he told her to switch method or that he told her to go to the doctor. In one of the other cases the husband was angry with her and, in the other, the woman was forced to have sex.

Menstrual disturbances were mentioned in only two of the episodes where sexual relations were affected; one reported continuous menstruation for three months and another irregular menstruation. In the other four cases, a variety of side effects were mentioned: dizziness, dizziness and loss of appetite, burns the body, dizziness and weakness and finally, dizziness, vomiting tendency, pain in abdomen before period and hazy vision.

In three pill episodes the woman's economic work was affected by side effects. Among the women interviewed in Dhaka, working outside the home was an economic necessity and therefore any impediment to this could have severe consequences.

> *I used to feel sleepy you know, my job is production orientated, if I cannot fulfil my target then my supervisor will shout at me. This is the problem.* BDS 37

In one case

> *Because of the condition of my body – I could not work, attend my regular duty.*

Later in the interview

If I were absent for 2 to 3 days, they used to scold me, used to show me absent for 3 days if I were absent for two days etc.

You had any harm for being absent?

Of course, they used to deduct my wage. BDS 18

Having examined the impacts outside the domestic realm, the impact on domestic life appears more closely associated with pill discontinuation (see Table 7.14). Not however, to the extent that all those episodes with severe impacts due to side effects lead to discontinuation due to side effects.

Table 7.14 Impact of pill side effects on domestic role, categorised by reported impact on sexual or economic activities

	Discontinued due to Side effects			All episodes (N)
Impact	Disruption to sexual relations	Disruption to economic role	Other episodes discontinued due to side effects (N)	
No side effects			-	15
No impact			2	7
No information			2	5
Had to work	2		-	2
No impact felt bad		1	-	5
Difficult to work	1	(1)[1]	1	3
Could not do work properly	1	1	3	7
Could not do anything	2		4	11
Total	6	3	12	55

[1] In one episode sexual relations and the woman's domestic and economic roles were affected therefore to avoid double count this is included only once.

At this point it is important to go back and examine those episodes where the impact of side effects on the woman's life was great and yet she did not discontinue due to side effects. As can be seen from Table 7.14, in five episodes the woman could not do anything due to side effects and yet she did not discontinue due to side effects. In two of these episodes the pill was being used for a function in addition to its contraceptive properties, to induce menstruation and thereby prove a non-pregnant state. This is required by the clinic before a longer-term method, e.g. the injectable, is administered. In another episode, the woman continued use as she had been assured that it would get better after some time and, in a fourth episode, the woman discontinued to have a baby as her husband said that the pills cause harm; whether he felt this having witnessed the impact of her side effects is not clear. These considered, the relationship between impact and outcome becomes closer.

The relationship between side effect and impact in the case of the pill shows dizziness impacting at a variety of different levels. In Table 7.15 the incidences of dizziness are highlighted in bold to emphasis this point. The medical term for dizziness, vertigo, is known to have a variety of levels at which it can be experienced, from mild to feelings of total disorientation. In addition, an

individual's perception of this experience can influence the impact that dizziness then has on their lives (Yardley and Beech 1998).

Table 7.15 Pill side effects and domestic impact on women's lives

Impact	Side effects
Can't do anything	Can't eat, vomiting, bad smell
	Weakness
	Dizziness and vomiting
	Irregular menstruation
	Dizziness
	Dizziness
	Dizziness
	Dizziness
	Dizziness
	Continuous menstruation for three months
Can't do work properly	Body swollen – became fatty
Difficult to do work	**Dizziness** and could not eat
	Dizziness
No impact but felt bad	Vomiting tendency and **dizziness**
Had to work	**Dizziness**, vomiting tendency, pain in abdomen before period and hazy vision
	Burns body, dizziness and weakness
No impact	Stomach pain
	Felt very sleepy
No information	**Dizziness** and vomiting
	Dizziness and weakness

In this study, six of the 13 episodes where dizziness was reported as a side effect leading to discontinuation had a severe effect on the women's domestic activities, being unable to do anything.

7.5 Summary

This chapter has described a large number of side effects experienced by both pill and injectable users. Of the 76 episodes where side effects were reported, in 48 the women used a variety of strategies both to reduce the side effects themselves and to reduce the impact that the side effects had. This is further evidence of the dynamics involved in contraceptive use. Outside the demographic events of adoption and discontinuation there is the management of use within an episode.

There are clear similarities in the impacts associated with discontinuation for the two methods, one of which is the association between discontinuation due to side effects and disruption to sexual relations and, the other, that the greater impact of side effects on the women's lives the more likely she is to discontinue. In terms of the side effects leading to these impacts, and discontinuation, menstrual disturbances in the case of injectable discontinuation and dizziness in the case of pill discontinuation dominate. The results of this and the following chapter are discussed in full in chapter 9.

Chapter 8 Why do rural women discontinue hormonal contraceptive use due to side effects?

This chapter follows the same structure as Chapter 7, examining the side effects, strategies used and outcomes of the episodes, before focusing on those episodes that were discontinued due to side effects. Where similarities are found with Chapter 7, duplication will be avoided; for example, where the levels of impact reported are very similar. New themes and concepts are discussed in this chapter, and the similarities and differences between the two areas are discussed in Chapter 9.

Appendix 8.1 contains information on the household structure for each woman, and this sheet can be folded out and viewed while reading the text.

8.1 Side effects

8.1.1 Injectable

Thirty-six women in Matlab discussed a total of 54 episodes of injectable use. Thirteen episodes were not associated with any side effects and, of the remainder, 32 episodes were accompanied by between one and five side effects and in nine with five or more.

Table 8.1 lists all the side effects reported to be associated with injectable use in Matlab. The most frequently mentioned type of side effect concerned menstrual disturbance, the most common of which was amenorrhoea. Pain was the second most frequently mentioned side effect, and the distinction was made between pain and severe pain. The figures in parentheses indicate severe pain. The third and fourth most frequently mentioned groups of side effects were dizziness and weakness. In the case of weakness, unlike in Dhaka, the rural women did not describe a general feeling of weakness unrelated to side effects, but they frequently mentioned it as a side effect.

Among the side effects reported, there were some patterns in those side effects reported in the same episode. Considering the frequency with which menstrual disturbances were reported, it is unsurprising that, where patterns of side effects occurred, these involved the twinning of amenorrhoea and excess bleeding. In six of the ten episodes where excess bleeding was reported, weakness was also reported. This is an intuitive pairing since excessive blood loss leads to a feeling of weakness, especially among those who are very likely to be sub optimally nourished.

The other patterns involved amenorrhoea and either '*body felt heavy*' or '*body swelled*'. In seven episodes both these side effects were mentioned. Amenorrhoea was also paired with abdominal

or waist pain in five episodes. Similar to urban women, the women in Matlab associated amenorrhoea with the storage of 'bad blood'. Therefore the pairing of amenorrhoea with increased weight and/or waist/abdominal pain is an obvious one.

Table 8.1 Injectable side effects reported by rural women

Side effect	N
Menstrual disturbances	**34**
Amenorrhoea	20
Excessive period	9
Irregular menstruation	3
Spotting	1
No or very small menstruation	1
Pain[1]	**26**
Waist pain	7 (1)
Pain in hands and legs	5 (4)
Pain	3 (3)
Abdominal pain	3
Chest pain	3 (1)
Headache	3
Shoulder pain	2
Pain in joints	1
Body ache	1
Rheumatic pain	1
Dizziness	**18**
No side effects	**13**
Weak body/ weakness	**12**
Weight changes	**10**
Body felt heavy/more weighty	5
Body withers	3
Body swelled	2
Burning	**9**
Burning sensation in hands and legs	4
Fontanel burns	2
Burning pain between thighs	2
Head burns	1
Other	33
Palpitations	2
Breathing discomfort	2
Hurt when administered	2
Feels bad/ became sick	2
No appetite	2
Sleepy feeling	1
More urination	1
Numb feeling between joints	1
Numb feeling in hands	1
Shiver	1
Vomiting	1
Vomiting tendency	1
Fever	1
White discharge increases	1
Face becomes ugly	1
Can't sleep	1
Eyes irritate	1
Dizzy feeling in legs	1
Body shakes	1

[1] the figures in parenthesis are cases of severe pain

Sores develop	1
Abdomen becomes stiff	1
Itching in urinary passage	1
Health deteriorates	1
It felt dark	1
Could not walk	1
Could not see	1
Pain during intercourse	1
Felt tired	1
Total Episodes	54

Sixteen women described more than one episode of injectable use, only two of whom reported exactly the same side effects for each episode. In one case, the woman reported three episodes of injectable use, none of which was associated with any side effects. The other woman reported two episodes, both of which were associated with the *'fontanel burning'*. Three women reported the same side effects for different episodes of use, but also reported additional side effects. In these cases waist pain, weakness and amenorrhoea were reported. Four women reported completely different side effects, and six women reported no side effects associated with current use but side effects in previous episodes.

8.1.1.1 Comparison of injectable side effects reported in this study vs other sources

Table 8.2 compares the side effects reported in this study compared to the BDHS and Drug Company adverse drug reactions. In both the BDHS and this study amenorrhoea was the most commonly reported side effect. However, dizziness was the second most commonly mentioned side effect in this study but the fourth most common in the BDHS. Fewer women reported no side effects due to injectable use in the BDHS compared to this study.

Table 8.2 Different sources of data in the injectable side effects reported by rural women.

Side effect	BDHS 1994 %	BDHS 1996 %	ADR	This study
Amenorrhoea	24.8	17.6	√	1st
Weak/tired	18.4	13.4	√	3rd
Headache	15.9	11.7	√	(3)
Dizziness	5.6	3.6	√	2nd
Excessive bleeding	4.2	2.8	√	4th
Nausea	1.7	2.8	-	(1)
Weight loss	3.6	2.3	-	(3)
Hypertension	1.4	0.8	-	-
Weight gain	(2)	(1)	√	(5)
Transient infertility on discontinuation	-	-	√	-
Irregular bleeding	-	-	√	(3)
Prolonged bleeding	-	-	√	-
Abdominal pain	-	-	√	5th
Fluid retention	-	-	√	(2)
Any side effect	49.3	34.2	-	-
Number of episodes	359	471	-	54

8.1.2 Pill

Thirty-six women reported a total of 41 episodes of pill use. Six of these episodes were not reported to be associated with any side effects. The majority of episodes, 24 out of the remaining 35 were associated with between one and three side effects, and the remainder between four and nine.

Table 8.3 lists the side effects reported. Dizziness was by far the most frequently mentioned side effect of the pill; 30 of the 35 episodes reporting side effects associated with use reported dizziness. The next most frequently mentioned groups of side effect were vomiting/vomiting tendency and menstrual disturbances.

Only two of the respondents had used the same brand of pill in a previous episode of contraceptive use. For one, dizziness was reported for each episode and, for the other one, dizziness was reported in both episodes, and accompanied in one with menstrual disturbance, and in the other with '*little blood*'.

Table 8.3 Pill side effects reported by rural women

	Total
Dizziness	**30**
Vomiting/vomiting tendency	**11**
Vomiting tendency	5
Vomiting	6
Menstrual disturbance	**11**
Excess period	6
Irregular period	2
Menstrual disturbance	1
Spotting	1
Little blood and blackish blood	1
Pain	**8**
Headache	3
Pain in abdomen	2
Stomach pain	1
Waist pain	1
Rheumatic pain	1
No side effects	**6**
Physical weakness	**6**
Burning	**4**
Burning sensation in limbs	2
Body burns	1
Burning sensation	1
Other	**31**
Can't eat	3
Body palpitates	2
White discharge	2
Can't see	2
Can't open eyes	2
Constipation	1
Getting fat	1
Limbs shiver	1
Stomach problem	1
Restlessness	1
Pain in joints	1
Body shakes	1
Fontanel throbbing	1
Heart palpitations	1
Hot flashes	1
Feels uneasy/anxious	1
Fever	1
Pain during urination	1
No appetite	1
Tired	1
Irritation of the eye	1
Health improves	1
Slept all day	1
Eyes go dark	1
Body withers	1
Total episodes	41

8.1.2.1 **Comparison of pill side effects reported in this study vs other sources**

The frequency with which side effects were mentioned in this study differs from those reported by rural women in the BDHS. As previously mentioned, in this study dizziness was the most frequently reported side effect, whereas in the BDHS headache is the most common. While in this study weakness and tired feeling was the third most frequently mentioned, this was the second most frequently mentioned in the BDHS. Excess bleeding was another side effect more frequently mentioned in this study than in the BDHS.

Table 8.4 Different sources of information on the pill side effects reported by rural women.

Side effect	DHS 1994 %	DHS 1996 %	ADR	This study %
Headache	22.3	17.6	√	(3)
Weak/tired	16.3	13.3		3rd =
Nausea/vomiting tendency	6.3	6.7	√	2nd
Dizziness	4.3	3.8	-	1st
Weight loss	2.6	1.4	-	(1)
Excessive bleeding	2.1	1.0	-	3rd=
Weight gain	1.3		√	(1)
Amenorrhoea	0.8	0.8	-	-
Abdominal pain	n/a	2.8	-	(2)
Hypertension	0.4	0.4	c	-
Breast enlargement	-	-	√	-
Bloating with fluid retention	-	-	√	-
Cramps and pains in the legs	-	-	√	-
Vaginal discharge	-	-	√	-
Cervical erosion[1]	-	-	√	-
Breakthrough bleeding	-	-	√	-
Chloasma[2]	-	-	√	-
Any side effects	33.2	24.5	-	-
Total number of episodes	1348	1544	-	41

[1] inflammation of the epithelium

[2] Changes to the pigmentation of the skin

8.1.3 Comparison of injectable and pill side effects

Table 8.5 compares the side effects reported for the pill to those reported for the injectable. In this table the figures indicate the number of episodes where the side effect was mentioned. In addition to being the most frequently mentioned pill side effect, dizziness was also a relatively frequently mentioned injectable side effect. While all the main categories of side effects were reported for both methods, there is a clear pattern of side effects according to method. For the injectable menstrual disturbance, dizziness and pain are the most common side effects and, for the pill, dizziness dominates.

Table 8.5 Comparison of reported side effects, rural women

	Injectable	Pill	Total
Dizziness	18	30	48
Menstrual disturbance	34	11	45
Pain	26	8	34
No side effects	13	6	19
Weakness	12	6	18
Vomiting/vomiting tendency	2	11	13
Burning	9	4	13
Weight changes	10	2	12
Total	54	41	95

8.1.4

8.2 Impact

Taken together, 76 of the episodes reported by rural women were associated with side effects. Table 8.6 examines the impact of side effects on women's lives.

Table 8.6 Impacts of contraceptive use, rural women

Impact	Injectable	Pill	Total
No side effects	13	6	19
No impact	9	12	21
Had to work	13	2	15
No impact felt bad	2	1	3
Had to rest/delays	2	3	5
Difficult to do work	2	1	3
Unable to do anything	8	15	23
Unable to do heavy work	2	-	2
No information	3	1	4
Total	**54**	**41**	**95**
Sexual relations	4	4	8
Religious activities	-	2	2

The rural women predominantly live in agriculturally dependent, extended families and, while in some cases the household may be nuclear, it is located close to other family members. This context influenced the impact that side effects could have on women's lives.

In this environment wives are expected to work.

> *...this is my mother in law's house, I have to work despite my problems* BDS 78
>
> *Mother in law complained that I could not work. She said that since I am the eldest daughter in law I should look after everything* BDS 81

The implications of the women being unable to work are potentially severe in a joint agricultural based household. It affects more people, with their activities for example, the harvesting the paddy rice, having to be done by someone else and there are more people to complain or scold the women if she is not seen to be working hard enough. In this context it is not surprising that so many women stated that they had to work.

Examples were found where other family members helped the woman

Yes – they looked after me, worked themselves BDS 85

In this agricultural context for those in a nuclear family, there is no one to help, and these women also 'had to work' because of potentially different pressures. In an extended family the most immediate pressure are the expectations of family members and, in the case of the woman in a nuclear family, the economic necessity to undertake agricultural duties. While agricultural duties are the most stark example, family structure exerts the same pressures on the ability (or not) to complete household/domestic tasks.

Two additional levels of impact were reported by rural women - 'had to rest/delays' and 'could not do heavy works'. The following quotes illustrate the former category

Yes, I was not able to work I had to take rest on bed

……

The illness was not serious. I was feeling bad in the morning and became well after a while. BDS 65

Yes, I did take rest on bed while I felt these problems. After some time I became well and did work.

Did you have any problem in your family while you were in bed?

Yes, I could n't cook timely, so my husband couldn't eat timely. My children couldn't eat timely BDS 101

These women are carefully balancing the side effects and their potential impact(s), resting enough to get some relief but minimising the impact that the side effects can have on their duties.

In the case of those women who stated that they could not do heavy work, this concerned their ability to do agricultural tasks

As I said, I could not look after my harvest, couldn't do heavy works. BDS 83

*That time we had paddy (*from field*) but I could not do the needful, for processing rice etc.* (which women do), *I could not cook, had problem in feeding the baby.*

BDS85

As in the case of the urban chapter two case studies are presented to give further insight into the contraceptive experience of these women and the various pressures acting on them.

Case study 1

Parveen[2] was 27 at the time of the interview and had been married for 10 years. She lives in an extended household with her husband, two sons, father and mother in law and a brother in law. She describes giving up the pill after only two weeks due to the side effects that she experienced. The side effects left her unable to completed her household chores and in the absence of help from a sister in law or her daughter, who is too young to help, she discontinued. The absence of support that she describes implies that should she have had support at home she may have maintained use.

She also experienced problems using the injectable and describes how her husband and mother in law were justified in complaining when she was unable to complete her work. In addition to complaining her mother and husband called her names '*disabled woman*' due to her inability to work.

Case study 2

When Selina[2] was married at 16, some people told her to wait a while before she had her first child. However, her father in law, with whom she lives along with her mother and sister in law, stated that using the pill '*destroys the uterus*' and that she should have a child first. Her father in law's view prevailed and she had a child before using any contraceptive method. At no point did she describe her own wishes.

Later she adopted the injectable and experienced side effects that left her unable to do her household chores. The pressure on her to work was such that she stated that even if her father died she would have to work. She appears to accept this as she later asked the interviewer why should she be fed if she has not completed the housework.

In the first instance Selina said that her husband stuck up for her, asking his mother if she would treat her own daughter in this way. But later both her mother in law and her husband asked her what the use was of '*keeping*' a wife if she could not work.

[2] Not her real name

8.2.1 No impact

The nine injectable and twelve pill episodes where no impact was reported are summarised in Appendix 8.2.

8.2.2 Had to work

In 15 of the 76 episodes where side effects were associated with contraceptive use, the woman stated that she had to work in spite or despite of side effects; this was more likely in the injectable (13) than the pill (2) episodes. In the case of the injectable the number of side effects reported in episodes where the women had to work ranged from one to ten, but nine of these episodes were associated with a total of four or five side effects.

The most frequently mentioned injectable side effects were dizziness (ten episodes), amenorrhoea (eight), pain (eight) and weakness (five). The other side effects reported were excess bleeding, palpitations, increase in white discharge, weight changes, face becomes ugly, no appetite, head burns, eyes irritate, small or no menstruation, sleepy/tired feeling, itching in urinary passage, increased urination, vomiting tendency, sores develop, burning in hands and legs and shivering.

Both of the pill episodes where the woman reported that she had to work were associated with three side effects- dizziness, no appetite and weakness in one, and dizziness, health improves and vomiting tendency in the other.

8.2.3 No impact felt bad

At this level of impact the side effects do not affect the woman's activities but she explicitly states that she does not feel very well. In two injection and one pill episode the side effects associated with use had this impact. The injectable episodes were both associated with irregular menstruation and, in one episode, heavy body and pain in hands and, in the other, dizziness. Dizziness, vomiting tendency, and vomiting were responsible for one woman feeling bad, but with no impact, during an episode of the pill.

8.2.4 Had to rest/delays

The lowest level of tangible impact was when the woman had to rest and therefore the completion of chores was delayed. There was a number of women who stated that they would like to rest but they 'had to work', or who managed to work and rest but not so that any of their work was disrupted. This is discussed in the section on 'strategies'.

The two injectable episodes reported the following side effects: weak body, dizziness and excessive period, and amenorrhoea and body becomes heavy. One of the pill episodes associated

with 'having to rest' described five side effects associated with use, another reported six and the third reported three. All three episodes reported dizziness and a menstrual disturbance, excess period, bleeding and irregular menstruation. The other side effects mentioned were weakness, white discharge, vomiting, tendency vomiting, pain in waist, burning in hands and legs, rheumatic pain, body shakes, fontanel throbbing and heart palpitations.

In one of the injectable episodes the woman reported disruption arising from their having to rest due to side effects

> Does it create any problem in your family?
>
> *Yes*
>
> What types?
>
> *For example, I have to compete with other wives of this house, I become slow*
>
> BDS 64

8.2.4 Difficult to do work

Three episodes of use were associated with side effects that made the completion of activities difficult. In one injectable episode weakness was responsible and, in the other two, amenorrhoea and a numb feeling in the joints were reported as responsible. Additional side effects were reported for the pill episode where it was difficult to complete chores; these were dizziness and excessive period.

8.2.5 Unable to do anything

Twenty-three of the 76 episodes, where side effects were reported, resulted in the woman reporting being unable to do anything due to the side effects. The 23 were made up of eight injectable and 15 pill episodes. The lowest number of side effects mentioned, for an episode where a woman was unable to do anything, was two. Three episodes were associated with three side effects and two with six side effects. A range of side effects was mentioned, the most common of which included menstrual disturbances, dizziness and pain in various sites.

Of the 35 pill episodes where side effects were reported, in 15 the side effects were such that the woman was unable to do anything. The number of side effects reported in these episodes ranged from one to seven, although most (eight) only reported one or two. Dizziness, vomiting tendency and loss of appetite were all frequently mentioned.

In eight of the 23 episodes where the woman was unable to do anything, she reported disruption or scolding due to her inability to work. In two injectable episodes and six pill episodes this type of disruption was reported. The type of disruption varied, as illustrated below

> That you couldn't do any housework, did your mother in law tell you anything?

There is always quarrels if we do not do the housework BDS 92

Yes, they say, they shout to me, because I can't work in the family/ BDS 66

And when you couldn't work – did your mother in law complain?
She did. She called me names.
Then?
She advised me to see doctors. I went. BDS93

8.2.6 Unable to do heavy work

In this case the women made the distinction between general household work and heavier, frequently agricultural, work and her ability to do one but not the other. Both of these injectable episodes report four side effects including pain in the hands and legs.

In one of the injectable episodes where the woman was unable to do heavy work the woman reported

Now we have paddy but I can not do any work
Do you have any problem from your in laws/husbands side for this?
RESPONSE NOT CLEAR
What kind of problem?
Would they give me rice if I can't work? BDS 85

8.2.7 Sexual relations

In eight episodes, four injectable and four pill, women reported that sexual relations were disrupted due to side effects. Single side effects were identified. In two episodes excess bleeding led to a disruption in sexual relations and, of the other six episodes, two described stomach or waist pain, two vomiting tendency, one amenorrhoea and one pain between the thighs as side effects that resulted in problems in sexual relations.

In five of the eight episodes where sexual relations were affected the husband's reaction to this was reported. In two episodes the woman simply stated that she could not *serve* her husband properly. *Serve* is a euphemism for sexual relations. In one the husband was reported to be annoyed about the disruption to sexual relations and he asked his wife to discontinue, in another he scolded her and, in the sixth, the husband shouted at his wife. The following quotes illustrate husbands' reaction to the disruption of sexual relations

What sort of problem do you face with your husband?
These thing

Please say

I can't talk to him properly or make him satisfied. These sort of problem

BDS 81

Didn't he become annoyed? Please speak up

Yes, sometimes BDS 97

The interviews in the rural area usually took place in the presence of other people and that women may not have felt able to discuss a sensitive topic such as sexual relations. It is therefore likely that the disruption to sexual relations is under reported. Of the total of 15 episodes where excess bleeding was reported, in only two were sexual relations stated to have been disrupted. In addition to this, the reaction of the husband to menstrual disturbance is also a sensitive topic and, as can be seen in the above quotes, women may be reluctant to discuss this.

8.2.8 Religious activities

Two pill episodes were associated with excess bleeding that disrupted religious activities. In one case the woman could not fast or pray due to the bleeding and, in the other, the woman stated it was difficult to pray. Considering the fact that 15 episodes reported excess bleeding, greater disruption to religious activities may have been expected.

8.3 Strategies

A total of 76 episodes described by rural women were associated with side effects. In 14 of these no strategy was used for the side effects and in 13 no information was available on strategies. Of the remaining 45 episodes, in 32 a single strategy was used to reduce the impact of side effects.

8.3.1 Did nothing

The six injectable and eight pill episodes where no strategy was used are summarised in Appendix 8.3.

8.3.2 Consumed certain food.

The second most frequently mentioned strategy against side effects was the consumption of different, but specific, foodstuffs. The use of food as a strategy against side effects was more common for the pill, (11 of the 20 episodes), than for the injectable (5 out of 29 episodes). Three different types of foods were described, in eight episodes, milk and/or eggs were eaten. The rationale behind this is illustrated below

Well as I was becoming weaker day by day. So I ate milk and egg to get energy.

BDS 70

...I went to the doctor. He said that my physical condition was not good and that's why I was suffering.

.....

So the doctor advised you to take milk or egg?

Yes, he said since I feel sick I should take these things. BDS 81

In four episodes juice was consumed and in another four, sherbet/sorbet (sherbet is a drink made from lemon juice, sugar and water). Other food stuffs mentioned included bread, coconut milk, mango, tamarind and pickles.

In addition to the three types of food, eggs/milk, juice and sherbet, three other definitions of food types were given; good food, cool/cold foods and sour foods. Eggs and milk as described in the above quote are good foods giving strength. Milk is also considered to be a cool/cold food, but sherbet/sorbet was the primary cooling food.

Bhabi[3] *said to drink sorbet, it will keep the body cool – but how shall I have it* (can't afford) BDS 62

...when one has burning feeling in hands, legs, sherbet may cure BDS 87

What happens if sherbet is taken?

It keeps the head cool. The body remains cool BDS 88

This study did not achieve a significant level of understanding of women's views of the impact of contraceptives on their health. However, requirement that good foods be consumed in is line with previous studies in Bangladesh (Salway and Nurani 1996, Schuler *et al.* 1995), and the concept of 'cooling' ergo the heating effect of the contraceptive, agrees with the study in Sri Lanka (Nichter and Nichter, 1996). The concept of sour is a familiar one in Chinese and Ayuvedic medicine, but its function in this context is not clear.

Egg, milk and sherbet are all seen as cooling. The sour foods that were reported included unripe mango and tamarind. The side effects that were combated using cooling or sour food were specified in 13 episodes. In ten episodes for which dizziness was reported, in five this was accompanied by burning sensation (2), vomiting tendency (1) or vomiting (2).

8.3.3 Taking medicine and/or consulting a health professional

In Matlab, CHWs (Community Health Workers) visit households every two weeks. The CHWs are trained in contraceptive methods, maternal and child nutrition, oral rehydration and tetanus toxoid. The CHWs provide contraceptives and some basic medicine and refer patients to the clinics.

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[3] *Bhabi*, means sister is law in Bangla, and is used in the absence of lineage as a term of respect and familiarity. *Apa* meaning sister is another widely used term.

In eight episodes, a health professional's advice about side effects was sought, in nine medicine was taken and, in 15, a health professional's advice was sought and medicine taken. The term 'health professional' is used, as it was not always the CHW's advice that was sought.

In 24 of the 41 injectable episodes in which side effects were reported, health advice and/or medicine was taken. Of the total of 24 episodes where medicine was taken, 20 related to injectable use. In 15 episodes, a single side effect was responsible, ten of which involved a menstrual disturbance. The common cure for a menstrual disturbance was the pill to regulate the period (five episodes) or an unspecified pill (one episode). In the remaining four episodes one woman took iron tablets due to excess bleeding, and another woman was sent to her parent's house for treatment as her husband could not afford the expense. In the third, the doctor told the woman that she would bleed for three months and, finally, one woman was given vitamins as her body withered due to excess bleeding.

In relation to the other five injectable episodes where specific side effects were identified, one involved the woman using powder to cure the itching between her thighs; in another, the doctor suggested that she eat rice or bread once a day to cure dizziness, and one woman took a painkiller from the CHW to treat the pain in her hands and legs. In the other two episodes, the women's husbands bought medicine, in one case for weakness and in the other for itching in the urinary passage.

The fact that the husband bought medicine is an important aspect of the strategies available to women. As previously mentioned, the CHWs can refer patients, but the key issues are whether the women can go to see a doctor and whether the family can afford this expense. While this access issue was not explicitly examined in the interviews, comments made by the women indicate that access can be a problem.

> *I went to other doctors, and had check up, they gave me medicine. The health workers do not provide medicine.* BDS 83

In their qualitative study in Matlab, Schuler *et al.* (1995) also noted the dependence of women on the CHWs and their lack of access to alternative health advice, and their isolation should they experience side effects in the time between CHW visits.

In 10 of the 24 episodes where medicine was taken, and/or health advice sought, the women reported their husbands' involvement. In three of these episodes the husbands took their wives to the doctor and in the other seven they bought medicine/vitamins for their wives. In the latter seven cases, it is not clear if the husband extensively discussed symptoms with their wives, the pharmacists or the doctors.

To return to the injectable episodes, in the remaining nine episodes no single or specific side effect was identified that led to medical treatment/advice being sought. There were no specific patterns of side effects reported in the episodes.

In eight pill episodes, medical treatment and/or advice was sought; in two of these only one side effect was mentioned- dizziness or excess bleeding. In the case of dizziness, the husband took his wife to the doctor and she was cured and, in the second, the woman was instructed by her mother in law to go to the doctor. As was the case with injectable episodes where specific side effects were not mentioned, there did not appear to be any patterns between the type of medical treatment or advice and the side effects reported. Also similar is the fact that, of the eight pill episodes, in two the husband took his wife to the doctor and in another one he bought the medicine.

8.3.4 Rest

In five injectable and two pill episodes rest was taken as a means to reduce side effects. As mentioned in Section 8.2.4 there is a distinction between those women who used rest as a strategy which did not impact on their lives and those who took rest and it did impact. Those cases where resting resulted in delays to the woman's life were discussed in Section 8.2.4. While a complete overlap between resting as a strategy and the impact of 'had to rest/work delayed' may have been expected, in only two of the five episodes where the woman had to rest, was resting described as a strategy against the side effects.
While how much resting is required to get relief from side effects is dictated by the side effect(s), the woman's ability to take this rest will be shaped by the context in which she lives.

> You told that you had to take rest due to your problem, did you face any problem from your husband, father and mother in law?
> *No. I did rest during my free time* BDS67

> *When I felt bad, I lied down or pour water on head, or bathed and then lied down – not for long.* BDS74

In some cases the woman was unable to rest

> *I wished to have some rest, but I can't* BDS 78

And in others the rest impacted on her life

Well it would because, I had to go for rest despite having work. So other work have to be completed by others. Which means it's create extra load on other family member. So they did mind the matter. BDS71

Five of the seven episodes that used rest as a strategy reported dizziness as a side effect and, in one episode, this was the only side effect mentioned. Four of the episodes reported a menstrual disturbance, excess bleeding (2) irregular bleeding or amenorrhoea. Other side effects mentioned include weakness, biting pain in chest, vomiting tendency and palpitations.

As previously stated, two of the seven episodes were associated with delays in work due to resting. In four of the episodes the woman stated that she had to work, and in one there was no impact but she felt bad.

8.3.5 Method discontinued

In seven of the episodes the method was discontinued as a strategy to reduce side effects; in this case, discontinuation is an explicit strategy as opposed to an outcome.

All five of the injectable episodes in which discontinuation was the strategy against side effects reported a menstrual disturbance, two of excess bleeding, and three of amenorrhoea. Continuous period was the side effect reported for one pill episode where discontinuation was the strategy used and, in the other, pill episode the method was discontinued in order to reduce dizziness, weakness, headache, pain in joints and vomiting tendency.
In four of the episodes where discontinuation was used as a strategy the woman could not do any work, in one she had to work, another she had to rest and for another there was no information on impact.

In three of the episodes the women stated that she had been told by 'someone else' to discontinue, someone else being a doctor, a health worker or her husband.

8.3.6 Pouring oil and water on head

In six episodes oil and water were used as a strategy. The following quote illustrates the rationale behind this strategy

We cannot afford doctor always as we are poor used water - oil on head - what else should we do ?

How did you know that dizziness can be reduced this way ?

We are Bengali - we use oil-water when have dizziness - it is common. BDS86

All six episodes reported either dizziness or fontanel burns as side effects and, in five, this was the only side effect reported.

8.3.7 Other strategies

Other strategies used include drinking more water, pouring water on legs to reduce the burning feeling, getting daughters to help with the work, drinking water blessed by religious leader and being exorcised. Finally, one woman was hospitalised due to excess bleeding although this is potentially an outcome of use rather than a strategy.

8.3.8 Multiple strategies

In 17 episodes more than one strategy was used to reduce side effects. In the case of four episodes, the strategies involved both food and a health worker being consulted/medicine being taken, in two medicine and rest, and, in another three, consulting a health professional and discontinuing. In the remaining eight episodes a variety of combinations were reported. Overall, food consumption and rest were the two strategies that were most frequently part of multiple strategies employed. This is unsurprising for two reasons; one is that the reports of these two strategies independently were relatively common, and the second reason is that, compared to medical treatment, these two strategies are much more accessible to women.

8.4 Outcome of use

Table 8.8 lists the outcomes of each of the rural episodes of use. The most frequently mentioned outcome is discontinuation due to side effects. The second most commonly reported was to continue use, and the third to discontinue to have a child. As in Chapter 7, the episodes that were in progress at the time of the interview are discussed before examining those episodes that were discontinued.

Table 8.8 Outcome of the rural contraceptive episodes

Outcome of Episodes	Injectable	Pill	Total
Continued use	20	13	33
Discontinued			
Due to side effects	24	13	37
To have a baby	12	8	20
Rumour/fear	3	5	8
Took to regulate menstruation	-	5	5
Forgets to take pill	-	3	3
Cost	-	2	2
Other	3	4	7
Total episodes	**54**	**41**	**95**
Discontinued for combination of reasons	8	12	20

8.4.1 Continued

Thirty-three of the 42 respondents were using the method at the time of the survey. Twenty women were using the injectable and 13 the pill. The discussion of those episodes that were current at the time of the interview is divided by method.

In eight of the 20 current injectable episodes no side effects were reported, this being the most frequently reported response. Amenorrhoea, dizziness and weakness were all reported in a number of episodes, but comparison between discontinued and current episodes show that many more episodes reporting these side effects were discontinued. As expected, the report of no side effects was more frequent among 'continuers' than 'discontinuers'.

A smaller range of side effects was found for current pill episodes compared to the injectable episodes. Dizziness was the most frequently mentioned side effect but this was also frequently mentioned among those who discontinued use. Only two of the current pill episodes reported no side effects.

Household impacts range from no impact to unable to do anything. There is some evidence that the less the injectable impact, the more likely the woman is to be a current user. The same cannot be said about the current pill episodes. In terms of the other impacts, no obvious pattern is evidence in terms of disruption to sexual relations, and the number of episodes where religious activities were disrupted is small.

8.4.2 Discontinued

8.4.2.1 Discontinued to have a child

Twelve injectable episodes and eight pill episodes were discontinued so that the woman could become pregnant. Of these 20 episodes, six were associated with no side effects and, in a further six, the side effects were reported to have had no impact on the woman's life.

Of the remaining eight episodes, in one there was no information on impact available, in two there was no impact but the women felt bad, and in a further two the woman had to work in spite of side effects. In only three episodes where the method was discontinued to have a child was there a tangible impact. The following three impacts were reported: had difficulties completing domestic work, had to rest so work was delayed, and in one episode the woman was unable to do anything.

As an indicator of the woman's position and decision making power, it is of note that in seven of the 20 episodes discontinued to have a child the woman reported being told by someone else to

have a child. In one case the woman's son had died and she was told by '*everyone*' to have another baby and, in another, the son was ill and everyone thought he would die, so they told her to have another baby. Of the remaining five episodes, in two the woman's relatives, in another two, her mother in law, and in one her husband, told her to discontinue and have another child.

8.4.2.2 Discontinued due to rumour/fear

A total of three injectable and five pill episodes were discontinued due to fears or rumours about the method. Of the eight, four (three pill and one injectable user) reported that the method damages the cord

People say that it (Maya) *will damage the baby cord. So I no more had Maya bori* BDS 77

Other beliefs included the view that the pill causes blood clots inside the womb, and that the injection

May create tumours and stone within the stomach BDS 67

Some felt that the pill is simply harmful to health, and more specifically for the injectable

Well many people was telling me that continuous use of injection prevents period for a long time. So it may harm the body and may generate some diseases. So it is better to take pill after a period of time in order to regularise period BDS 102

This final quote also illustrates why women discontinue in order to regularise their periods.

8.4.2.3 Discontinued to regulate period

In five episodes of the pill the method was used to regulate menstruation. In each of these episodes, the previous episode of injectable use was discontinued due to amenorrhoea. In three of these episodes, menstruation occurred following pill use

Which pill you had after taking injection for four years?

This pill

Shukhi?

Yes

How many packets you had then?

One, two packet, and when I had period I stopped BDS 90

And, in one, menstruation did not return

I have used bori (pill) *to regularise my menstruation as it didn't happen I stopped it* BDS 64

8.4.2.4 Discontinued as forgot to take

Three pill episodes were discontinued as the woman reported that she forgot to take, or found it difficult to take, the pill every day.

8.1.3.5 Discontinued due to cost

Two pill episodes were discontinued due to cost. In one case the women moved into an area where she no longer had to pay for the pill, and therefore she switched to the brand that was available free, and in the other, the woman switched from a brand available through social marketing to one available free from the government. In both episodes it was the brand that was changed not the method.

8.1.3.6 Discontinuation for 'other' reasons

The 'other' reasons for which women discontinued are listed in Table 8.9.

Table 8.9 Other reasons for discontinuation, rural women

Reason for discontinuation	Injectable	Pill
My husband had become old...He asked me to take but I said there is no need anymore	1	
Baby does not get any milk		1
Conflict with husband, woman left and went to her father's house		1
Chest problem	1	
Going to another house to take injection was a problem	1	
Only took because missed injectable date		1
Total	3	3

8.4.2.7 Discontinuation for more than one reason

Before going on to discuss discontinuation due to side effects, the combinations of reasons for discontinuation are discussed. Overall, eight injectable and 12 pill episodes were discontinued for more than one reason. The most common combinations included either discontinuation due to side effects (15) or discontinuation to have a child (5). This is unsurprising considering the frequency with which these factors were mentioned. All those who discontinued the pill to regulate menstruation also mentioned side effects as a factor in their decision to discontinue.

8.4.2.8 Discontinuation due to side effects

Thirty-six of the 95 episodes of contraceptive use described by rural women were discontinued due to side effects. Eighteen injectable episodes were discontinued solely for this reason and in six episodes additional factors were also responsible. In the case of the pill, four cases discontinued solely due to side effects, and in also additional factors were mentioned.

Injectable

Of the 24 injectable episodes that were discontinued due to side effects, in 20 the specific side effect(s) responsible were identified; in the other four, only one side effect was reported. In 17 of the episodes discontinued due to side effects, a menstrual disturbance was mentioned.

Table 8.10 compares the single side effects that led to discontinuation with those mentioned for all injectable episodes. Excess bleeding is closely related to discontinuation, as is amenorrhoea, although to a lesser degree.

Table 8.10 Single side effects reported as responsible for injectable discontinuation

	Episodes discontinued due to side effects	All episodes
Amenorrhoea	12	20
Excess bleeding	5	6
Dizziness	3	18
Weakness	2	13
Feels more weighty	2	2
Irregular menstruation	1	4
Health deteriorates	1	1
Waist pain	1	6
Headache	1	3
Felt like legs and arms had been scalded	1	4
Vomiting	1	1
Pain in shoulder	1	2
Pain in Abdomen	1	3
Total episodes	**24**	**54**

Table 8.11 shows the impact of the side effects that led to discontinuation compared to the reported impact of all episodes described by the rural women. Of those who stated that they could not work, or could not do any heavy work, in two episodes the women was asked to discontinue by her in laws and, in another two, the woman was scolded. In addition to being scolded, one woman stated

> *...this is housework, one must get up and do it. Otherwise why would anyone give food?* BDS 92

Table 8.11 Domestic/household impacts associated with discontinuation due to injectable side effects

Domestic/household impact	Episodes discontinued due to side effects	All episodes
No side effects	-	13
No information	1	3
No impact	6	9
No impact felt bad	-	2
Had to work	8	13
Difficulties/could not work properly	1	2
Had to rest	1	2
Could not do heavy work	1	2
Could not work	6	8
Total	**24**	**54**
Disruption to sexual relations	3	4

Of the remaining three episodes where the women reported being unable to work, one woman stated that this was not a problem as her sister in law also had problems, another said that her in laws did not complain, and the third stated

> *Tremendous bleeding, I couldn't even use to stand anywhere, my cloths were becoming wet and I was very weak.* BDS 75

Considering the context in which these women live there is a relatively close relationship between impact and discontinuation due to side effects. Seven of the ten episodes where the woman could do nothing, or could not do heavy work, were discontinued.

Of 14 who discontinued due to side effects and stated that they had to work or that there was no impact, six discontinued to cure a menstrual disturbance. These six included one case of excess bleeding, three of amenorrhoea and two of amenorrhoea accompanied by a 'weighty' feeling. These six specified that they discontinued to cure menstrual disturbances.

Of the remaining eight women who reported that the side effects had no impact or that they had to work, four discontinued due a menstrual disturbance. Of the remaining four episodes the following side effects were reported: dizziness, weakness, vomiting and dizziness, and pain in the abdomen.

The unacceptability of menstrual disturbances to women, regardless of the impact of these side effects, helps to uncover what is in fact a close relationship between injectable side effects and their impacts and subsequent discontinuation due to side effects.

Table 8.11 also shows the reported impact on sexual relations of injectable side effects. In the three episodes that were discontinued due to side effects and sexual relations were reported as being disrupted, the following side effects were reported: burning pain between thighs, waist

pain, and excessive bleeding. Sexual relations is a sensitive subject in the Bangladeshi culture, and where women are being interviewed in their homes with friends and relatives able to hear their response to questions, it is highly probable the impacts on sexual relations were under reported. Considering this, and the close relationship between the disruption of sexual relations and discontinuation due to side effects, it is likely that, in at least some of the five episodes reporting in excess bleeding, disruption to sexual relations and hence discontinuation occurred.

Pill

Thirteen of the 41 pill episodes were of current use and, of the remaining 28, 13 discontinued due to side effects. Four of the episodes were discontinued solely due to side effects while, in nine, additional factors were mentioned. In ten episodes, specific side effects were identified as those responsible for discontinuation and, in the remaining three, all those side effects experienced were responsible for discontinuation.

Table 8.12 lists the single side effects responsible for discontinuation and compares these to the total reported in this study. Dizziness was the most frequently mentioned side effect associated with discontinuation, but many more episodes that did not result in discontinuation due to side effects also reported dizziness. Three of the six who reported vomiting as a side effect, discontinued due to side effects as did two of the three who experienced excess bleeding.

Table 8.12 Single side effects reported as responsible for pill discontinuation due to side effects

Side effects	Discontinued due to side effects	All episodes
Dizziness	7	31
Vomiting	3	6
Excessive period	2	3
Irritation of eyes	1	1
Pain	1	1
Body withers	1	1
Gaining weight	1	1
Itching in urinary passage	1	1
White discharge	1	2
Total episodes	**13**	**41**

In both the episodes where religious activities were affected and the women discontinued due to side effects, excess bleeding was the reported side effect. Both everyday activities, like prayer, and longer term activities, like fasting, are prohibited if a woman is menstruating.

Because of bleeding – could not fast (Roza), say prayer – I felt bad BDS 85

Women are not able to fast if they are menstruating, and have to make up for this when others are no longer fasting. For example, a woman who menstruates for a week during Ramadan[4] will then have to fast for a week at the end of Ramadan when everyone else has stopped.

One pill user discontinued use to adopt the injectable to cease menstruation

> You ate pill to regularise menstruation and took injection to stop menstruation?
>
> *Yes*
>
> Why you wanted to stop menstruation?
>
> *It is helpful in Ramadan. Injection stops menstruation, so I can continue fasting throughout the month without having any break* BDS76

In the two episodes where sexual relations were disrupted and the woman discontinued, excessive bleeding or pain in the waist were the side effects responsible. The excessive bleeding was the side effect for which the woman discontinued, whereas in the episode where pain in the waist disrupted sexual relations other side effects were responsible for discontinuation. In this case, the disruption to sexual relations may have been a contributing factor for discontinuation due to side effects.

Two women reported disruption to sexual relations but did not discontinue due to side effects. One of these women had previously discontinued the injectable because her husband was suspicious that she was using a contraceptive method since she was not menstruating. In order to maintain her secret use she adopted the pill, and it is likely that her motivation to avoid pregnancy enabled her to endure the scolding she received due to the disruption to sexual relations. The other woman, who reported disrupted sexual relations but had continued using, had also previously discontinued the injectable. In this case, injectable side effect had resulted in the woman being 'unable to do anything', and her mother in law recommending that she discontinued use. This woman also stated that she did not want any more children, and this is likely to have influenced why she did not discontinue the pill.

Table 8.13 lists the domestic/household impacts associated with the side effects for which women discontinued use. Compared to injectable use, many more rural women reported that, due to pill side effects, they had to rest and then work later. A relationship between impact and discontinuation due to side effects is not obvious. There are a number of factors that may account for this.

[4] Ramadan, the ninth month of the Islamic year, is a sacred month celebrated by dawn to dusk fasting

Table 8.13 Impact on household roles pill side effects

	Impacts associated with discontinuation	All reported impacts
No side effects	-	6
No information	1	1
No impact	4	12
No impact felt bad	-	1
Had to work	-	2
Can't work properly/had difficulties	1	1
Delays/had to rest	2	3
Could not work	5	15
Total episodes	**13**	**41**

One factor is the use of the pill to cure menstrual disturbances resulting from injectable use and the discontinuation of injectable due to menstrual disturbance and having to adopt another method. In the case of scenario one, women explicitly stated that they adopt the pill to cure disturbances and in scenario two the episode of pill use followed an injectable episode that was discontinued to cure a menstrual disturbance. Therefore in scenario two, the adoption of the pill to cure a menstrual disturbance is not explicit and therefore the pill may be being used simply for its contraceptive qualities or for its ability to regulate menstruation. This is an important distinction. Due to the frequency of discontinuation of the injectable due to menstrual disturbance and the fact that, while other methods are available, the pill is by far the most accessible. The transition from injectable to pill, following the discontinuation of the injectable due to menstrual disturbance, is likely to be relatively common. In Table 8.14 the women who explicitly adopt the pill to cure a menstrual disturbance or explicitly discontinue the injectable to cure a menstrual disturbance are separated from the other pill episodes that were discontinued due to side effects.

Table 8.14 Impact on household roles pill side effects, different scenarios

	Discontinued due to side effects			All reported impacts
	Scenario one	Scenario two	Remainder	
No side effects				6
No information	1			1
No impact	2		2	12
No impact felt bad				-
Had to work				2
Can't work properly/had difficulties		1		1
Delays/had to rest	1		1	3
Could not work	1		4	15
Total episodes	**5**	**1**	**7**	**41**

As can be seen in Table 8.14, having identified those who are using the pill as respite from injectable side effects, the impact of pill side effects is more closely related to discontinuation due to side effects. A second factor that accounts for some of the lack of relationship is the frequency that dizziness is reported as a side effect with varying levels of impact (see Table 8.15).

Table 8.15 Household impacts and side effect responsible for pill discontinuation

	Side effect
Could not work	Pain and **Dizziness**
	Excessive period
Delays/had to rest	**Dizziness** and irritation to eyes
	Dizziness and white discharge
	Dizziness
Can't work properly	**Dizziness** and excess period
	Gaining weight
Had to work	**Dizziness**
No impact	Vomiting
	Itching in urinary passage
	Body withers
	Vomiting
No information	**Dizziness**
Total episodes	**13**

Similar to the results found in Chapter 7, dizziness is a side effect that may impact on women in a variety of different ways.

8.2 Summary

As was found in Chapter 7, the rural women in Matlab do not simply experience side effects and then discontinue use. Of the 76 episodes where side effects were reported, 49 women reported employing strategies to reduce both the side effects themselves and the impact of these side effects. Those episodes that were associated with side effects that made the woman unable to complete her domestic role were all discontinued. In addition, disruption to sexual relations and religious activities appear linked to discontinuation. The results of this and the previous chapter are discussed in full in the next chapter.

Chapter 9 Qualitative Results

This chapter brings together the results of the qualitative work completed in Bangladesh. It details the impact of hormonal contraceptive use on women's lives and examines why, and for which side effects, women discontinued. In these sections the similarities and differences between the two areas, urban and rural, are examined. Before going on to outline the policy implications of the results and areas for future research, where possible the qualitative and quantitative results are compared.

The reports of side effects form the platform of this study. However, it is important to highlight that since this is a qualitative study, it is not intended to provide a measure of the prevalence of side effects nor a measure of discontinuation due to side effects. That stated, it is still possible to examine (a) the range of side effects reported and (b) the side effects for which use was discontinued.

9.1 The impact of hormonal contraceptive use on women's lives

Hormonal contraceptive use was found to affect women's lives in three distinct ways. The first was a woman's experience of side effects, the change(s) in her own well being that she ascribed to method use. The second is the impact of side effects on her life, in terms of her ability to undertake her usual activities/fulfil her different roles. The third impact is the 'knock on' effects of her diminished ability or inability to undertake activities.

9.1.1 The experience of side effects

The report of side effects resulting from method use is evidence of the impact on the woman and her perception of her own wellbeing. Articles outlining the side effects of contraceptive methods often report the 'anxiety' that side effects cause to a woman. This chapter, and the previous two chapters, illustrate that the effect of side effects on a woman is not limited to her own perception of health and, are in fact, far more wide ranging. However, the concept of anxiety is a useful one, since it clearly focuses on the individual and, in this case, the disruption on the individual level, even in the absence of impacts that are perceptible to others.

While this study is focusing on the impact of contraceptive use on women's lives, this has to be balanced against the fact that in some contraceptive episodes there is no impact on a woman's life. In the case of injectable use, in 17 of the 94 episodes the woman reported that there were no side effects associated with use. In an additional case, the woman experienced amenorrhoea, but stated that this was a good thing as for her menstruation was painful; this was the only episode where a side effect was stated to be advantageous.

As discussed in Chapters 7 and 8, a wide range of side effects were reported in this study and, from within this range, it was possible to group side effects into various distinct categories, including an 'other' category (See Table 9.1 and 9.2). A note of caution in the interpretation of Table 9.1, and indeed Table 9.2; the tables summarise all reported side effects and it is possible that in a single episode, two side effects from within the same broad category could have been reported. For example, a woman used the injectable for six months, and at the beginning of the episode experienced excess bleeding but later in the episode, amenorrhoea. Caution is only required for the categories of menstrual disturbance, pain and burning since these comprise groups of side effects, as opposed to dizziness or weakness/tired/sleepy feeling which are more uniform.

Table 9.1 Comparison of urban and rural side effects, injectable.

	Urban	Rural	Total
Menstrual disturbance	38	34	72
Pain	26	26	52
Dizziness	8	18	26
Weakness/tired/sleepy feeling	12	12	24
No side effects	4	13	17
Burning	4	9	13
Weight changes	3	10	13
Vomiting/vomiting tendency	1	2	3
Total number of episodes	**40**	**54**	**94**

Menstrual disturbances were the most frequently reported injectable side effect, followed by pain, in both urban and rural areas. There were more reports of dizziness in Matlab than Dhaka, but in both areas this was either the third or fourth most frequently mentioned side effect. Weakness/tired/sleeping feeling was also the third or fourth most frequently mentioned side effect in Dhaka, and the fifth in Matlab.

In both the Dhaka and Matlab samples amenorrhoea was the most frequently reported injectable side effect, and the most frequently reported type of menstrual disturbance. The second most frequently reported menstrual disturbance was excess bleeding. Waist pain was the most frequently mentioned site of pain. All three side effects: amenorrhoea, excess bleeding and waist pain, were dominant in both areas.

In addition to being the most frequently mentioned side effects, the combination of amenorrhoea and waist pain within the same episode was found in both Dhaka and Matlab. In Dhaka, five episodes of injectable use were associated with amenorrhoea and waist pain and, in an additional three, amenorrhoea and *waist pain when there is no period*, or *abdominal pain when period time is near*, or simply abdominal pain was reported. In Matlab, five episodes reported the pairing of amenorrhoea and waist pain and in an additional two episodes; amenorrhoea and abdominal pain

were reported. As discussed in Chapter 7, this pairing is an intuitive one, as Bangladeshi women associate amenorrhoea with the storage of 'bad blood'.

Table 9.2 reviews the side effects reported for pill use in Dhaka and Matlab. Dizziness was the most frequently mentioned side effect in both areas. In Dhaka the second most frequently mentioned side effect was weakness/tired/sleepy feeling and the third, vomiting/vomiting tendency. In Matlab, weakness/tired/sleepy feeling was also the second most frequently mentioned side effect and the third most frequently mentioned no side effects. In a total of 21 of the 96 pill episodes described, no side effects were reported.

Table 9.2 Comparison of urban and rural side effects, pill.

	Urban	Rural	Total
Dizziness	27	30	57
Weakness/tired/sleepy feeling	21	6	27
Vomiting/vomiting tendency	12	11	23
No side effects	15	6	21
Menstrual disturbance	6	11	17
Pain	8	8	16
Burning	7	4	11
Loss of appetite	7	1	8
Weight changes	3	2	5
Total number of episodes	**55**	**41**	**96**

While the same side effects were reported in both areas, the frequency with which they were mentioned varied. In the case of the injectable, urban women mentioned weight changes and dizziness less frequently than rural women. Yet rural women were more likely to report no side effects. Since the urban study was based in a clinic it is unsurprising that side effects were more frequently reported in this group. The difference in the report of weight gain and dizziness is more difficult to explain. The rural women may be more likely to report weight gain as a side effect if it interferes with agricultural work, as in the Cambodian study (Sadana and Snow 1999). Urban women do not undertake this work and may instead view weight gain in a positive way since a fuller body shape indicates affluence.

Differences were also found in the frequency of some pill side effects. Urban women were more likely to report tired/weak/sleepy feeling, and were also more likely to report no side effects. Rural pill users were more likely to report menstrual disturbances than urban pill users. One possible explanation for the differential reporting of weakness/tired/sleepy feeling is that rural women have a greater workload and feel weak more often than urban women, and do not therefore ascribe this feeling to the pill.

An explanation for the difference in the report of no side effects and menstrual disturbances associated with the pill could be due to the difference in advice given to the woman. Correct use of the pill is less likely to result in side effects, especially menstrual disturbances. The women in Dhaka were attending a Marie Stopes clinic, compared to the women in Matlab who were visited by a community health worker. It is plausible that a difference in the quality of service, including guidance on method use, is given through these two different organisations and different types of service delivery.

This study did not examine the impact of side effects on a woman's perception of her own well being outside the report of side effects for example, concerns about the long term consequences of use. All that can be stated is that for many women there is a 'cost' associated with hormonal contraceptive use. This 'cost' is due to either real or perceived side effects. The effect of the side effects are summarised above, and outlined in more depth in Chapters 7 and 8, are easily imagined. For example, the impact of vomiting tendency on an individual's perception of their own well being.

In the case of the side effects being perceived, there are two possible explanations for why they may be perceived as opposed to real. One is that independently occurring or existing health complaints are attributed to contraceptive use. The second is that the side effects result not due to physiological pathways, but via psychological ones, where the use of a method puts stress on the women for a variety of reasons. For example, pressure not to become pregnant, or the stress of hiding use from husband or mother in law, these types of psychological pressures may present themselves, or be articulated, by women as 'organic' side effects.

As previously stated, this study examines why women discontinue due to side effects and therefore the dichotomy of real and perceived is less important. That is not to underplay the importance of increasing our understanding of women's experience of contraceptive use, via the examination of this dichotomy, and in Section 9.5 on areas for future research, recommendations are made.

9.1.2 Impact of contraceptive side effects on women's lives

This section outlines the impact of side effects on women's lives. There is a hierarchical nature to the impact of side effects, since a woman has to experience side effects in order for side effects to impact on her activities. Therefore, each woman who reports that side effects impact on her duties is also experiencing the impact of side effects on her own health, and perception of well being.

Conversely there are also those who experienced no side effects or who experienced side effects which had no externally tangible impact on the woman's life.

In all of the following tables the number of episodes associated with no side effects, and no impact, are included in addition to the total number of episodes.

9.1.2.1 **Domestic/household impacts**

Table 9.3 and 9.4 outline the domestic impacts associated with injectable use in both urban and rural areas. These tables show the variations in impact that side effects can have, from no side effects being reported, and side effects being stated to have no impact to the woman being unable to do anything. In both the urban and rural areas and for both the methods this variation was reported.

Table 9.3 Domestic/household impact of injectable side effects, urban and rural

	Urban	Rural
No side effects	4	13
No impact	12	9
No information	5	3
Had to work	4	13
No impact felt bad	4	2
Difficult to do work	3	3^
Work not done properly	4	^
Had to rest/delays	[9]	2
Unable to do anything	4	8
Cannot do any heavy/agricultural work	*	2
Total episodes	40	54

[9] This population did not report this impact

* The urban population does not undertake agricultural work

^ In the rural population these two categories were combined.

Table 9.4 Domestic/household impact of pill side effects, urban and rural

Impact	Urban	Rural
No side effects	15	6
No impact	7	12
No information	5	1
Had to work	2	2
No impact felt bad	5	1
Difficult to do work	3	1^
Work not done properly	7	^
Had to rest/delays	[9]	3
Unable to do anything	11	15
Could not do any heavy works	.	4
Total	**55**	**41**

[9] This population did not report this impact

. The urban population does not undertake agricultural work

^ In the rural population these two categories were combined.

Of the 19 urban injectable episodes where an impact of side effects was reported, four women reported that they 'had to work'. In the case of the rural area, 13 of the 29 injectable episodes where an impact was reported stated that they 'had to work'. In the case of the pill, two urban and two rural episodes were associated with this impact.

This response is a reflection of the context of these women's lives, the lack of alternatives and the pressure on them to complete their domestic/household tasks. In the case of the rural population, where many more described 'having to work', on top of domestic duties are agricultural tasks that have to be completed for the household. Therefore, for rural women, the intra-household workload is greater and, in addition, the pressure from other family members to complete tasks is likely to be greater.

There is a different type of pressure on urban women resulting in their 'having to work'. The pressure is potentially due to the household structure in which they live. In rural areas, women live with or next door to their extended family, both parents in law and their husband's brother's families (see appendix 8.1). However, in urban areas the women predominantly live in nuclear families or families with a less extended family, for example with their parents in law but without sisters in law (see appendix 7.1). They are therefore less able to call on others for help.

Another impact that also reflects the different context of urban and rural women's lives is where a woman reported that she 'had to rest/delays'. This impact was much more frequently reported by urban women than rural women, and is likely to be a product of both household structure and/or workload. As stated above urban women are more likely to live in nuclear, as opposed to

extended, families and in this context have more control over what chores they do and when they do them. Therefore, they are able to rest and delay the completion of tasks. The other factor that makes this possible is that, unless they also work outside the home, urban women have a smaller workload than rural women as they have no agricultural responsibilities. Since they have fewer duties they may have some 'slack' within their day when they can delay completion of certain tasks and rest.

Finally, the clearest illustration of the effect of context and the difference between two populations is in the range of impacts reported by the two groups. In both injectable and pill use rural women are more likely to report either that they had to work or that they were unable to do anything. The urban women were more likely to report a range of impacts as opposed to the extremes reported by the rural women.

Overall, the impact of both injectable and pill use on the women interviewed ranged from feeling bad to being unable to do anything, and there were also episodes where the side effects had no impact, or no side effect was reported. The medical literature often states that the contraceptive side effects experienced by women may cause 'anxiety' to the woman, as discussed above, and it has, on occasion, mentioned that menstrual disturbances may "*affect a woman's desire or ability to participate in sexual, cultural, or religious practices*" (Darney and Klaisle, 1998). However, this literature rarely states that the side effects can affect the woman's day to day life. The results above add to the evidence, for example from the Women's Studies Project, that highlights the impact that side effects have on women's day to day lives.

9.1.2.2 **Other impacts**

In this section the impacts of side effects outside a woman's domestic life are examined (see Table 9.5 and 9.6). As mentioned in the paragraph above, and in Chapter 6, menstrual disturbances can disrupt both religious activities and sexual relations. Sexual relations were affected by the side effects of both methods, in both areas, although disruption to religious activities was only mentioned for two pill episodes. In addition to religious proscriptions associated with excess bleeding, there were a number of other side effects that affected sexual relations including, feeling weakness, abdominal/waist pain and burning pain between thighs.

Table 9.5 Other impacts of injectable side effects, urban and rural

	Urban	Rural
No side effects	4	13
No impact	12	[9]
Economic	3	[9]
Sexual relations	7	4
Total episodes	40	54

[9] This population did not report this impact

Table 9.6 Other impacts of pill side effects, urban and rural

Impact	Urban	Rural
No side effects	15	6
No impact	7	12
Economic	5	[9]
Sexual relations	7	4
Religious	-	2
Total	**55**	**41**

[9] This population did not report this impact

Some women in Dhaka reported that their paid work was affected by side effects; this is unsurprising, as economic work can be viewed as an extension of domestic duties, the impact on which was described in the previous section.

9.1.3 'Knock on' effects of the impact of side effects on women's lives

This is the third level of the hierarchy of impacts of hormonal contraceptive use on women, the knock on effect that a woman's reduced ability to undertake day to day tasks/activities can have.

In the case of disruption to economic relations the women reported being scolded or having their wages cut. When sexual relations were disrupted, some husband's complained, threatened or were violent towards their wives. In the case of the women being unable to complete or undertake her household chores both the husbands and in-laws were reported to complain to or scold the women. In the episodes where this level of impact occurred, the effect of this on a woman's quality of life is obvious. Also at this level is the regret or guilt felt by women due to their reduced/inability to fulfil certain tasks. These 'knock on' effects were reported in both Dhaka and Matlab.

9.2 Side effects responsible for discontinuation

The side effects responsible for injectable discontinuation are listed in Table 9.7. These single side effects are compared to the side effects reported in all episodes, and therefore more than one

side effect may have been responsible for discontinuation of an episode. The main side effects responsible for injectable discontinuation due to side effects were also those that were frequently reported in all episodes. Excess bleeding has the closest relationship to discontinuation due to side effects, especially in the rural area. The explanation for this is straightforward considering the proscriptions affecting a menstruating woman outlined in Chapter 6.

Table 9.7 Side effects resulting in discontinuation urban and rural injectable episodes

Side effect	Urban		Rural	
	Discontinued due to side effects	All episodes	Discontinued due to side effects	All episodes
Amenorrhoea	6	22	12	20
Excess bleeding	3	8	5	6
Dizziness	2	8	3	18
Weakness	1	12	2	13
Feels more weighty	-	-	2	2
Irregular menstruation	1	4	1	4
Health deteriorates	-	-	1	1
Waist pain	1	7	1	6
Headache	-	-	1	3
Neckache	1	1		
Felt like legs and arms had been scalded	-	-	1	4
Vomiting/vomiting tendency	1	1	1	1
Pain in shoulder	-	-	1	2
Pain in Abdomen	1	3	1	3
Total episodes	**10**	**40**	**24**	**54**

The dominance of menstrual disturbances as the cause of discontinuation may help explain the 'U' shaped relationship between duration of episode and discontinuation due to side effects found in the Chapter 5. Excess bleeding is a common side effect in the first few months of injectable use then as the duration of the episode increases, so does the likelihood of amenorrhoea (Darney and Klaisle1998). Therefore, the experience of excess bleeding, which appears from the qualitative results strongly predictive of discontinuation, in the first few months of use may account for the increased likelihood of discontinuation at this time. In addition, for first time users the experience of any, especially unexpected, side effects when use is initiated are likely to result in discontinuation. The increasing likelihood of experiencing amenorrhoea, as the duration of the episode increases is likely to account for the increased injectable discontinuation at later durations found in Chapter 5. The evidence presented in this thesis both in terms of women's views of amenorrhoea and the efforts they go to restore normal menstrual cycling, illustrate clearly women's views of amenorrhoea.

In the case of pill episodes, see Table 9.8, a variety of side effects were responsible for discontinuation. While dizziness was the most frequently mentioned side effect responsible for discontinuation, and the most commonly mentioned overall, the relationship between dizziness

and discontinuation due to side effects is not strong. The occurrence of excess bleeding, or vomiting, is more likely to result in discontinuation due to side effects.

Table 9.8 Side effects resulting in discontinuation urban and rural pill episodes

Side effect	Urban		Rural	
	Discontinued due to side effects	All episodes	Discontinued due to side effects	All episodes
Dizziness	13	26	7	31
Weakness/sleepy feeling	4	21	-	-
Vomiting	3	5	3	6
Vomiting tendency	2	7	-	-
Can't eat	2	7	-	-
Excessive period	1	3	2	3
Pain in abdomen pre period	1	1	-	-
Hazy vision	1	1	-	-
Body burns	1	1	-	-
Body swollen	1	1	1	1
Bad smell	1	2	-	-
Stomach pain	1	3	-	-
Irregular menstruation	1	2	-	-
Irritation of eyes	-	-	1	1
Pain	-	-	1	1
Itching in urinary passage	-	-	1	1
White discharge	-	-	1	1
Body withers	-	-	1	1
Total episodes	**20**	**55**	**13**	**41**

As with injectable side effects, a large number of side effects that were not necessarily frequently mentioned were responsible for discontinuation. All of these side effects have an impact on the woman's perception of her own well being, but other than excess bleeding no clear picture emerges as to the specific side effects that led to discontinuation in Bangladesh.

The differences between urban and rural are small. In the case of injectable use there was a greater number of different side effects responsible for discontinuation in the rural as opposed to the urban population. In the case of the pill this relationship is reversed and more striking. This difference may only be a reflection of the greater number episodes discontinued due to side effects. That being the case it would support the evidence already presented where specific side effects do not appear to result in discontinuation due to side effects in all women. Instead different women discontinue due to different side effects.

9.3 Impacts responsible for discontinuation

Among injectable episodes, there is evidence of a relationship between the disruption of sexual relations and discontinuation due to side effects in both areas. In terms of the relationship between impact on domestic duties and discontinuation, while there is a strong relationship between being unable to do anything and discontinuation, the relationship between the other

impacts and discontinuation is less clear. In the urban area, there is some evidence of increasing impacts leading to discontinuation due to side effects. In the rural area, apart from those who were unable to work, the greatest numbers of episodes, both all episodes and those discontinued due to side effects, were either unaffected by side effects, i.e. reported no impact or the woman reported that she had to work.

As with was found in the case of the injectable, disruption to sexual relations was strongly linked to discontinuation of the pill due to side effects. However, while in three of the five pill episodes where economic activities were affected the method was discontinued due to side effects, in none of the three injectable episodes where economic activities were affected was use discontinued due to side effects. Economic activities are likely to be the urban comparison to the agricultural duties in the rural context, in that working outside the household for a wage is an economic necessity. Therefore, the pressure to maintain a wage will impact on any decision to discontinue due to side effects.

The domestic impacts associated with discontinuation due to pill side effects did not show a clear relationship between the woman being unable to do anything and discontinuation. In the urban area, there was a weak tendency of increasing impact to lead to discontinuation due to side effects but, in six of the 20 episodes, discontinuation due to side effects was either due to 'no impact', 'had to work' or there was no information available. In the rural area, there was no clear evidence of a relationship between the impact of side effects and subsequent discontinuation due to side effects.

A clear relationship between impact and discontinuation due to side effects should not necessarily be expected. This is due to the fact that a number of levels of impact have been described, and the impact on the woman's ability to undertake certain tasks and activities are just one level. Table 9.9 is included to highlight the fact that there are side effects that maybe intolerable to women regardless of the impact outside the woman's experience of side effects. The example of amenorrhoea is used since Bangladeshi women's propensity to have a negative view of this side effect is described elsewhere and was articulated in this study. However, it is likely that other side effects are equally intolerable to women.

Table 9.9 Impacts associated with injectable episodes discontinued due to amenorrhoea and all side effects

	Urban			Rural		
	Discontinued due to side effects		All episodes	Discontinued due to side effects		All episodes
	Other	Amenorrhoea		Other	Amenorrhoea	
No side effects	-		4	-		13
No impact	-		12	3	3	9
No information	-		5	1	1	3
Had to work	-	1	4	6	2	13
No impact felt bad	1	1	4	-		2
Difficult to do work	2		3	1		2
Work not done properly	2		4			
Had to rest/delays	-		-	-	1	2
Unable to do anything	2	1	4	6		8
Unable to do heavy work	-		-	-	1	2
Total episodes	**7**	**3**	**40**	**24**	**8**	**54**

In the case of amenorrhoea the need to regulate menstruation via discontinuation was more frequently vocalised by rural women. This need was unrelated to reported impact; in fact five of the eight episodes, discontinued to induce menstruation, reported either no impact or that they had to work. This single example highlights the unfavourable way in which Bangladeshi women view amenorrhoea, and reinforces the fact that side effects impact at different levels and women may discontinue use due to the impact on their own health and perception of well-being, and/or the impact on their ability to fulfil day to day tasks.

Another factor that has to be mentioned when accounting for the lack of a strong relationship between impact and discontinuation is the influence of context on impact. As previously described, the context of women's lives, especially rural women, can dictate the impact of contraceptive use. In these contexts it is likely that if a woman were unable to limit the impact of side effects on her life she would discontinue prior to experiencing the greater impact. For example, a woman experiences dizziness due to pill use but is able to continue working because she 'has to'. The severity of the dizziness increases, but the woman continues to work because she 'has to'. Finally, the woman discontinues because she feels that she will be unable to maintain use without her work being affected. Therefore, she discontinues prior to the method impacting on her day-to-day activities.

A final factor that contributes to the lack of relationship between impact and discontinuation due to side effects, in this case for the pill, is its use for non-contraceptive purposes. Table 9.10 shows the use of the pill for functions other than its contraceptive properties. Owing to the fact that in episodes where the pill was being used for non-contraceptive reasons, these episodes were

not necessarily discontinued due to side effects, additional columns are not included. Instead the number of episodes involved are included in parentheses in the relevant columns.

Table 9.10 Impacts associated with all pill use, and pill use for non-contraceptive purposes

	Urban		Rural	
	Discontinued due to side effects	All episodes	Discontinued due to side effects	All episodes
No side effects	-	15	-	6 (1)
No impact	2 (1)	7	4 (2)	12 (1)
No information	2	5	1 (1)	1
Had to work	2 (1)	6	-	2
No impact felt bad	2	5	-	1
Difficult to do work	2	3	1 (1)	1
Work not done properly	4 (1)	7		
Had to rest/delays	-	-	2	3
Unable to do anything	6	11 (2)	5(2)	15 (1)
Total Episodes	**20** (3)	**55** (2)	**13** (6)	**41** (3)

In the case of the urban area and the pill's alternative use was to induce menstruation, and thereby prove a non-pregnant state. This is required in order to receive a longer term method, usually the injectable, and usually followed an episode of injectable use discontinued due to a missed appointment to get the next injection dose.

In the rural areas the pill was taken to regulate menstrual disturbances, either amenorrhoea or excess bleeding, resulting from injectable use. In six of the episodes where the pill was being used to regulate menstruation this was explicit. In two, the pill episode followed an injectable episode discontinued to regulate menstruation, and it is possible that either the pill was taken as an interim contraceptive measure, or that the use of the pill for regulating menstruation was just not vocalised.

In three of the episodes, where the women were unable to do any work due to side effects but did not discontinue due to side effects, the pill was being used to regulate menstrual disturbances resulting from injectable use.

The use of the pill for its non-contraceptive properties may also partially explain the increase likelihood of pill discontinuation in the first few months of use found in chapter 5. Using the pill to prove a non-pregnant state or in order to resume menses is likely to be achieved in the first three months of use, after which use would be discontinued. Similar to the injectable this is likely to be only part of the explanation and inexperienced may also discontinue should they experience any side effects.

9.4 Barriers and opportunities for effective contraceptive management

The side effects reported for hormonal contraceptive method in Bangladesh clearly represent a barrier to women's effect contraceptive management. Some of the large range of side effects reported are intolerable to women independent of any other impact they may have. Other side effects make use unsustainable due to their impact on a woman's day-to-day life.

The relationship between side effects and impact was not found to be straightforward. The impact that side effects can have is related to the context in which they occur, this is especially true in the rural area. The only impacts that were found to be strongly associated with discontinuation due to side effects were when the side effects resulted in the woman being unable to work, or when sexual relations were disrupted and where religious activities were disrupted.

The costs that can be associated with hormonal contraceptive use have been clearly illustrated, as have the burden of these costs on women's lives. The following sections examine first the policy implications of these findings and then identify areas requiring further research.

9.4.1. Policy implications

There are a number of policy implications evident from this study, all of which arise from the need to improve women's contraceptive experience. While there has been recognition that the burden of fertility control does largely fall on women, there is little evidence that this has been translated into efforts to improve their contraceptive experience. The exception to this is in the continuing development of some contraceptives, e.g. the reduction in hormone doses in oral contraceptives. Improvements to contraceptive experience are likely to have resulted, from increased counselling and user's increased in ability to switch methods, but these improvements appear driven by pressures for women to maintain use as opposed to improve their experience.

Greater support for contraceptive users is required, and this support is impossible in the absence of culturally specific information on women's experience of contraceptive use. Aside from specific windows of opportunity to improve women's contraceptive experience, greater understanding among service providers of women's experience is likely to foster a more supportive relationship between providers and users. Findings in this study provide some examples of windows of opportunity in Bangladesh. Excess bleeding was found to be associated with a disruption to sexual relations. The reason for this is the belief that menstrual blood is dangerous to men. It is likely that any excessive and/or untimely bleeding will affect sexual relations, and the use of condoms could be promoted at these times. While this may reinforce an existing misconception,

it is also possible that it could be an acceptable way of introducing condom use into a population whose use of the condom is limited. Despite doorstep delivery of the condom the contraceptive prevalence was 3.0% in 1993/94 and 3.9% in 1996/97 (BDHS 1993/94) and BDHS 1996/97).

Another window of opportunity concerns amenorrhoea. There are two interventions that could reduce discontinuation due to amenorrhoea. One is an IEC (information and education campaign) to notify women that amenorrhoea resulting during injectable use is unlikely to be due to pregnancy, and that amenorrhoea may actually be a good thing, physiologically, as opposed to a bad thing, the storage of bad blood. The other intervention, which is currently used in the Marie Stopes Clinics, is the use of the contraceptive pill to treat menstrual disturbances resulting from injectable use. This knowledge could be made more widespread and, since the pill is available over the counter in pharmacies and via doorstep delivery, women could then cure any menstrual disturbances that occur without having to discontinue use.

These are three specific examples of how women's contraceptive experience could be improved. It is possible that they are specific to Bangladesh, although it seems likely that other Asian countries, especially India in the case of amenorrhoea, and Moslem nations in the case of excessive or untimely bleeding, would also benefit from these interventions. The findings are culturally specific and as a result the opportunities to support women's contraceptive use will vary, requiring a detailed understanding to identify these opportunities, and will also require innovative approaches.

To change the focus from service provision, in this case to the woman and the method. At the start of the fieldwork I believed that a change in the chemical composition of the contraceptives was necessary to reduce their impact on women. However, I now see that an improvement to the health status of women is required. While it is essential to find out the specific conditions that lead to a poor contraceptive experience, the poor health status of women in general also needs to be addressed.

On the programme, national and/or international levels care must be taken in the interpretation of any single measure of discontinuation due to side effects. The presumption at the inception of this study was that women who discontinue due to side effects experience a barrier to their effective contraceptive management. The qualitative results in the study have found that women manage the side effects that they experience in a number of ways. The idea that they simply discontinue due to the side effects is absent. The need for care when using discontinuation due to side effect indicators is also necessary in light of perceptions of (a) continuation rates, and (b) switching.

There is a perception that long episodes of use are good. This perception is based on two factors, one is the pre Cairo focus on fertility control and the perception that contraceptive failures are more likely to occur during the first few months of use. In both cases, the alternative to switching method has to be considered. From the perspective of the woman who can no longer tolerate the side effects, the choice is between discontinue all methods or switch to another.

In addition, measures of switching due to side effects within a population, be it national or clinic based are essential as indicators of good quality of care. Those who discontinue due to side effects and become at risk of an unplanned pregnancy indicate poor quality of care, and a woman's inability to effectively manage her contraceptive use. This inability arises from women not being equipped with the knowledge and skills to manage her contraceptive use.

At the international level and in the era of improving women's reproductive rights, contraceptive experience should be included within the reproductive rights agenda. As previously stated while the burden of contraceptive does primarily fall on women, an explicit aim of the reproductive rights agenda should be to improve or optimise contraceptive experience beyond simply increasing use.

While it is believed that contraceptive experience should be included within the reproductive rights agenda, there is also the need for contraceptive side effects to be explicitly recognised as a burden of use. It is therefore proposed that contraceptive side effects be included within reproductive morbidity frameworks.

9.4.2. Areas for future research

A number of subject areas became apparent as requiring further research. One of these concerns the difference between 'real' and 'perceived' side effects. 'Perceived' side effects need to be investigated for a thorough examination of why side effects, not physiologically determined by the method, are attributed to a method. Such studies will increase our understanding of women's contraceptive use, both in terms of women's perceptions of specific methods, and the context within which the methods are used. For example, the perception that the pill is a 'hot' medicine or the context, financial pressures to not become pregnant, or clandestine use are all likely to influence women's contraceptive experience and indeed her reporting of side effects.

Possibly linked to the above, is the side effect of dizziness. There are a number of factors that could influence the report of dizziness as a side effect, either as a real or perceived side effect. The perception of the pill as a powerful medicine could lead to reports of dizziness, as could the pressures listed above. Further, dizziness is one of the adverse drug reactions quoted by the

manufacturers, making the report of dizziness potentially arise from a variety of different factors. The factors influencing and determining the reports of dizziness, why dizziness has such variable impacts, strategies to reduce dizziness, and its impacts should all be explored.

Another side effect requiring further investigation, although for very different reasons, is amenorrhoea. Perceptions of amenorrhoea should be further investigated. While the negative perceptions of this side effect are well understood, an examination of ways to change this perception is important.

Finally, there are a number of changes that could be made to the demographic and health survey questionnaire in order that greater insight might be obtained from these cross-sectional surveys. The following suggestions are made bearing in mind the burden of recall, not just in terms of contraceptive use, of the DHS on respondents.

A key addition to the current DHS calendar would be a question that identified the side effect(s) responsible for discontinuation. Ideally it should be possible to identify multiple side effects, as opposed to just single side effects. This information would be invaluable to both programme managers and contraceptive manufacturers. The former so they are better able to inform women about what to expect and how to manage the side effects they experience and the latter so that they have more information on discontinuation due to side effects on a nationally representative level.

In addition to the calendar collecting information on multiple side effects it would also be useful, if computationally complicated, if the calendar was able to collect more that one reason for discontinuation. The qualitative results in this thesis have found that women do not always discontinue due to a single reason and examination of the combinations of reasons would lead to greater understanding of women's contraceptive experience.

Lastly, in situations where the data for the contraceptive calendar are collected, it is essential that a more reliable measure of sexual relations, and therefore risk of pregnancy are collected. Currently, the only universally collected data is on union status. In some situations women's menstrual status in terms of amenorrhoea is collected. However, this is insufficient as just because a woman is in a relationship does not mean that she is having sex or that the partner is living with her. In the case of Bangladesh men migrate from their villages to the cities for work and the duration of time which they spend away varies, In addition, men migrate to the Gulf States for work. In the case of intra-national migration if the husband does not live with his wife for the majority of the time, she may feel less at risk of pregnancy and therefore less motivated to use a method. Whether or not she would subsequently discontinue stating her husband's absence as the

reason is not clear, this may just be a facilitating factor. However, if data on the husband's whereabouts was collected then this contributing factor would be obvious.

Chapter 10 Conclusion

One key outcome of this study is recognition of the advantage of the contraceptive management approach including examining single components of management, as opposed to the more traditional approaches to contraceptive use dynamics. In the case of timing of adoption, the postpartum period is an understudied area in terms of women's behaviour, and the descriptive analyses gave a clear picture of the factor influencing contraceptive adoption, the return of menstruation. By focusing on discontinuation due to side effects, as opposed to discontinuation in general, and more importantly on the specific methods it was possible to identify more precisely the factors associated with why women discontinue.

The different methods employed in this study were essential to examine the range different components of use. The evolution of the study of contraceptive use has moved from the examination of knowledge, attitudes and practice into the statistical realm of contraceptive use dynamics. Our increased understanding of contraceptive use dynamics has been accompanied by the maturing of family planning programmes such that we should now re-assess the methods that we use when investigating contraceptive use. This study suggests that, while surveys such as the DHS are critical to identify aggregate levels and trends, (for example, levels of discontinuation for specific reasons), they are less able to account for these levels and trends. As the issues surrounding contraceptive use become more sophisticated, and focus shifts to individual women's effective contraceptive management, in many cases qualitative techniques will be required to explore further the levels and trends found in large scale surveys. Understanding the user/client's perspective is key to improving women's contraceptive use, family planning provision, and the effectiveness of family planning programmes.

This section will now examine both components of contraceptive management examined in this thesis, outlining key findings, limitations of this study, the policy implications of the results, and future research opportunities. The chapter is completed with a brief discussion of contraceptive use in general.

10.1 Postpartum Adoption

The most striking result from the examination of the timing of postpartum contraceptive adoption is the importance of the return of menstruation as an indicator to women. The results from the descriptive analysis in Chapter four, reveal that in the 1993/94 data 52.9% of

women adopted contraception in the same month that their menstruation returned and, in 1996/97, the figure was 64.9%. This is a preference that is currently independent of the policy in Bangladesh; the policy for postpartum contraception is for women to adopt at 40 days postpartum.

The postpartum policy ideally needs to build on the preferences of the population or at least take into account the fact that current policy does not appear to be influencing behaviour. Building on the preferences of the population is even more logical in light of the Bellagio recommendations, which are based on the return of menstruation postpartum. These recommendations state that a method should be adopted at six months postpartum if the woman if exclusively breastfeeding and menstruation has not returned; should menstruation return before six months a method should be adopted at that time. A switching of Bangladesh policy to the Bellagio recommendations, and thereby the promotion of the lactation amenorrhoea method (LAM) could the first step to improving this policy in Bangladesh.

Further to this, additional research should be undertaken to balance the failures rates of methods adopted postpartum, and the failure of LAM at seven, eight and nine months postpartum, so that the potential for moving back the Bellagio six month cut off period to seven, eight or nine months postpartum can be investigated. Salway (1998) examined the probability of conception during lactation amenorrhoea and found the risk to be less than 2% in the first six months and less than 3% at nine months postpartum. This highlights the fine balance between failure of LAM and modern method failure in the first nine month postpartum. Additional evidence of the risk of conception during LAM is required, and would need to be constantly re-assessed to inform postpartum policy.

In addition to the changing of the cut off period an examination of the requirement of exclusive breastfeeding needs to be undertaken in light of the fact that in Bangladesh women rarely exclusively, but do intensively, breastfeed beyond three months but the median duration of postpartum amenorrhoea was 8.4 months in 1996/97 (BDHS 1996/97).

An additional issue in the adoption of contraception postpartum that was not covered in this thesis but is key to the existing policy in Bangladesh is which method is adopted postpartum. Combined oral contraception (COC), the dominant method in Bangladesh, is known to have a negative effect on both the quality and quantity of breast milk. Should women adopt this method at 40 days postpartum the effect on the infant could be detrimental. If the current policy of 40 days postpartum is maintained, efforts need to be made to ensure that COC are not promoted at this time.

In this study the adoption of a method was concentrated on the time that menstruation returned postpartum. The data shown in Chapter 4 show a peak on one month in the duration of postpartum amenorrhoea. This heaping at one month is likely to be due to the misidentification between *lochia,* postpartum bleeding unrelated to menstruation, and the return of menstruation. The issues surrounding the adoption of COC early in the postpartum period, discussed above, also apply should women adopt a method due to *lochia*. If the Bangladesh policy of postpartum contraceptive adoption were to change research is required into which women misidentify *lochia* such that this group do not adopt a method prematurely.

The postpartum results are not limited in their impact solely to Bangladesh. The results reconfirm the relationship between the return of menstruation postpartum and contraceptive adoption found by Knodel *et al.,* 1985, Knodel *et al.,* 1989, Laukaran and Winikoff 1985, Salway 1996, Salway 1998, and Thapa *et al.,* 1992. The building of postpartum contraceptive policy on the beliefs and behaviour of the population is a sensible maxim in many different contexts, especially considering the strong cultural beliefs surrounding pregnancy, childbirth and the postpartum period.

The least striking result of the postpartum adoption study is the statistical models to distinguish between effective and ineffective adoption postpartum. The classification into effective and ineffective has been imposed on the data and was not an explicit question in the DHS. While it is possible that the formulation of this variable was in some way inherently flawed, the descriptive results suggest that there are other reasons for the model's poor predictive powers. More probably, it is that the subtle distinction between effective and ineffective is not suited to DHS type analysis. This subtle distinction is made even more difficult to examine due to the ability of the DHS to predict non-use, the result being a model that predicts the difference between non-use and effective management but fails to give insights into the difference between effective and ineffective adoption.

The factors found to be significantly related to non use in all of the models were: if the pregnancy was wanted, if family planning had been discussed with the husband, being visited by a family planning worker in the six months prior to the survey, the education level of the woman, division of residence, and proximity to both thana and district HQs. All of these variables had the expected relationship to non use, for example women who had not been visited by a family planning worker were more likely not to have adopted a method postpartum.

In the case of ineffective as opposed to effective adoption postpartum only the woman's education level and division of residence was significant in all four post partum adoption models. There was no dominant pattern in the relationship between education level and division of residence and ineffective adoption in these four models. Discussing family planning with husband was significantly associated with ineffective adoption in three of the four postpartum models, and distance to thana HQ significant in one of the models.

10.2 Discontinuation due to side effects

In this thesis two different methods were used to study discontinuation due to side effects, one involved quantitative methods and the analysis of the BDHS, and the other qualitative in-depth interviews that were under taken. The quantitative research is discussed first.

The statistical analysis of discontinuation due to side effects relies on the calendar data collected in the DHS. One problem with this is that only one reason for discontinuation is collected, and there is evidence from the qualitative work that women may discontinue for a number of reasons. Another is that, while the analysis of the DHS is useful in identifying factors associated with discontinuation due to side effects, (for example, women discontinue the pill earlier than they discontinue the injectable), the results do not explain why women discontinue due to side effects.

An unexpected result from this study was the significance of education or literacy in three of the four discontinuation models. Other authors have found traditional demographic indicators to be unrelated to contraceptive discontinuation, and motivational factors, e.g. desire for more children, to be more strongly associated (Ali and Cleland, 1999 and Huezo and Malhotra, 1993). In this study greater education or literacy levels were found to be associated with increased risk of discontinuation due to method related reasons (health concerns and side effects). The reason for this is believed to be the greater ability of these women to switch methods, potentially through their greater access to services both physically and how they interact with family planning staff. In two of these three models and in the fourth the remaining factors associated with discontinuation due to side effects were motivational in nature, fertility preference, children at first use/ family size.

The dominance of motivational factors and duration of use as predictors of discontinuation gives a little scope for reducing contraceptive discontinuation, especially due to side effects. To examine why women discontinue due to side effects a qualitative approach was used.

The clearest finding of the qualitative results is the burden of hormonal contraceptive use in these two populations in Bangladesh. It is possible that the side effects were over stated in this study due to the study populations. In Dhaka, the study was clinic based and may be over-representative of those suffering from side effects and, in Matlab, while this is a population laboratory, it would appear to be over-researched. In this context it is possible that side effects and their impact may have been over-stated in the hope that some benefit would be received by the community.

That stated, the qualitative work gives a clear understanding of why women do discontinue due to side effects, either due to the side effects themselves or the impact of these side effects on their lives. The hormonal contraceptive side effects that were frequently reported to result in discontinuation were excess bleeding, amenorrhoea and dizziness. Beyond the experience of side effects, women reported disruption to their daily lives, from 'felt bad' to being unable to do anything, and disruption to sexual relations, religious activities and wage labour. A further level of impact was found for these women, the 'knock on' effects of their reduced or inability to undertake their daily chores, the knock on effects included scolding and in one case rape.

Side effects have to be taken seriously from the demographic perspective; if they are ignored then women will continue to discontinue, some to switch to another method, and others to an at risk state. More importantly from a reproductive rights perspective women have to be equipped to deal with the side effects. They have to have greater support in their use of contraception, for example through counselling on method use and counselling on side effects, including more innovative ways of dealing with side effects, for example encouraging condom use when untimely or excessive bleeding disrupts sexual relations, especially in cultures where menstrual blood is seen at 'unclean'. This support of women in their use of hormonal contraceptives can only be achieved if service providers have a detailed understanding of women's experience of contraceptive side effects.

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Appendix 2

Table 1 Large Scale Surveys

Authors	Survey	Calendar type	Survey Date	Location	Outcome investigated	Analysis methodology
National Surveys						
Ali and Cleland (1995)	Demographic and Health Survey	Birth Interval Five year	1987 1988 1988/89 1987 1987 1987	Morocco Tunisia Egypt Ecuador Indonesia Thailand	Discontinuation	Discrete-time hazard model
Ali and Cleland (1999)	Demographic and Health Survey	Birth Interval Five year	As above	As above	Determinants of Discontinuation	Proportional hazard model
Akhter *et al.*, (1991)	Contraceptive Use Dynamics Survey	42 month calendar	1988	Rural Bangladesh		
Choe and Zablan (1991)	Contraceptive Prevalence Survey	Four year calendar	1986	Philippines	Discontinuation and Failure rates	Discontinuation rates and lifetable failure rates
Curtis and Blanc (1997)	Demographic and Health Survey	Five year complete calendar	1993/94 1990 1992 1994 1991/92 1994	Bangladesh Colombia Egypt Indonesia Peru Zimbabwe	Determinants of contraceptive failure, switching and discontinuation	Discontinuation rates and lifetable failure rates
Davanzo *et al.*, (1989)	Family Life Survey	Full birth interval	1976-1977	Malaysia	Contraceptive Switching	Transition matrices
Entwisle and Sayed (1991)	Contraceptive Prevalence Survey	Five year calendar	1984/5	Egypt	Methodological examination of life table VS current status	Life table and Bongaarts current status approach.
Izmirlian et al (1997)	Demographic and Health Survey	Current status durations	1989 1988/89 1988/89 1987 1987 1988/89	Bolivia Egypt Kenya Sri Lanka Thailand Zimbabwe		
Hamill et al (1990)	Rural Family Planning Survey	Three year calendar	1986	Rural Sri Lanka	Determinants of switching	Multinomial regression
Hammerslough (1984)	National Survey of Family Growth	Three year calendar	1973 and 1976	USA	Determinants of discontinuation	Hazards model
Kane et al (1988)	Contraceptive Prevalence Survey	Follow up of previous survey matched respondents	1982 and 1985	Sri Lanka	Method Switching	Percentages
Kost (1993)	Demographic and Health Survey	Five year complete calendar	1986	Peru	Contraceptive use Dynamics	Multiple increment-decrement life tables
Moreno and Goldman (1991)	Demographic and Health Survey	Birth Interval Five year	1989 1986	Bolivia Brazil	Failure rates	Single decrement life table

Authors	Survey	Calendar type	Survey Date	Location	Outcome investigated	Analysis methodology
Moreno and Goldman (1991) (continued)			1986	Colombia		
			1986	Dominican Republic		
			1987	Ecuador		
			1987	Guatemala		
			1987	Mexico		
			1986	Peru		
			1987	Trinidad and Tobago		
			1987	Indonesia		
			1987	Sri Lanka		
			1987	Thailand		
			1988	Egypt		
			1987	Morocco		
			1988	Tunisia		
Moreno (1993)	Demographic and Health Survey	Birth Interval Five year	as above	as above	Determinants of Failure Rates	Hazards model with piecewise exponential survival distribution
Steele et al (1996)	National Survey of Fertility and Contraceptive Prevalence	Five year complete calendar	1988	China	Determinants of Duration	Discrete-time hazards model
Steele et al (1999)	Demographic and Health Survey	Five year complete calendar	1995	Morocco	Contraceptive Use Dynamics	Event history analysis
Thapa and Hamill (1991)	Rural Family Planning Survey	Three year monthly calendar	1985/86	Sri Lanka	Comparison of Methoodologies	Continuation and failure rates
Sub-national Survey						
Ferguson (1992)	Community based contraceptive use dynamics survey	Four year calendar	1990	Kisa and Ena in Rural Kenya	Contraceptive adoption and discontination	Frequencies and continuation rates
Ping (1995)	Contraceptive Use History Survey	Birth intervals[1] four years	1991	Four counties in North China	IUD discontinuation	Multi-decrement life tables

[1] In the case of China contraceptive use is controlled to such a great extent that the loss of information in pregnancy intervals does not occur to the same extent as discussed in the text.

Table 2 Smaller Scale studies on Contraceptive Use Dynamics.

Authors	Fieldwork dates	Location	Survey type	Respondents	Sample size	Loss to follow up	Analysis Methodology
Cotton et al (1992)		Niamey, Niger	Follow up	New family planning clients	650	17%	Percentages
		The Gambia	Follow up	New family planning clients	570	24%	
Huezo and Malhotra (1993)	1984-1987	Guatemala Trinidad and Tobago Jordan Nepal Kenya	Follow up study	New clients at 10 clinics	11520	13%	Life tables
Mari-Bhat 1998)	1983-91	Karnataka, South India	Meta-analysis of previous IUD follow-up studies	IUD adopters	713	45-55%	Discrete-time hazards model
Pariani et al (1991)	1987-1988	East Java	Follow up study	First time government family planning clients	1945	22.2%	Logit linear model
Shedlin and Hollerbach (1981)	1975-1978	Semi rural area near Mexico City	Participant observation and open-ended interviews			Not discussed	Thematic analysis
			Follow up interviews	Users and non-users	16	Not discussed	Description
			Baseline Anthropological Study	Women currently in a union 15-44	114		Descriptive statistics
			Pre-project census survey (MOH)	Women currently in a union 15-44	1090		Descriptive statistics
			Family planning programme and evaluation statistics.				Descriptive statistics
Zetina-Lozano (1983)	1978-1980	Mexico City	Follow up study	Family planning clients	509	Not discussed	Bivariate analysis
Zurayk (1981)	1977-1978	South Lebanon	Follow up study	Postpartum women	275	8%	Multivariate analysis

Table 3 Matlab Studies

Authors	Fieldwork dates	Location	Purpose	Survey type	Respondents	Sample size	Analysis Methodology
Akbar et al (1991)	1978-1987	Matlab Treatment Area	Trends in method mix, continuation rates and failure rates	Record Keeping System	Residents	19,833	Life tables
Hossain et Phillips (1996)	1984-1992	MCH-FP extension Project	Impact of outreach on Continuation	Longitudinal surveillance Sample Registration (SRS)	Residents		Life tables Discrete time event history
Islam (1994)	1978-1982	Matlab Treatment Area	Use of Multistate survival methods for examining contraceptive use dynamics	Record Keeping System	Residents	17540	Multistate survival models
Rahman et al (1992)	1982-1987	Matlab Treatment Area	Influence of Gender preference on Contraceptive use	Record Keeping System	Women who had a live birth in 1982	3435	Cox's proportional hazard model and discrete time hazards model
Salway and Hossain (1991)	1977-1990	Matlab treatment area Matlab comparison area MCH-FP extension Project	Review of trends in prevalence, method mix and continuation rates	Longitudinal surveillance Sample Registration (SRS) Other Surveys	Residents		Variety of different methodologies
Seaton (1985)	1982	Matlab	Examine oral contraceptive noncompliance	Community Health Worker Records	Oral Contraceptive Acceptors	175	Descriptive Statistics

General
Introduction
Demographic and background variables

How old are you?
How long have you been married?

Who lives in the household?

Husband		
Sons	*number*	
Daughters	*number*	
Father-in law/(Father)		
Mother-in law(Mother)		
Sister(s) in law	*number*	
Brothers in law	*number*	
Other	*please list*	

Have you been to school? If yes for how long?
Has your husband been to school? If yes for how long?

Do you go outside the home?
Why? To got to the health centre
To go shopping/ to the market
To work
For the family/ for money
Others.. List
Can you go on your own to these places?
If not, who accompanies you?

Birth and Contraceptive history.

How many times have you given birth?
Could you show me on the time line when these occurred? **mark on time line**

Are there any other pregnancies?
fill in on time line

Go back to the time line and ask about every pregnancy interval starting with the most recent.

Did you use a contraceptive method during this time?
When did you adopt a method?
enter on grid

Which one: **enter on grid**
If pill ask if know brand, *probe for colour of packet if name not available*
enter on grid

Why did you discontinue? **enter reason on grid**
if side effects mentioned
When did you discontinue?

For each method used.

I would like you to think back to when you used method x at time y

Adoption	Experience of use	Discontinuation
Did you talk to anyone about adopting? Who? Family planning worker — Other relatives Husband — Friends Sister in law — Other….. Mother in law **To what extent were the following involved in the decision to adopt family planning?** You on your own — Mother in law Family planning worker — Other relatives Husband — Friends Sister in law — Other….. **How did you feel about that?** *probes* **Did you talk to anyone about <u>what method</u> you were going to adopt?** **Who?** Family planning worker — Other relatives Husband — Friends Sister in law — Other….. Mother in law **Who would you say made the decision about <u>what method</u> you adopted?** You on your own — Husband Family planning worker — Other…….. Woman with Family planning worker **Why was this particular method chosen?** Ease of use — Does not require husbands involvement Effectiveness — Own previous experience Availability — Someone else's experience	**What was your experience of using this method?** **What were the good things?** **What were the bad things?** *If side effects mentioned* **Did you expect these?** **What impact did they have?** **Was there anything you could do to reduce this impact?** *If yes* **Did you use these strategies?** **How did you find out about them?** **Who from and what were they?** **Were you warned about these effects by the service provider?** *If yes* **What did they say/recommend?**	**Did you talk to anyone about Discontinuing?** **Who?** Family planning worker — Other relatives Husband — Friends Sister in law — Other….. Mother in law **To what extent were the following involved in the decision to discontinue family planning?** Family planning worker — Other relatives Husband — Friends Sister in law — Other….. Mother in law **How did you feel about that?** *Probes* **What were the main reasons for discontinuation?**

General view of the methods
FOR EACH METHOD MENTIONED

What was your experience with method x?
What are the good things about it?
What are the bad things?

For each method known
Have you ever heard of any side effects associated with use of this method?
If yes,
What are the side effects?
Why do they occur?
What effect do they have on a woman's life?
Are there things that a woman can no longer do? What are these things?
How does this impact on her life?

What can be done to reduce these effects?
How did you find out about these? Who?

Who do women talk to about these effects?
What was their opinion/advice?
Anyone else?

FINALLY
Which method would you recommend to someone else?
If yes, what advice would you give them about its use?
If no, what specifically would you say to others about it?
What would you recommend instead?

Thank you very much for your time, your comments are very important for our research.

BDS

Section 1

Background and Demographic Characteristics

	Questions	Responses	Skip
101.	Please tell me your name?	Name:_____	
102.	How old are you?	☐☐ years	
103.	Have you ever attended school?	Yes 1 No 2 → 105	
104.	What class you have passed?	☐☐ Class	
105.	Are you currently married?	Yes 1 No 2 → Terminate interview	
106.	How long have you been married? (If less than 1 year write 00)	☐☐ Years ago	
107.	Did your husband ever attend any school?	Yes 1 No 2 → 109	
108.	What was the highest class he passed?	☐☐ Class	
108a.	What is the main occupation of your husband?	Occupation:_____	
109.	How many living sons and daughters do you have? (IF NONE WRITE 0)	Sons ☐ Daughter ☐	

110. Who lives in your household?

(READ OUT ALL THE OPTIONS)

Persons	Yes	No	Number
Husband	1	2	\\\\\\\\
Sons	1	2	
Daughters	1	2	
Father-in-law/Father	1	2	
Mother-in-law/Mother	1	2	
Sister-in-law/sister	1	2	
Brother-in-law/brother	1	2	
Other_____ (Specify)	1	2	

111. Do you go outside the home for--------- (READ OUT ALL THE OPTIONS)		Yes	No
	a. To go to the health center/ Doctor	1	2
	b. To go for shopping/to the market	1	2
	c. To work for earning What do you do	1	2

If circle code 2 in a and/or b of Q.111 then ask 113 or else ask Q.112.

112. Who accompanied you

a. For going health centre/doctor
b. For shopping

Accompanied by	Health center	Shopping
Nobody	1	2
Husband	1	2
Son	1	2
Daughter	1.	2
Relative	1	2
Neighbor	1	2
Health worker	1	//////////////////
Other_____	1	2

113 Are you or your husband currently using any family planning method? Yes 1 No 2

Start the tape from Q.114 and also write down the answers from Q.114 to 119.

		Now		Marriage
		1st Episode	2nd Episode	3rd Episode
114.	Pregnancy			
115.	Method used, if mention pill ask about the brand, but if not mention the brand, ask about the colour of packet.			
116.	How long the method used?	___ Month	___ Month	___ Month
117.	Reason stop.	Reason:	Reason:	Reason:
118.	Any side effects please mention.	Side effect:	Side effect:	Side effect:
119.	(Only for pill and condom) Regularity of use.			

127.	a. How did these affect your everyday life. PROBE - In house - In work - In family - Husband **Which side-effect ⟶ which effect** (Probe, how did you feel about, your husband, the people you work for colleagues and Boss, your child) b. Are there things that are more difficult to do?
128.	Was there anything you could do to reduce this impact?
129.	If yes, Did you use these strategies? How did you find out about them? Who from and what were they?
130.	Were you warned about side effects by the service provider? If yes, What did they say/recommend?

C. DISCONTINUATION:

DO NOT ASK Q.131 TO 134 FOR MOST RECENT METHOD IF SAYS CURRENTLY USING

131.	a. Did you talk to anyone about discontinuing? c. Who?
132.	a. To what extent were other people involved in the decision to discontinue family Planning? - Family planning worker - Husband - Sister-in-law - Mother-in-law - Other relative - Friend - Other _____ (Specify) b. How were they involved.
133.	How did you feel about that? (Probes)
134.	What were the reasons for discontinuation? If due to side effects, which side effects.

First ask by methods used, if only pill or only injectable used ask if know other method, if yes then ask about the other.

Question 135 only for methods used. 1st one method then the other
BELIEFS IN COMMUNITY

135.
- Have you ever heard of any side effects associated with use of this method?
- *If yes,* What are these side effects?
- Why do they occur?
- How did these affect the woman everyday life (Probe- In house, In work, In family, Husband)
- Are there things that are difficult to do? What are these things?
- How does this impact on her life?
- What can be done to reduce these effects?
- How did you find out about these? Who?
- Who do women talk to about these effects?
- What was their opinion/advice?

IF BOTH METHODS DISCUSSED SKIP TO 139

136. Do you know of any other methods ?
If yes, what are those?

Pill	01	
Injectable	02	
Condom	03	
IUD	04	
Norplant	05	→ 139
Female sterlization	06	
Male sterlization	07	

If pill or injectable mentions in Q.136 then ask 137 or else skip to 139.

137. Have you ever used pill/injectable method?

Yes	1
No	2

138.
- Have you ever heard of any side effects associated with use of this method?
- *If yes* , What are these side effects?
- Why do they occur?
- How did these affect your everyday life. (PROBE, in house, in work, in family, husband)
- Are there things that are difficult to do? What are these things?
- How does this impact on her life?
- What can be done to reduce these effects?
- How did you find out about these? Who?
- Who do women talk to about these effects?
- What was their opinion/advice?

FINALLY

139.
- Which method would you recommend method to someone else?
- What advice would you give them about its use?
- What specifically would you say to others about it?

Thank you very much for your time, your comments are very important for our research.

BDS

Section-1

Background and Demographic Characteristics

প্রশ্ন	উত্তর	Skip
101. দয়া করে আপনার নাম বলুন?	নাম: _____	
102. আপনার বয়স কত?	☐☐ বৎসর	
103. আপনি কি কখনও স্কুলে পড়াশুনা করেছেন?	হ্যাঁ 1 না 2 → 105	
104. আপনি সর্বোচ্চ কোন্ ক্লাস পাশ করেছেন?	☐☐ ক্লাস	
105. আপনি কি বর্তমানে বিবাহিতা?	হ্যাঁ 1 না 2 → সাক্ষাৎকার বন্ধ করুন	
106. কত দিন আগে আপনার বিয়ে হয়েছে? **(এক বৎসরের কম হলে 00 লিখুন)**	☐☐ বৎসর আগে	
107. আপনার স্বামী কি কখনও স্কুলে পড়াশুনা করেছেন?	হ্যাঁ 1 না 2 → 109	
108. আপনার স্বামী সর্বোচ্চ কোন ক্লাস পাশ করেছেন?	☐☐ ক্লাস	
108a. আপনার স্বামীর প্রধান পেশা কি?	পেশা : _____	
109. আপনার কতজন জীবিত ছেলে মেয়ে আছে? **(না হলে 0 লিখুন)**	☐ ছেলে ☐ মেয়ে	

110. আপনার পরিবারে (খানায়) আপনারা কে কে এক সাথে থাকেন?

(প্রত্যেকটি ব্যক্তি সম্পর্কে পড়ে শোনান)

ব্যক্তি	হ্যাঁ	না	সংখ্যা	
স্বামী	1	2	////////	
ছেলে	1	2		
মেয়ে	1	2		
শ্বশুর/বাবা	1	2		
শ্বাশুড়ী/মা	1	2		
ননদ/বোন	1	2		
দেবর/ভাই	1	2		
অন্যান্য_____ (নির্দিষ্ট করুন)	1	2		

	কাজ	হ্যাঁ	না	
111. আপনি কি বাড়ীর বাইরে_____ (কাজ) যান? **(প্রত্যেকটি বিষয় পড়ে শোনান)**	a. স্বাস্থ্য কেন্দ্র/ ডাক্তারের কাছে	1	2	
	b. কেনাকাটার জন্য বাজারে যান	1	2	
	c. টাকা আয়ের জন্য কোন কাজে আপনি কি করেন:	1	2	

112. **111 প্রশ্নের a এবং/বা b এর কোড 2 বৃত্তায়িত হলে 113 পশ্ন জিজ্ঞেস করুন অন্যথায় 112 জিজ্ঞেস করুন।**

a. স্বাস্থ্য কেন্দ্র/ডাক্তারের কাছে যাওয়ার সময় আপনার সাথে কে যায়?

b. কেনাকাটার জন্য বাজারে যাওয়ার সময় আপনার সাথে কে যায়?

কে সঙ্গে যায়	স্বাস্থ্য কেন্দ্র/ ডাক্তারের কাছে	কেনাকাটার জন্য বাজারে যাওয়ার সময়
কেউ যায় না	1	2
স্বামী	1	2
পুত্র	1	2
কন্যা	1	2
আত্মীয়	1	2
প্রতিবেশী	1	2
স্বাস্থ্যকর্মী	1	//////////////
অন্যান্য_____ (নির্দিষ্ট করুন)	1	2

113. আপনি বা আপনার স্বামী বর্তমানে পরিবার পরিকল্পনার কোন পদ্ধতি ব্যবহার করছেন কি?	হ্যাঁ	1	
	না	2	

Q.114 থেকে রেকর্ড করা শুরু করুন এবং রেকর্ডের পাশাপাশি Q.114 থেকে 119 পর্যন্ত উত্তরসমহ লিখুন ।

		বর্তমান		বিয়ে
		১ম এপিসোড	২য় এপিসোড	৩য় এপিসোড
114.	গর্ভাবস্থা			
115.	ব্যবহারকৃত পদ্ধতি খাবার বড়ি হলে, ব্রান্ডের নাম লিখুন। ব্রান্ডের নাম বলতে না পারলে বড়ির প্যাকেটের রং কি লিখুন।			
116.	একটানা কতদিন ব্যবহার করছেন?	মাস	মাস	মাস

117.	পদ্ধতি বন্ধ করার কারণ	কারণ:	কারণ:	কারণ:
118.	কোন পার্শ্ব প্রতিক্রিয়া হয়েছে কি? **হ্যাঁ হলে**, কি ধরনের পার্শ্ব প্রতিক্রিয়া হয়েছে?	পার্শ্ব প্রতিক্রিয়া:	পার্শ্ব প্রতিক্রিয়া:	পার্শ্ব প্রতিক্রিয়া:
119.	**(শুধুমাত্র খাবার বড়ি ও কনডমের ক্ষেত্রে)** আপনি কি নিয়মিত বড়ি/কনডম ব্যবহার করেন?			

আপনার ব্যবহার করা পরিবার পরিকল্পনা পদ্ধতি সম্বন্ধে এখন আমি আপনাকে কিছু প্রশ্ন জিজ্ঞেস করব।

বর্তমান ব্যবহারকৃত পদ্ধতি (Q.120 – 134) থেকে শুরু করুন, অতঃপর তার আগের ব্যবহারকৃত পদ্ধতির (Q.120 – 134) কথা জিজ্ঞেস করুন, অতঃপর তার আগের ব্যবহারকৃত পদ্ধতি (Q.120 – 134) সম্বন্ধে জিজ্ঞেস করুন।

120 থেকে 139 প্রশ্নের উত্তর সমূহ লিখার দরকার নেই, উত্তর সমূহ রেকর্ড করতে হবে।

A. পদ্ধতি গ্রহন:

120. a. _____ গ্রহন শুরু করা সম্বন্ধে কারও সাথে আলাপ করেছিলেন কি?
(পদ্ধতি)

b. কার সাথে আলাপ করেছিলেন?

121. a. _____ গ্রহনের সিদ্ধান্ত নিতে অন্যদের ভূমিকা(প্রভাব) কতটুকু ছিল?
(পদ্ধতি)

- পরিবার পরিকল্পনা কর্মী
- স্বামী
- ননদ
- শ্বাশুড়ী
- অন্য আত্মীয়
- বন্ধু
- অন্যান্য _____ (নির্দিষ্ট করুন)

b. তাদের কি ধরনের ভূমিকা ছিল?

122. তারা আপনাকে যা যা বলেছে সেইসব আপনার কাছে কেমন মনে হয়েছিল?
(প্রোব করুন)

123. কেন আপনি ঐ বিশেষ পদ্ধতিটি গ্রহন করেছেন?

B. ব্যবহারের অভিজ্ঞতাঃ

124. আপনার এই পদ্ধতি ব্যবহারের অভিজ্ঞতা কি?

a. ভাল দিকগুলো কি?
b. খারাপ দিকগুলো কি?

125. **পার্শ্ব প্রতিক্রিয়ার কথা উল্লেখ করলে,** এই সমস্যা হতে পারে তা কখনও আপনার মনে হয়েছিল কি?

126. খাবার বড়ি/ইনজেকশন নেয়ার ফলে কিভাবে এই সমস্যা হয়েছিল?

127. a .এই সমস্যার জন্য আপনার দৈনন্দিন জীবনে কি কি অসুবিধা হয়েছিল?

প্রোব করুন,

	কোন পাশ্বপ্রতিক্রিয়া ⟶ কি ফলাফল
বাড়ীর কাজকর্মে	(প্রোব করুন, আপনার কেমন মনে হয়েছিল,আপনার
কর্মস্থলে	স্বামী কি মনে করেছিল (Feel), কর্মস্থলের লোকজন
পরিবারে	যেমন সহকর্মী বা বস কি মনে করেছিল (Feel),
স্বামীর সাথে	আপনার বাচ্চারা কি মনে করেছিল (Feel)।

B এর ফলে আপনার আরও কোন অসুবিধা হয়েছিল কি যা করা আরও কষ্টকর । হ্যাঁ হলে, সেগুলো কি কি?

128.	এই সমস্যা দূর করার জন্য আপনি কিছু করেছিলেন কি?
129.	a. **হ্যাঁ হলে,** এইসব সমস্যা দূর করার জন্য কি কি ব্যবস্থা নিয়েছিলেন? b. এই সমস্যা দূর করার ব্যবস্থাগুলো আপনি কিভাবে বের/চিহ্নিত করেছেন? c. কার সাহায্যে এই ব্যবস্থাগুলো বের/চিহ্নিত করেছিলেন?
130.	a. এই সমস্যা (পার্শ্ব প্রতিক্রিয়া) হতে পারে সে সম্বন্ধে আপনাকে কি সেবা প্রদানকারী আগে থেকে সাবধান করেছিল? b. **হ্যাঁ হলে,** তারা কি পরামর্শ দিয়েছিলেন?

C. পদ্ধতি ব্যবহার বন্ধ করা সম্বন্ধেঃ

বর্তমানে ব্যবহৃত পদ্ধতি সম্বন্ধে 131 থেকে 134 প্রশ্নগুলো জিজ্ঞেস করার দরকার নেই।

131.	a. _____ (পদ্ধতি) ব্যবহার বন্ধ করা সম্বন্ধে কারও সাথে আলাপ করেছিলেন কি? b. কার সাথে আলাপ করেছিলেন?
132.	a. _____ (পদ্ধতি) ব্যবহার বন্ধ করার সিদ্ধান্ত নেয়ার ব্যাপারে অন্যদের ভূমিকা/প্রভাব কতটুকু ছিল? - পরিবার পরিকল্পনা কর্মী - স্বামী - ননদ - শ্বাশুড়ী - অন্য আত্মীয় - বন্ধু - অন্যান্য _____ (নির্দিষ্ট করুন) b. তাদের কি ধরনের ভূমিকা ছিল?
133.	তাদের ভূমিকা সম্বন্ধে আপনার মতামত কি? **(প্রোব করুন)**
134.	_____ (পদ্ধতি) ব্যবহার বন্ধ করার কারণগুলো কি কি ? পার্শ্বপ্রতিক্রিয়ার কথা বললে কোন পার্শ্বপ্রতিক্রিয়ার কারণে বন্ধ করেছেন?

GENERAL VIEW OF THE METHODS

Beliefs in Community

135 এর প্রশ্নগুলো শুধুমাত্র খাবার বড়ি ও ইনজেকশন সম্বন্ধে জিজ্ঞেস করুন।
যে পদ্ধতি (খাবার বড়ি বা ইনজেকশন) ব্যবহার করছে সেই পদ্ধতি সম্বন্ধে 135 জিজ্ঞেস করুন অতঃপর অন্যটি (খাবার বড়ি বা ইনজেকশন) সম্বন্ধে জানলে সেটা জিজ্ঞেস করুন।

135. _____ (পদ্ধতি) ব্যবহারের ফলে কোন পার্শ্ব প্রতিক্রিয়ার কথা আপনি কখনও শুনেছেন কি?

- হ্যাঁ হলে, সেইসব পার্শ্ব প্রতিক্রিয়াগুলো কি কি?
- কেন সেইসব পার্শ্ব প্রতিক্রিয়াগুলো হয়?
- এই সব পার্শ্ব প্রতিক্রিয়ার ফলে একজন মহিলার দৈনন্দিন জীবনে কি প্রভাব ফেলে? (প্রোব করুন, বাড়ীতে, কর্মস্থলে, পরিবারে, স্বামীর কাছে)
- এর ফলে আপনার আরও কোন অসুবিধা হয়েছিল কি যা করা আরও কষ্টকর?
- সেই ক্ষতিগুলো কি কি?
- সেই ক্ষতিগুলো তার জীবনে কি প্রভাব ফেলতে পারে?
- এ ধরনের প্রভাব কমানোর জন্য কি কি করা যেতে পারে?
- এগুলি সম্বন্ধে আপনি কিভাবে জেনেছেন? কার কাছ থেকে জেনেছেন?
- মহিলারা এসব সম্বন্ধে কার সাথে আলাপ করে?
- যাদের সাথে আলাপ করে তাদের পরামর্শ/মতামত কি?

বড়ি এবং ইনজেকশন দুটো পদ্ধতি সম্বন্ধে আলোচনা হলে 139 প্রশ্নে যান।

136. আপনি অন্য কোন পদ্ধতির কথা জানেন কি? **হ্যাঁ হলে,** কি কি পদ্ধতির কথা জানেন?	খাবার বড়ি	01	
	ইনজেকশন	02	
	কনডম	03	
	আই ইউ ডি	04	
	নরপ্লান্ট	05	→ 139
	মহিলা বন্ধ্যাকরণ	06	
	পরুষ বন্ধ্যাকরণ	07	

136 প্রশ্নে খাবার বড়ি বা ইনজেকশন উল্লেখ করলে 137 জিজ্ঞেস করুন অন্যথায় 139 প্রশ্নে যান।

137. আপনি কি কখনও খাবার বড়ি/ ইনজেকশন ব্যবহার করেছেন?	হ্যাঁ	1	
	না	2	

138. _____ ব্যবহারের ফলে কোন পার্শ্ব প্রতিক্রিয়ার কথা আপনি কখনও শুনেছেন কি?
(পদ্ধতি)

- হ্যাঁ হলে, সেইসব পার্শ্ব প্রতিক্রিয়াগুলো কি কি?
- কেন সেইসব পার্শ্ব প্রতিক্রিয়াগুলো হয়?
- এই সব পার্শ্ব প্রতিক্রিয়ার ফলে একজন মহিলার দৈনন্দিন জীবনে কি প্রভাব ফেলে? (প্রোব করুন, বাড়ীতে, কর্মস্থলে, পরিবারে, স্বামীর কাছে)
- এর ফলে আপনার আরও কোন অসুবিধা হয়েছিল কি যা করা আরও কষ্টকর?
- সেই ক্ষতিগুলো কি কি?
- সেই ক্ষতিগুলো তার জীবনে কি প্রভাব ফেলতে পারে?
- এ ধরনের প্রভাব কমানোর জন্য কি কি করা যেতে পারে?
- এগুলি সম্বন্ধে আপনি কিভাবে জেনেছেন? কার কাছ থেকে জেনেছেন?
- মহিলারা এসব সম্বন্ধে কার সাথে আলাপ করে?
- যাদের সাথে আলাপ করে তাদের পরামর্শ/মতামত কি?

139. **পরিশেষে:**

- আপনি অন্য কাউকে কোন্ পদ্ধতি ব্যবহারের জন্য পরামর্শ দিবেন?
- এই পদ্ধতির ব্যবহার বিধি সম্বন্ধে আপনি কি পরামর্শ দিবেন?
- এ সম্বন্ধে নির্দিষ্ট করে অন্যদের কি বলবেন?

সময় দেয়ার জন্য আপনাকে অনেক ধন্যবাদ। আপনার মতামত আমাদের গবেষনার জন্য অত্যন্ত গুরুত্বপূর্ণ।

BDS

সাক্ষাৎ প্রদানকারীর জন্য জ্ঞাতব্য

সাক্ষাৎকার গ্রহনের পূর্বে প্রত্যেক উত্তরদাতাকে নিম্নলিখিত বক্তব্য পড়ে শোনাতে হবে

আসসালামু আলাইকুম,

আমার নাম:

আমি সাউথহ্যামটন ইউনিভার্সিটির পক্ষে মহিলাদের গর্ভনিরোধ ব্যবহারের অভিজ্ঞতার উপর একটি সমীক্ষার কাজে নিয়োজিত। এই সমীক্ষার উদ্দেশ্য হলো, যে সমস্ত মহিলারা খাওয়ার বড়ি বা ইনজেকশন ব্যবহার করেছেন বা করছেন তাদের অভিজ্ঞতা জানা।

এই সমীক্ষার সম্পূর্ন উদ্দেশ্য হলো, আপনার অভিজ্ঞতার আলোকে কিভাবে গর্ভনিরোধ ব্যবহারকে আরো উন্নত করা যায় তাহা পরীক্ষা করে দেখা। এই সাক্ষাৎকার গ্রহন করতে আমার এক ঘন্টা সময় লাগবে এবং কথোপকথনের মাধ্যমে আমি আপনার সম্বন্ধে কিছু তথ্য গ্রহন করব।

যেহেতু, আপনার মতামত এই সমীক্ষার জন্য অত্যন্ত গুরুত্বপূর্ণ এবং আপনার সমস্ত মতামত আমার পক্ষে লিপিবদ্ধ করা সম্ভব নয় তাই এই তথ্যগুলি আমি রেকর্ড করে নিতে চাই।

একমাত্র আমিই এই টেপ থেকে আপনার গুরুত্বপূর্ণ তথ্য সমূহ জানতে পারব এবং আপনার সমস্ত বক্তব্য অত্যন্ত গোপনীয়তার সাথে রক্ষা করা হবে এবং আপনার পরিচয়ও গোপন রাখা হবে।

রিপোর্ট লেখার পরে এই টেপ মুছে ফেলা হবে এবং এই রিপোর্টে আপনার পরিচয় ব্যবহার করা হবে না। এই সাক্ষাৎকারের সময় আপনি যদি আমার কোন প্রশ্নে অস্বস্তিবোধ করেন তাহলে সেই প্রশ্নের উত্তর আপনি নাও দিতে পারেন এবং যেকোন সময় সাক্ষাৎকারও বন্ধ করে দিতে পারেন।

আপনি কি সাক্ষাৎকারে অংশ নিতে রাজী আছেন?

উত্তর দিতে রাজী হয়েছেন [1] উত্তর দিতে রাজী হননি [2]

Signature of Interviewer: _____ Date: _____

Signature of Respondent: _____ Date: _____

ID	age	Years at school	Number of Children	sons	daughters	ear hous ehol	Others in household
6	26	8	2	1	1	Yes	
7	24	0	1	1	0	Yes	
8	24	0	1	0	1	Yes	
9	27	3	4	3	1	Yes	
11	28	0	4	2	2	Yes	
12	33	0	3	2	1	Yes	
13	35	0	3	3	0	Yes	
14	18	3	1	0	1	No	father in law and a brother in law
15	20	9	1	1	0	Yes	
16	20	0	1	1	0	Yes	
17	28	0	4	0	4	Yes	
18	27	3	2	2	0	No	sister or sister in law
19	25	0	2	0	2	Yes	
20	28	10	1	1	0	No	brother in law, sister in law and 2 nephews
21	29	8	3	1	2	No	plus mother in law
22	22	5	2	1	1	Yes	
23	30	0	3	2	1	Yes	
25	23	6	1	1	0	Yes	
26	19	2	1	1	0	Yes	
27	21	0	1	1	0	Yes	
28	35	4	0	0	0	Yes	
29	38	0	7	2	5	No	mother in law and brother in law
30	28	4	1	1	0	No	mother and sister
31	28	9	2	1	1	Yes	
32	30	0	5	2	3	Yes	
33	26	0	3	1	2	No	sister
35	18	4	1	0	1	Yes	
36	24	11	1	0	1	Yes	
37	23	5	1	0	1	No	nephew
38	26	0	2	1	1	Yes	
39	25	11	2	2	0	Yes	
40	39	0	9	4	5	Yes	
41	33	0	4	2	2	Yes	
42	36	5	4	2	2	No	mother and father in law
43	35	0	6	2	4	No	mother and mother in law
44	16	4	1	1	0	No	Brother or brother in law
45	17	0	1	0	1	No	father, mother, 2 brothers and a sister
46	19	0	1	1	0	No	father in law, mother in law, brother in law, 5 sisters in law
47	24	7	1	1	0	No	niece
48	33	1	3	2	1	Yes	
49	18	2	1	1	0	No	mother in law
51	22	5	3	1	2	Yes	
52	28	0	3	1	2	Yes	
53	25	9	2	1	1	Yes	
54	18	3	1	1	0	No	mother in law, brother in law
55	30	0	0	1	2	Yes	
56	19	0	0	0	0	No	father, mother, brother in law
57	28	0	2	0	2	Yes	
58	25	0	1	1	0	Yes	
59	27	0	4	2	2	No	mother in law and sister in law

Appendix 7.2 Urban episodes where no impact was reported

Woman id	Method/ brand	Side effect(s)
8	injection	Weak –feeling 3-4 days after injection
	injection	Pain in thigh
		Pain in waist
16	Injection	Body withers
22	Injection	Amenorrhoea
27	Injection	Pain in waist
		Hazy vision
		Became weak
		Amenorrhoea
29	Injection	Abdomen became heavy
		Pain all over body
		Little menstrual bleeding
31	Shukhi	Loosing weight
32	Ovastat	Weak body
		Heart palpitations
	Ovacon	Became weak
33	Injection	Amenorrhoea
35	Injection	Amenorrhoea
		dizziness
38	Femicon	Dizziness for ¾ days
41	Ovacon	Dizziness
	Ovacon	Vomiting
		Stomach pain
		Gastric
47	Injection	Amenorrhoea (but hates menstruation anyway)
55	Injection	Irregular menstruation
57	Injection	Excessive bleeding and 2x/month
		Felt very sleepy
	Ovostat	Felt very sleepy
58	Injection	Duration of menstruation is longer but quantity of blood is less

Appendix 7.3 Urban episodes no strategy

id	Method/ brand	Side effect	Impact	Strategy
8	injection	Weak –feeling 3-4 days after injection	No impact	Did nothing (disappeared automatically)
	injection	Pain in thigh Pain in waist	No impact	Thought that pain would increase if took a rest so did not stop working Nothing could have taken pain killer but did n't
11	Shukhi	Dizziness Vomiting tendancy Bad feeling Weakness	Can't do anything	Nothing Took (the pill) to cure menstrual disturbances
12	Maya	Dizziness	Can't do anything	No strategy – only used pill for 1 month Nothing Was too late for injection so given pill to menstruation then can take inj again Can't afford milk, banana and beverage to reduce dizziness
16	injection	Body withers	No impact	Not sure if due to sui or other disease
19	shukhi	Dizziness (rare occasions) Hazy vision	No impact felt bad	Nothing
20	shukhi	Vomiting tendency Irregular period Dizziness	No impact felt bad	Diff to code disc due to side effects but also husband away and forgets to take
21	ovestat	Bleeding 2x per month amenorrhoea Loss of appetite	Sex No impact felt bad	Nothing
26	injection	Amenorrhoea	Had to work	Nothing
31	shukhi	Loosing weight	No impact	Took to regulate menstruation
32	ovacon	Became weak	No impact	Nothing
33	Maya	Dizziness Can't eat Became weak	Sex Economic Difficulties	Nothing Stopped taking after 2 months
35	Nordette 28	Weakness	Problems at work Difficulties	Nothing states that 'can't take nutritious food have to take vegetables if take pill
38	femicon	Dizziness for ¾ days	No impact	Nothing
47	injection	Amenorrhoea (but hates menstruation anyway)	No impact	Did nothing
49	shukhi	Dizziness Vomiting Loss of appetite Weakness	Difficult	Nothing only using for 1 month preparing for Norplant
49	injection	Amenorrhoea Pain in lower abdomen Weakness	Pain during sex Difficult to work	Nothing
55	injection	Irregular menstruation	No impact	Nothing
56	shukhi	Dizziness Headache	Can't do anything	Nothing told that everything would be ok after some time
57	injection	Excessive bleeding and 2x/month Felt very sleepy	No impact	Nothing
	ovostat	Felt very sleepy	No impact	Nothing

ID	age	Years at school	Number of Children	sons	daughters	Nuclear h'hold	Others in household
60	40	0	7	4	3	No	a.n.other woman present
62	30	0	3	3	0	No	father in law, daughter of husband's first wife
63	19	10	1	0	1	Yes	
64	33	5	2	1	1	No	father and mother in law, 4 brothers in law, 3 sisters in law,2 nephews
65	20	6	1	0	1	No	son of husbands first wife
66	22	6	1	1	0	No	father and mother in law, 3 brothers in law
67	20	6	1	1	0	No	Father and mother in law, brother and
68	30	2	2	1	1	Yes	
69	20	4	1	0	1	Yes	
70	30	8	3	2	1	Yes	
71	20	2	1	0	1	No	Father and mother in law, brother in law and grandmother
72	25	2	2	2	0	Yes	
73	24	0	2	2	0	No	Mother in law
74	27	0	2	1	1	Yes	
75	18	0	2	0	2	Yes	
76	26	2	2	1	1	Yes	
77	22	2	1	0	1	Yes	
78	24	0	3	2	1	Yes	
79	30	0	1	0	1	No	Mother in law, brother and sister in law and 2 nephews
80	37	0	4	1	3	Yes	
81	30	8	2	1	1	Yes	
82	26	0	4	2	2	Yes	
83	40	12	4	2	2	Yes	
84	23	4	2	0	2	No	4 sisters in law
85	21	9	1	1	0	No	father and mother in law and 2 brothers in law
86	30	0	3	1	2	No	father in law
87	20	7	1	1	0	No	Mother in law, 4 brothers in law and 1 sister in law
88	22	7	2	1	1	Yes	NOTE: husband works overseas
89	22	13	1	1	0	Yes	
90	50	5	5	1	4	No	Grandson
91	27	9	2	2	0	No	Father and mother in law and 1 brother in law
92	22	5	1	0	1	No	Mother in law
93	26	9	4	1	3	No	mother in law
94	18	7	0			No	Father and mother in law, and brother in law.
95	20	12	1	1	0	No	Father and mother in law and brother in law
96	32	10	2	1	1	No	Mother in law and a private tutor
97	27	1	3	2	1	no	father and mother in law and, brother and sister in law
98	20	0	2	2	0	No	father and mother in law and, brother and sister in law
99	22	0	1	1	0	No	Mother in law
100	26	8	1	0	1	no	Brother in law
101	35	0	4	4	0	No	Mother in law
102	23	0	2	0	2	Yes	

Appendix 8.2 Rural episodes where no impact was reported

Woman id	Method/ brand	Side effect(s)
60	Shukhi	Dizziness
68	Injection	Irregular menstruation
69	Injection	Excessive period in first 3 months
		Amenorrhoea
		Pain in 2-3 days after injection
		Dizziness
		Weakness
	Maya	Dizziness
70	Shukhi	Dizziness
71	Shukhi	Dizziness
	Injection	Bleeding for 3 months after gave up
73	injection	Bleeding for 3 months after gave up
75	Shukhi	Dizziness
77	Injection	Fontanel burns
	Injection	Fontanel burns
80	Injection	Weakness
		Biting pain
		Amenorrhoea
		She felt more weighty
84	Shukhi	Dizziness
		Little blood and blackish blood - period
	Shukhi	Menstrual disturbance
		Dizziness
90	Shukhi	Dizziness
		vomiting tendency
		Pain during urination
	Injection	amenorrhoea
		body felt heavy
91	Shukhi	The body withers
94	Femicon	Vomiting
		Dizziness
99	Injection	Amenorrhoea
		Hands, legs used to cramp/bite
102	Shukhi	Vomiting
		Dizziness
		vomiting tendency
		Eyes go dark
		Abdominal pain
102	Injection	Amenorrhoea
		Pain in abdomen
		Hand and legs biting
		Body ache

Appendix 8.3 Urban episodes no strategy

		Side effects	Impact	Strategy
62	shukhi	Dizziness No appetite Physical weakness	Had to work	""25+26 keep body cool – but can't afford (egg, milk sherbet
63	shukhi	Period 2x per month Dizziness Weakness	Delays cooking	Did nothing
66	shukhi	Dizziness Body palpitates	Can't work, husband and mother in law shout at her	Nothing
68	injection	Irregular menstruation	No impact	Did nothing
69	shukhi	Body burns Stomach pain	Rests and husband shouts Sex and husband shouts	Did nothing
70	shukhi	Dizziness Vomiting Body palpitates Excessive period	No impact	Did nothing
71	shukhi	Dizziness	no impact	did nothing
	shukhi	Dizziness	Rest, therefore work has to be done by others, so they do mind	Did nothing, had to rest, but that was an outcome vs a strategy
73	injection	Bleeding for 3 months after gave up	no impact	did nothing natural that bleeding as there was less blood during use
76	maya	Dizziness	No problem	Did nothing
78	injection	No or v. small menstruation Dizziness Weakness Sleepy feeling	Had to work, wants to rest but can't "" p5 in paper copy	nothing
79	injectable	No period Dizziness Abdominal pain	Had to work	nothing
85	injection	Weakness Can't eat Body withers Hands and legs seem to be breaking	Can't do any heavy work, can't do paddy	nothing
99	Injection	Amenorrhoea Hands, legs used to cramp/bite	No impact Less people in household so less work, had to cook for 2 people only, no other work	Did nothing