

**CONTRACEPTIVE DECISION-MAKING
BACKGROUND AND OUTCOMES OF CONTRACEPTIVE
METHODS**

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Summary

There is not a single answer to the question what factors determine contraceptive decision-making. Contributing factors differ for different methods. Values about what women find important with regard to contraception are consistent with the methods being used. Ease of use is generally considered to be the most important aspect of the method, while impact on day-to-day life is considered least important.

A good outcome of contraceptive use is defined as method satisfaction, no worries of being pregnant and no difficulty using the method correctly. On the one hand, the various methods are compared on outcome measures. On the other hand, risk factors for negative outcomes are identified. The most popular methods, oral contraception and condom users, have relatively negative outcomes, while long-acting contraceptive method users report relatively good outcomes. Especially the high number of pregnancy worries among oral contraception users and low levels of correct use among both pill and condom users is disconcerting.

Comparing users with positive and negative outcome scores, young age appeared to be an important predictor of negative outcomes. A higher income and no wish to have children in the future are associated with better outcomes. Furthermore, low decisional esteem is associated with negative outcomes, as well as finding ease of use relatively unimportant. For users of OCPs, condoms or hormonal IUS, method-specific risk factors could be identified. For all three methods, decisional esteem was the most important predictor of positive outcomes. What women value about contraception is not related to the outcome for users of any of these methods.

The role of the social environment in contraceptive decision-making is considerable. The family doctor is the most common source of both information and advice on contraception. However, the information women receive from family doctors is very limited. They often do not receive information about other methods than OCPs or condoms, available methods, and advantages and disadvantages of different methods, but even about the effectiveness of the method that was chosen. Especially for women using OCPs, information was limited. 10% of the women left the family doctor with a prescription for a different method than the one they went to see him for. Other frequently mentioned sources of information or advice are friends and the internet. School is mentioned as a source more often by users of OCPs and condoms.

The partner is not often a source of information or advice for women. However, for methods that are (partially) controlled by the partner (condoms, vasectomy and natural methods) their influence is much more prominent. Women rate their partners' involvement in contraceptive decision-making and use as moderate. The majority of them do not find it particularly important that their partners are involved either. They do think their partners are very satisfied with the method that is currently used. They also tend to think that their partners regard the current method more favorably than other methods. Women who use OCPs communicate less with their partners about contraception than users of other methods. Users of natural family planning on the other hand communicate more with their partners.

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Chapter 1: Contraceptive options

Even though reproductive technology has provided heterosexually active women with a multitude of options to choose from when they want to prevent pregnancy (Hatcher et al., 2007), little research has been done about decision-making processes. Most research is limited to which method is being used, and the efficacy and safety profile of the various methods. In addition, acceptability studies have been designed for individual methods, providing information about user satisfaction, (dis)continuation of the method, and again efficacy and safety. If choices of women regarding contraception are taken into consideration, attention is limited to whether or not women choose to use contraception or a particular method of fertility control.

More attention has been asked for the needs of women (and men) in fertility regulation and how they come to a decision on which method of contraception to use, if any (Hardon, 1997). Some qualitative studies have been done on decision-making (Free, Ogden & Lee, 2005, Mills & Barclay, 2006, Snow et al., 1997). Although these studies provide insight into possible motives to use particular contraceptive methods, they do not show how often women take particular motives into consideration. Neither do they clarify the relationship between these motives and the extent to which the choice for a contraceptive method is appropriate. The British Family Planning Association has published a quantitative study of contraceptive decision-making (Walsh, Lythgoe & Peckham, 1996). They found that for women in the UK, the most relevant and important characteristics to contraceptive choice are effectiveness, side-effects, health risks and the effects of long-term use.

In the Netherlands, Vennix (1990) has conducted a quantitative study of contraception, examining contraceptive use, user profiles of different contraceptive methods and experiences of contraceptive pill users. In the representative sample of this study, most women used oral contraception. For other forms of contraception, the applicability of the findings is limited. New forms of contraception, like the contraceptive ring, patch, implant and hormone-releasing intra-uterine system, but also the female condom, were not on the market yet and therefore not taken into consideration.

The main source of information about contraceptive choices at this moment is epidemiological research (Bakker et al., 2009, De Graaf et al., 2005, Wijzen & Zaagsma, 2006, CBS, 2003, SFK, 2005). We know oral contraception remains the prime method of birth control. New contraceptive methods, particularly the hormone-releasing intra-uterine system and the contraceptive ring are becoming more popular. Furthermore, there are important differences in method choice between different age groups. The availability of new methods calls for a re-evaluation of the choices women make concerning fertility regulation.

Contraceptive methods

In The Netherlands, there is a wide range of products and methods to choose from in order to prevent pregnancy. Figures presented by Statistics Netherlands (Centraal Bureau voor de Statistiek: CBS) showed that two out of three (65%) Dutch women between 18 and 45 years of age were using some kind of contraceptive in 2003 (CBS, 2004). First, all the available methods will be described, as well as the advantages and disadvantages as described in the literature. Method of application, mechanism of action, health effects and reliability of the various methods are discussed. Furthermore, an indication is given of the

percentage of women using each method. For this section, methods are categorized into four groups, hormonal, long-term, barrier and natural contraception.

Short-term hormonal contraception

Rutgers Nisso Groep recently carried out a representative study on sexual health in the Netherlands (Bakker & Vanwesenbeeck, 2006). Although the results show a steady decrease, compared to earlier studies, oral contraceptive pills (OCPs) remain the most popular method of contraception. 40% of all women aged 19 through 49 years use OCPs. In the oldest age group, 'the pill' was used less often than in younger groups, but it remained the most used method (Wijsen & Zaagsma, 2006). For the hormones to work effectively, pills have to be taken daily at a regular time. As the discrepancy between pill's typical use rate and perfect use rate shows, user failure is of great influence.

Over the years, other ways of introducing the hormones to the body are developed, in order to make user failure less likely. There are two relatively new forms of hormonal contraceptives that show the same typical use rates as the oral contraceptive pill: the contraceptive patch that works transdermally and the contraceptive ring that has to be inserted vaginally. The adhesive patch is a small thin hormonal contraceptive that is applied to the skin (of the buttocks, hips, chest, upper-back or upper-arm) and worn continuously for one week at a time, alternated after three weeks with a week not wearing the patch (Beerthuisen, 2003, Severy & Newcomer, 2005). The patch is not very popular. The vaginal contraceptive ring (Nuvaring) is a small flexible ring containing hormones that is to be inserted into the vagina and worn for three continuous weeks. After that the ring is removed for one week and subsequently replaced with a new ring (Knuist & Hamerlynck, 2003). The ring is gaining popularity, with about .% of women using it at present (Wijsen In the pill, patch and ring a hormone-free week is created, in order to enable a withdrawal bleeding to occur.

The active ingredients progestagen and estrogen in hormonal birth control act by preventing ovulation, thickening the woman's cervical mucus, making penetration of the uterus by sperm more difficult, and making the uterus less suitable for a fertilized egg to implant (Beerthuisen, 2003).

Hormonal contraceptive methods have some advantages and disadvantages in common. A lot of research has been done on health risks. Women may worry about possible damaging effects hormones can have on a person's health and fertility (Hendrickx & Lodewijckx, 1997). Only a few detrimental health effects have been found, which are mostly very uncommon. Most studies show a slightly increased risk of venous thromboembolism (blood clots), especially in combination with smoking (Beerthuisen, 2003). The only cancer which has an increased prevalence in OCP users is cervical cancer (Hannaford et al. Furthermore, 2007). Side-effects are more common than long-term health risks. They may include headaches, nausea, depressive moods and a decrease in libido (Van Dalen, Van Lunsen & Rademakers, 2004).

There are positive health effects as well. Some girls use hormonal contraception because it improves acne (Calderoni & Coupey, 2005), or it ameliorates menstrual problems. Hormonal contraception creates a regular cycle and most women experience a decrease in blood loss. Other less well-known beneficiary health effects of hormonal contraception are

a decrease in large bowel or rectal cancer and cancer of the uterine body or ovaries. All in all, women who use or have used OCPs have (Hannaford et al., 2007).

Next to health effects, psychological effects need to be considered as well. A specific disadvantage of oral contraceptive pills can be that they have to be taken daily, which can be problematic when a woman lives a life without routine and at times of change or stress (Free, Ogden & Lee, 2005). Some women get tired of having to take the pill every day (Wijsen & Zaagsma, 2006), or worry about forgetting to take the pill (Hendrickx & Lodewijckx, 1997). In case of the ring, a woman should not have any problems touching her own vagina. Hormonal methods have in common that they do not require having to think of contraception every time during sex. Most women find this to be pleasant as it enables spontaneous sex.

Long-term contraception

Other hormonal contraceptives are effective for extended periods of time. These methods need to be administered by a medical professional. Depo-Provera is a hormonal contraception that is injected every 10 to 12 weeks by a physician, containing a progestin. The hormonal implant is a device the size of a match which is inserted in the upper arm every three years, releasing a steady amount of progestin etonogestrel. Another long-term hormonal method is the Intra Uterine System (IUS), a device placed in the uterus releasing a progestin for up to five years. This last method has become more popular in recent years. In 2008, the use of the hormonal IUS increased by 15%, as measured in Daily Defined Doses (DDD) (SFK, 2009).

A non-hormonal long-term alternative is the copper-bearing intra-uterine device (IUD). It contains copper, which prevents sperm from fertilizing an egg and to a lesser degree prevents a fertilized egg from attaching to the uterine wall (Beerthuis, 2007). Finally, men and women who wish to have no (more) children, can have a vasectomy or sterilization, blocking sperm or egg from being released. Use of these definitive methods of birth control increases therefore with age (Wijsen & Zaagsma, 2006, pp 67-88).

Health effects of long-term hormonal contraception are similar to short-term progestin-only methods. They may cause bleeding disturbances, mainly spotting (light vaginal bleeding between periods) and irregular bleeding. Amenorrhea (absence of menstrual period) can occur, which some women find an advantage, but others think to be unnatural. All long-term contraceptives require a doctor's intervention, mostly also for their removal. Some women may find this problematic.

Hormonal IUS, copper IUD and implants are ideal for women who do not desire to have children in the near future. IUS and IUD are to be replaced every five years and the implant between every three years. Recently, an IUD was approved for ten years of use. The biggest advantage of these methods is their high effectiveness, mainly because it is not susceptible to user failure. Another advantage is their low cost. As a disadvantage women mention being afraid of side-effects which they believe they have to endure for three to five years (in fact the implant, IUS and IUD can be removed when a person wishes to).

Male and female sterilization are methods that are intended to be definitive. These methods are very effective to prevent pregnancy. A vasectomy is the only totally male-

controlled birth control method. Women report being able to enjoy sex more after sterilization, because they stopped worrying about getting pregnant (Mills & Barclay, 2006). Currently there is a trend that more men and women regret their decision. This is due to new relationship types that are occurring. Men and women more often separate after a long-lasting relationship and wish to have children with a new partner. Men who had a vasectomy performed at a younger age, and men having the procedure performed because of other reasons than a complete family appear to have a bigger chance of later regretting the decision (Meuleman, 2007).

Barrier contraception

In contrast to the hormonal and long-term contraceptive methods, barrier methods are coitus related. They only need to be used during sexual intercourse. There are several kinds of barrier contraception, preventing pregnancy by physically preventing sperm from entering the uterus. Barrier contraception is pretty effective when used perfectly but typical use rates show that improper use results in much more pregnancies. The best known barrier contraceptive is the male condom, put on a man's erect penis to block ejaculated semen from entering the woman's vagina. Furthermore, a female condom was developed. Another device that must be inserted into the vagina before intercourse is the diaphragm, a dome-shaped bowl of thin flexible rubber with a spring moulded into the rim, covering the cervix (Beerthuisen, 2003). The cervical cap or FemCap is a similar kind of product, a silicone cup shaped to cover the cervix (Shihata, 1998). It is recommended to apply spermicides with all these methods to improve effectiveness of the methods.

Barrier methods have some advantages in common. They don't have side effects or health risks, except in the case of latex intolerance. They only need to be used during sexual intercourse and do not disrupt a woman's menstrual cycle. Another advantage of condoms is that they protect against sexually transmitted infections (STIs) and hiv/aids as well as against pregnancy. Furthermore, condoms are available without a doctor's prescription. Disadvantages of these methods are that they are best used with spermicides, which some women report to dislike. Also, they need to be applied before sexual intercourse, which some people have reported prevents them from having spontaneous sex.

Condom failure is a common negative experience for people who use condoms. Condoms may tear or slip off during intercourse. For some women and their partners, the method feels 'fake' and it spoils the mood (Snow et al., 1997). Another negative aspect is the widespread assumption men don't like wearing condoms (Mills & Barclay, 2006). Some women report not being able to cope with men refusing to wear a condom, which can create situations of unsafe sex (Free, Ogden & Lee, 2005). Some women prefer using them because they feel it's cleaner when they don't come in contact with the man's sperm (Buck, Van der Straten, Khumalo-Sakutukwa, Posner & Padian, 2005). A striking disadvantage of condoms is the stigma they seem to carry (Buck et al., 2005). For example, asking your partner to use a condom implies you are having an affair or presumes you don't trust the other person. A woman carrying a condom with her indicates promiscuity. A study by Hynie, Lydon en Taradash (1997) even shows that women not carrying a condom were judged to be nicer than women who did carry one.

Women can take control by using the female condom, not having to count on men for protection or being afraid of the condom being sabotaged by the partner (Gollub, 2000). Nevertheless the female condom is not used much. This method has many experienced

disadvantages: making disturbing noises (because of the polyurethane), being too big and unattractive, inner and outer ring are uncomfortable, and the woman's outer genitalia are inaccessible (Buck et al., 2005). Some women report not liking having to touch themselves when inserting the condom (Snow et al, 1997). The female condom is also more expensive than male condoms are. Potter and Villemeur (2003) point out that unfamiliarity with the polyurethane condom may cloud the judgement of first time users. Using the product several times is recommended before discharging it, because acceptability develops over time (Severy & Newcomer, 2005), and insertion needs to be practiced (Gollub, 2000).

There are two more barrier contraceptives both female-controlled, the diaphragm and Femcap. Being uncomfortable with touching oneself creates a problem for using these methods as well. A possible disadvantage of a diaphragm and Femcap is that an appointment with a health care provider is necessary, because it must be determined which size a woman should wear. These methods are not recommended for women who don't plan sex in advance, because the products have to be inserted some time before sexual intercourse (Shihata, 1998).

Natural birth control methods

Finally, there are natural family planning methods, referring to all methods preventing pregnancy without interference. There are two classical methods of natural birth control: periodic abstinence, the practice of refraining from sexual intercourse during the fertile period, and coitus interruptus (also withdrawal or pull out method), which means that during sexual intercourse the penis is retracted from the vagina prior to ejaculation (Beerthuisen, 2003). Several means can be used to determine the fertile period, in which periodic abstinence can be applied (natural family planning, NFP) or alternative means of contraception can be used (Frank-Herrmann et al., 2007). There are three main types of methods based on fertility awareness, the observational methods, which rely on biological signs of fertility, 'calendar' methods, relying on statistical estimates of a woman's fertile period, and the lactational amenorrhea method (LAM), lengthening a woman's infertile period after giving birth by way of breastfeeding (Beerthuisen, 2003). These methods are usually known for their low effectiveness, but recent studies have suggested that when correctly applied fertility awareness methods can be highly effective (Frank-Herrmann et al., 2007).

The methods of natural birth control don't have side-effects like hormonal contraceptives and they come without expenses (or very cheap). The negative aspect of most of these practices is their low effectiveness. Fertility awareness methods have proven to be relatively difficult to learn. Furthermore, many find abstinence in fertile periods a big challenge.

Table 1: Contraceptive failure rates in the United States (Trussell, 2004).

Method (1)	% of women experiencing an unintended pregnancy within the first year of use		% of women continuing use at 1 year ^e (4)
	Typical use ^a (2)	Perfect use ^b (3)	
No method ^d	85	85	
Spermicides ^e	29	18	42
Withdrawal	27	4	43
Periodic abstinence	25		51
Calendar		9	
Ovulation method		3	
Symptothermal ^f		2	
Postovulation		1	
Cap ^g			
Parous women	32	26	46
Nulliparous women	16	9	57
Sponge			
Parous women	32	20	46
Nulliparous women	16	9	57
Diaphragm ^h	16	6	57
Condom ⁱ			
Female (Reality)	21	5	49
Male	15	2	53
Combined pill and minipill	8	0.3	68
Ortho-Evra patch	8	0.3	68
NuvaRing	8	0.3	68
Depo-Provera	3	0.3	56
Lunelle	3	0.05	56
IUD			
ParaGard (copper T)	0.8	0.6	78
Mirena (levonorgestrel containing intrauterine system)	0.1	0.1	81
Norplant and Norplant-2	0.05	0.05	84
Female sterilization	0.5	0.5	100
Male sterilization	0.15	0.10	100

Emergency contraceptive pills: Treatment initiated within 72 h after unprotected intercourse reduces risk of pregnancy by at least 75%.^j

Lactational amenorrhea method: A highly effective, temporary method of contraception.^k

Effectiveness of birth control methods

Before discussing the various methods, we will provide an overview of the reliability of these methods. The effectiveness of the various birth control methods differ. In part, unplanned pregnancies can be attributed to method failure. However, for most methods effectiveness depends strongly on how conscientious a user is in its use (user failure). Furthermore, provider failure can be of influence. This means there is a difference between theoretical efficacy and effectiveness in practice (Trussell, 2004, Severy & Newcomer, 2005).

The most common way to compare different contraception methods' effectiveness is the Pearl Index, the percentage of women getting pregnant each year using a particular method. Usually, typical use and perfect use are presented, in order to compare theoretical and practical efficacy. Perfect use is defined as following the existing guidelines for a particular means of contraception. Table 1 shows estimates of effectiveness in the USA. We don't have comparable data for the Netherlands.

Chapter 2: Contraceptive decision-making

As there are many options available, women in need of contraception are required to make a decision about which method to use. This decision may be based on method properties, external influences, relationship dynamics, and women's personal characteristics (Noone, 2002). We will use a more integrated model. Not only method characteristics are taken into account, but personal, relationship and social issues as well.

Vigilant contraceptive decision-making

The quality of the decision-making process is related to the quality of the decision. However, the ideal contraceptive method does not exist. All methods have both advantages and disadvantages (Webb, 2002; Mills & Barclay, 2006). The conflict theory of decision-making (Janis & Mann, 1977; Chambers & Rew, 2003) presents indicators of the quality of decision-making. According to this approach, vigilant decision-making is a seven-step process in which the decision maker:

- Canvasses a wide range of alternative courses of action.
- Clarifies relevant objectives and values related to the choice to be made.
- Carefully weighs the positive and negative consequences of each course of action.
- Searches intensively for new information to use in evaluating each course of action.
- Takes new information into account even if it does not support the preferred course of action.
- Re-examines positive and negative consequences of all courses of action before making the final choice.
- Makes detailed plans and contingency plans to implement the chosen course of action.

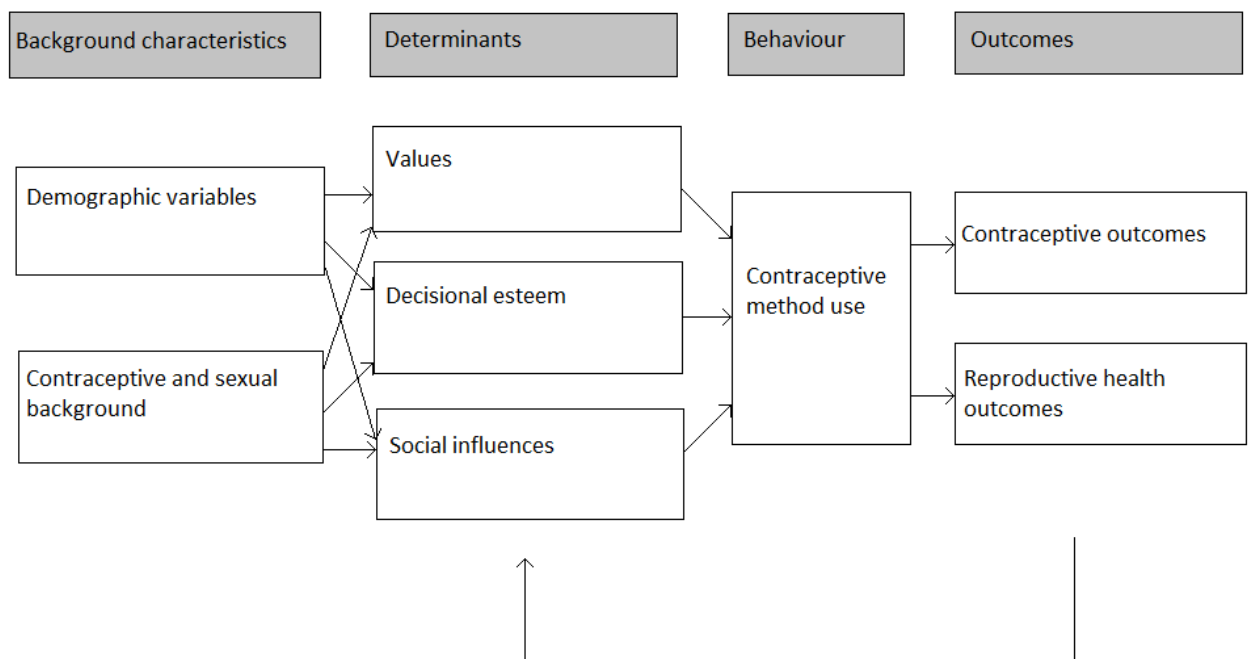
Vigilant contraceptive decision-making requires commitment to the decision-making process and trust in one's capability to make a satisfactory conclusion. This is called decisional esteem by the authors (Chambers & Rew, 2003). This theory claims that the decision-making process should be as explicit and conscious as possible. The searching of relevant information and the weighing of that information against personal values and objectives is deemed very important. Therefore, the model has a mostly individual and cognitive focus.

Another relevant theoretical approach is the theory of reasoned action (Fishbein & Ajzen, 2010). Although this model has a cognitive focus as well, social influences are also recognized. A positive attitude toward a given course of action, and perceived norms supporting that behaviour, lead to a high intention (strong commitment) to perform the behaviour. The stronger the intention to engage in this behaviour, the more likely should be its performance. Furthermore, perceived behavioural control, which is comparable to Bandura's (1977) concept of self-efficacy, influences intention as well. It reflects people's beliefs about their capabilities. Although the planned behaviour model was developed only to investigate the intention to perform a single behaviour, results of various studies indicate that the model works even more adequately in situations involving alternatives (Sheppard, 1988).

A model of contraceptive decision-making

The model in figure 1 presents a theoretical framework for contraceptive method use, the target behaviour in this study. It is loosely based on the reasoned action approach. The model has been adapted to include relevant determinants and outcomes for contraceptive decision-making. Not only demographic background variables are taken into consideration, but contraceptive and sexual background as well. This encompasses previous experiences with contraception, sexual behaviour, relationship characteristics and child wish. This reflects that contraceptive decision-making is not a once in a lifetime phenomenon, but a dynamic process dependent on life stage, situation, experiences, knowledge and new information (Free et al., 2005). These experiences are taken into account when a woman decides on a (new) course of action regarding birth control. As determinants, values and social influences (including information) are thought to be important, based on the conflict theory. Decisional esteem, a form of self-efficacy with regard to contraceptive decision-making. Unlike the theory of reasoned action, this model does not have behaviour as its end point, but outcomes with regard to contraception and reproductive health.

Figure 1. Model of determinants and outcomes of women's contraceptive decision-making



Antecedents of contraceptive method choice

In the following sections, a closer look is taken at the different elements in this model and how they may be relevant for contraceptive method choice, based on previous research.

Background characteristics

Background characteristics include demographics and some personal characteristics of a woman. The model shows how this demographic and personal profile forms/constitutes the basis of a woman's decision-making process. They may have a direct influence on behaviour, but they are also likely to operate indirectly by influencing behavioural determinants (Green, Johnson & Kaplan, 1992).

Age is of great importance. It is moreover connected with many other background characteristics, like relationship type and duration, number of children (parity), child wish or other life aspirations. For example in contrast to younger women, older women are more likely to have a steady long-lasting relationship and children. They are also more likely to have more experience with multiple birth control methods and presumably have a more educated opinion on the subject. Older women are less likely to use the pill than younger women. In contrast, older women are more likely to use long-lasting methods or sterilization.

Several studies show educational level is related to contraceptive method choice and (in)consistent use of the chosen method (Wijsen & Zaagsma, 2006, De Graaf, Meijer, Poelman & Vanwesenbeeck, 2005, Van Dalen, Van Lunsen & Rademakers, 2004, Oddens, 1996). Religion and ethnic background also prove to be important (De Graaf et al., 2005). Presumably, this is also linked to the fact that many religious leaders prohibit the use of any kind of (artificial) contraception. A strong religious conviction may result in abstaining from contraception, or merely using a less effective natural method (Oddens, 1996).

Throughout their reproductive lives most women switch at least between two different birth control methods (Walsh, 1996). This process is referred to as a contraceptive career. Literature shows most women start with condoms and/or oral contraceptives, sometimes followed by IUD and ending with sterilisation (Oddens, 1996). This appears to be true for a minority of women in the Netherlands. Pill-use is highest among young girls, an indication that almost all women start their birth control career with the pill (Skouby, 2004, CBS, 2007). But although male and female sterilisation numbers increase in older age groups, the oral contraceptive pill remains the most used method among older women as well (Wijsen & Zaagsma, 2006). The number of methods used during the entire career varies from one individual to the next. As do the time intervals involved and the reasons for changing methods (Boldt, 1977). This contraceptive career is different for each woman dependent on personal factors, situation, context and environment

The contraceptive career may influence decisions concerning family planning. For example, many women get weary of using hormones for a long period of time (Rensman, 2006). Then non-hormonal methods come into focus. Negative or positive experiences may also influence the decision-making process.

Determinants

Information and values are important determinants according to the conflict theory of decision-making. Women can find different things important about their contraceptive method. Emphasizing different aspects of contraception like effectiveness, side effects, health risks, protection against STIs and HIV/AIDS or effects on one's sex life can result in different behavioural preferences. For example, if a decision is mainly based on the absence of side effects, hormonal methods are probably not the first choice. Literature shows that the aspects that are judged as most important by most women change over time. Effectiveness used to be most important. Nowadays, health risks caused by prolonged use of hormones are becoming more prominent (Van Dalen et al., 2004).

Previous research has shown that people's behaviour is strongly influenced by the confidence in their ability to perform that behaviour (self-efficacy). Having a specific sense of self-confidence and self-esteem about one's decision-making abilities has also been called decisional esteem. It has been linked to improved quality of the decision-making process (Chambers & Rew, 2003).

Social influences

Although it is often the woman who makes a decision about what contraceptive method to use, she doesn't make that decision in a social vacuum. In this section, social influences are explored. First, the partner may be important in the decision-making process. When a doctor is consulted, he or she may exert influence as well. More generally, sexuality education or other sources of information are important for coming to a well-informed decision. Finally, environmental constraints may also act as barriers to obtaining or using particular methods of contraception.

The influence of the partner

Most women using methods of family planning have partners. In many cases, these partners are to some extent involved in the decision-making process. The partner's demographic characteristics, attitudes, beliefs and expectancies towards contraceptives can influence contraceptive method choice and use in a relationship. Quality and power dynamics of a relationship may determine birth control preferences. However, many women actually make their contraceptive decision without involvement of their partner. Women prefer having control over contraception themselves and most men believe it is women's responsibility to protect themselves from getting pregnant (Picavet & Wijssen, 2009).

Women consider birth control as their responsibility, because they are the ones running the risk of getting pregnant. This is the main reason why women are more reserved towards a possible male contraceptive pill than men are. They all encourage/support research developing such a pill, but more than half of these women do not intend to use it when it becomes available. They don't trust men to take birth control responsibility, because it doesn't change the fact that they are still the ones at risk of getting pregnant when it is not correctly used.

Some men don't want their partners to use any kind of birth control, which may cause women to choose a product that can be kept secret from their men, like an implant or IUD (Lowe, 2002). They may also veto the use of particular methods, like condoms.

Family doctors and other providers

Family Planning in the Netherlands has become an important task of general practitioners since the end of the 1960's. For most birth control methods a prescription is needed, which can be most easily acquired from the general practitioner. He or she is a health care provider that most women already trust and who is easily accessible (Ketting & Visser, 1994). Abolishment of the need for a gynaecological examination before prescribing the pill lowered the threshold for lots of women to consult their family doctor about contraception (Van Dalen et al., 2004). Dutch general practitioners generally do not have a normative or patronizing attitude and although women make their birth control decision themselves, their family doctor is their primary source of information (Van Lunsen et al., 1994).

When a doctor has actively involved the women in the decision-making process, she is less likely to use contraception inconsistently (Moreau et al., 2006). It is essential that women are sufficiently informed by their doctors about possible alternative contraceptive methods, because those might better suit their situation. A study by Walsh, Lythgoe & Peckham (1996) demonstrated that the majority of women who approached a health professional to discuss contraceptive method choice had already decided beforehand which method they wanted to use. Almost half of these women did not receive information about other contraceptive methods than the one they chose to use. Especially for younger and lower educated women, inadequate information may result in a less vigilant decision (Van Dalen et al., 2004). Older women declare trusting their general practitioners judgement to a lesser extent, (Mills & Barclay, 2006). Because younger women (still) trust their doctors, they take their advise without any doubt (Loeber, 2003). Perhaps their awkwardness with the subject of contraception or sexuality prevents them from discussing it with their doctor (Free, Ogden & Lee, 2005). Therefore, doctors should not rely on the initiative of the woman, but take the initiative for providing information themselves.

Sex education and information

An important way to gain knowledge about contraceptives is sex education received from parents, schools and the media (Skouby, 2004). Men and women learn about available birth control methods and are enabled to compare them. Parents are an important source of information. 71% of young women have talked about contraception with their parents (De Graaf et al., 2005). Parents' attitudes towards contraceptives determine to a great extent whether their children confront them with questions concerning sexuality or birth control (Van Dalen et al., 2004).

In the Netherlands, 90% of all schools provide their students with some form of sex education (Van Dalen et al., 2004). Media influence proved to be important in the eighties when pill-use dropped suddenly because of alarming messages in the press about negative effects of oral contraceptives on health (Ketting & Visser, 1994). Through different media, like magazines and the internet, people can be informed about the contraceptive experiences of other men and women. This way, social norms may become evident. The internet is an increasingly important medium for searching information about health-related subjects, including sexuality and contraception. Friends and other people in the woman's environment may provide information and advice concerning birth control as well. Source of information may be related to contraceptive method choice, but research is needed to confirm this.

Environmental constraints

In the Netherlands, there are hardly any normative constraints to contraception. Oral contraception use is widely accepted (Van Lunsen & Wijzen, 2009). However, younger women are still concerned of being stigmatized as 'looking for sex' when carrying a condom (Van Dalen et al., 2004). Other possible constraints are the lack of health facilities. Availability and cost of such facilities are determining factors. Oddens (1996) mentioned "liberal abortion legislation, extensive sex education in schools, general practitioners as the primary source of contraceptive care and special contraceptive care facilities for groups at risk of poor contraceptive practice" to be prerequisites of contraception use and low abortion rates. These requirements all apply to Dutch society. On top of this, several contraceptive methods have been included in the national public health insurance system in the Netherlands since 1971. Since (complementary) health insurance and contraceptives are expensive, personal income may also be an important factor, because one must be able to afford the product.

Outcomes of contraceptive decision-making

Usually, research on the quality of contraceptive decision-making is limited to the outcome whether or not a reliable method of contraception is being used. More users of reliable methods is being equalled to better decision-making. However, increasingly, other measures are used to assess the quality of the decision-making process. For example, satisfaction with the contraceptive method of choice, as measured by continuation rates after a specified time frame are taken into regard. Outcomes of contraceptive use may influence the continuation of its use and a possible reconsideration of alternative methods. Important factors that have been described in the literature as predictors of a revision of method choice include dissatisfaction with side effects and fear of long-term health risks (Free, et al., 2005).

Although satisfaction is an important criterion in whether a contraceptive decision was appropriate, other factors are important as well. Women may be satisfied about a method, while at the same time finding it very difficult to comply to the prescribed regimen. A second important outcome measure is therefore the ability to use the method according to the prescribed rules (Walsh, Lythgoe & Peckham, 1996). A third factor is usually not taken into account, but may be important as well, namely whether women trust the efficacy of their method (or the method as they use it), and therefore whether they do not worry about becoming pregnant. An important factor in the decision to change between contraceptive methods appears to be whether women fear being pregnant or whether they actually are pregnant (Walsh, Lythgoe & Peckham, 1996).

Research questions

The current study centres on the woman's choice. Women are considered to be the primary agents when contraception is concerned. This is not surprising, given the fact that most contraceptive methods have been developed for women. Furthermore, women are more at risk than men when contraception fails.

Although the pill is most frequently used by women in the Netherlands (Wijzen & Zaagsma, 2006), it is not used correctly and consistently all the time, resulting in unplanned pregnancies. Approximately one third of all abortion clients used OCPs prior to their

pregnancy (Kruijer, Van Lee & Wijsen, 2009). Women appear to find it difficult to take the pill routinely. They also experience other disadvantages of its use, but feel there is no alternative method they might use instead. High rates of oral contraception use do not necessarily imply satisfaction with this product but might just mean the pill is tolerated as the best alternative (Snow et al., 1997). However, other methods are considered even less acceptable or are relatively unknown. No other method is considered to be as effective and suitable as the pill in spite of its disadvantages (Lowe, 2002). None of the existing methods meet women's demands for the ideal contraceptive (Van Dalen, Van Lunsen & Rademakers, 2004) leaving them with no obvious alternative.

This situation leads to the question for whom specific methods of contraception are more appropriate and for whom these methods are less appropriate. Appropriateness is defined in this study as satisfaction, combined with a lack of worry about being pregnant and a lack of trouble using the method correctly. Knowing which factors contribute to an appropriate decision helps providers to assist their clients to choose the right contraceptive method for them in their situation. This general question can be elaborated in the following questions:

- Which factors determined women's current contraceptive method choice?
- Do users of different methods differ on outcome measures?
- Do women use a less appropriate method and which women do?
- What role does social environment, specifically the partner and the health care provider, have on contraceptive choice?

Chapter 3: Methods

In this chapter, the methods that have been used in this study are presented. First, the design is described, followed by the recruitment and selection procedure. Next, the questionnaire and its measures are presented, as well as the methods of data analyses. In the last section, the demographic composition of the sample is presented.

3.1. Design

This study used a cross-sectional explorative design. An internet survey was designed in order to explore the association of contraceptive method choice with background characteristics, determinants of decision-making and contraceptive outcomes (for example, satisfaction). The importance of different aspects of contraception and decisional esteem are retrospective measures. They describe the time when the current contraceptive method was chosen (for example, how important was method reliability for you when you chose your current method?).

3.2. Sample selection and procedure

The vast majority of participants was recruited through the internet. Aiming at a minimum of 50 respondents for each contraceptive method, varying in age group as much as possible, a convenience sample was gathered. The focus in recruitment was on women who used other methods of contraception than oral contraception and condoms. Respondents were recruited through messages on websites and (after permission) discussion platforms. Additional recruitment took place via sexologists, sexual health clinics, pharmaceutical companies, and through personal networks. Cooperating websites are about contraception in general, a specific contraceptive method, sexuality in general or deal with topics concerning women. In annex A, the websites are listed. The pharmaceutical company responsible for the implant (Schering Plough) recruited additional implant users.

Because recruitment took place mainly via the internet and the questionnaire was also online, the threshold for participating was low. Respondents only had to click the hyperlink to the questionnaire. At the beginning of the questionnaire, after a short introduction, a few questions were asked in order to select respondents for entering the study. Selection criteria were that the respondent is a woman, is living in The Netherlands, is under the age of 50 and is currently using contraception. Women who didn't use any contraceptive method were only excluded from the study after asking them their reason for not using contraception. Completion of the questionnaire took most participants 20 to 25 minutes. Respondents were not paid or rewarded for their participation.

3.3. Measures

A questionnaire was developed (in Dutch) containing 82 closed questions, based on the model presented in chapter 2. A few open questions were added for additional information. The questionnaire is included in annex B.

Background characteristics

For demographic background the following variables were selected: age, ethnicity, religiosity, income, level of education, and relationship status. Ethnicity was measured

with three questions, assessing the country of birth for the respondent herself and both her parents. When a woman indicated another country of birth than the Netherlands for herself or either of her parents, she was considered to be not of Dutch origin. Next to demographic variables, contraceptive and sexual background was assessed: number of contraceptive methods used, duration of use of the current method, child wish, frequency of intercourse, number of sex partners in the past six months, and relationship secureness. Child wish was assessed by two questions, whether the respondent wanted to become pregnant, either at the present time or in the future. Respondents who thought it likely to be with their current partner in two years time were considered to be secure about their relationship.

Determinants of contraceptive method choice

Respondents were asked to rate the importance of 23 aspects of contraception for the choice for their current method. Each was rated on a 5 point Likert scale, ranging from 1 'very unimportant' to 5 'very important'. A factor analysis (principal components with varimax rotation) was performed on these items, yielding a six-factor solution. The factors were interpreted as: Importance of health effects (5 items, $\alpha=.78$), importance of menstrual control (4 items, $\alpha=.84$), importance of ease of use (4 items, $\alpha=.64$), importance of sharing responsibility (2 items, $\alpha=.88$), importance of sexual outcomes (2 items, $\alpha=.73$) and importance of low impact (5 items, $\alpha=.69$). As these factors indicate what respondents value about contraception, these factors are considered to be their personal values about contraception.

Decisional esteem was measured with a scale of three items ($\alpha=.71$), assessing difficulties talking to the partner about contraception, difficulties finding information about contraceptive options and difficulties making a decision about contraceptive method. Items were scored on a 5 point Likert scale, ranging from 1 'a lot of trouble' to 5 'no trouble at all'. The scales can be found in annex C.

Social influences on contraceptive method choice

First, questions were asked about sources of information and advice about contraception. An open question about what advice women received was added. The roles of the partner and of the family practitioner were further explored. With regard to the partner, both their personal values and actual involvement were assessed. Women were asked whether they find it important to make contraceptive decisions together with their partner and that their partner is involved. Also, actual partner involvement and whether the partner takes responsibility with regard to contraception are assessed. Communication with the partner about method choice, contraceptive experiences and pregnancy scares is reported by respondents. Furthermore, the acceptability of various methods and satisfaction with the current method of the male partner are reported by the respondent.

Whether the family doctor influenced contraceptive decision making was assessed with a question asking whether the participant received the contraceptive method she came to see her family doctor for. Also, it was asked whether the family doctor gave information about other methods than pill and condoms, about contraceptive options, (dis)advantages of all methods, and about effectiveness of the method that was chosen.

Contraceptive method use

Current contraceptive method was assessed with the question 'What method of contraception do you use?'. Only one alternative could be selected.

Outcomes

The primary outcome measures are satisfaction with the current method, being able to use the method correctly and lack of worries about unintended pregnancy. These outcomes were assessed with three single items. Satisfaction and trouble with correct use were scored on a 5 point Likert scale. For worries about unplanned pregnancy since using the current method, one of four alternatives ranging from 'never' to 'often' needed to be chosen. When any of these outcome measures had a negative result, this was seen as a possible indication that the choice of the current contraceptive method was not optimal. Therefore a total outcome score was computed, with either a positive or negative outcome. When any of the items had a negative outcome (dissatisfaction, trouble with correct use, or any worries about pregnancy), total outcome was considered to be negative as well.

Next to these outcome scores, questions were asked about adverse reproductive events during the use of the current method. It was recorded whether women had had an unplanned pregnancy or an abortion. Furthermore, women were asked whether they had used emergency contraception at any moment in time.

3.4. Data analysis

The data were analysed using SPSS 12.0. The relationships between on the one hand contraceptive method and on the other hand background characteristics, determinants, social influences and outcomes were examined, according to the model described in chapter 2. In case of continuous variables (for example the determinants), a multivariate analysis of variance was performed. For other variables χ^2 tests were performed. The level of significance for all analyses was set at .05.

Next to relationships between current method and other variables, the relationship between determinants and outcomes were explored for each contraceptive method as well. This was done in order to explore whether profiles could be found for 'successful' and 'less successful' users of the various methods, so this could be taken into account for contraceptive counseling. This could be done for users of OCPs, condoms and hormonal IUS, because for these methods the number of respondents was high enough (more than 120 each, using a minimum of 10 respondents per predictor). Both bivariate and multivariate logistic regressions were performed with total outcome as outcome measure and determinants and demographic variables as possible predictors.

3.5. Respondents

A total of 1280 women participated in our study. Female condom (n=2), diaphragm (n=2), and patch (n=11) user groups were too small to draw meaningful conclusions. Therefore, their data were excluded from the sample. The remaining sample consists of 1265 women. The average age of the sample is 26.9 years (sd = 8.5). The youngest respondent is 13 years

old and the oldest respondent is 50 years old. In table 3.1, the distribution of the women over age groups and contraceptive methods is presented.

Table 3.1. Current contraceptive method by age (%)

Contraceptive method	Age groups			n
	< 25	26 - 35	36 - 50	
OC	70.2	24.0	5.8	521
Injection	53.8	41.0	5.1	39
Ring	42.4	47.5	10.1	99
Implant	44.0	36.0	20.0	25
Hormonal IUS	20.6	39.7	39.7	199
Copper IUD	24.6	52.5	23.0	61
Sterilisation	0.0	10.7	89.3	28
Vasectomy	0.0	21.2	78.8	33
Condom	43.9	37.0	19.0	189
NFP	18.5	57.4	24.1	54
CI	35.3	47.1	17.6	17
Total	47.0	33.8	19.2	1265

The demographic profile of the sample is presented in table 3.2. The ethnic backgrounds of the non-Dutch respondents vary. The largest group is of European origin. Only a few women with Turkish, Moroccan, Surinamese or Antillean backgrounds entered the study. These are the most important ethnic minority groups in The Netherlands (respectively 2.3%, 2.0%, 2.0%, and .8% of the Dutch population).

Table 3.2. Demographic profile of the sample (%)

		% (n=1265)
Current age	< 25	47.0
	26-35	33.8
	> 35	19.2
Ethnicity	Dutch	87.3
	Western	6.0
	Non-Western	6.7
Religiosity	Not religious	59.1
	Christian	36.3
	Other	4.7
Income	> 1900 €	37.5
	≤ 1900 €	62.5
Education	High	59.1
	Low	40.9
Partner status	Steady partner	85.0
	Single	15.0

Chapter 4: Determinants and outcomes of contraceptive method choice

In this chapter, the association is examined of on the one hand current contraceptive method, and on the other hand background characteristics, determinants, and outcomes of contraceptive method choice.

4.1. Background characteristics

In order to assess the role of background characteristics in contraceptive method choice, women using different contraceptive methods are compared on several background characteristics. First of all, we investigated whether women using different methods differ in age at the start of their current method and in the number of methods they have used. The results are presented in table 4.1. Users of oral contraception, injection, ring, and condoms start their method at a younger age than the other groups. Hormonal IUS users and women who were sterilised or whose partner have had a vasectomy are older at the time of the decision. These findings are consistent with age differences of Dutch users of different methods (Wijsen and Zaagsma, 2006). Furthermore, women who use oral contraception, condoms and natural family planning have used relatively few methods. It is well known that especially condoms and OCPs are often the first contraceptive methods used by women. Injection and IUD users and women who have been sterilised or whose partners have had a vasectomy have used relatively many methods. The high number of previously used methods among injection users is striking, as these women are also relatively young.

Table 4.1. Age at the time of decision and number of contraceptive methods used by contraceptive method

Method (n)	age at decision	number methods
OCPs (521)	16.8▼	2.2▼
Injection (39)	21.8▼	3.9▲
Ring (99)	24.2▼	3.5
Implant (25)	25.4	3.5
Hormonal IUS (199)	30.0▲	3.5
Copper IUD (61)	27.4	3.8▲
Sterilisation (28)	35.3▲	4.0▲
Vasectomy (33)	34.9▲	4.0▲
Condom (189)	22.4▼	2.7▼
NFP (54)	25.6	3.0▽
Withdrawal (17)	24.4	3.4
TOTAL (1265)	22.5	2.9

▲ and ▼ = significant difference between methods, MANOVA, $p \leq .01$, △ and ▽ = $p \leq .05$.

Women using different contraceptive methods were also compared on education, partner status and religiosity. The findings are presented in table 4.2. The education level is relatively low for oral contraceptive users, for injection users and women who were sterilised. Ring users and natural family planners are relatively often higher educated. Users of the newer methods, ring, implant and hormonal IUS, relatively often are already in their current relationship when they chose their current method. Maybe this is because these women were also the ones who have used their method for the shortest time. Oral

contraceptive users were usually not yet involved with their current partner. Most natural family planners and also women whose partners have had a vasectomy are religious. Especially for natural family planners, their religiousness likely influences the choice for their contraceptive method, because artificial contraceptives are less acceptable for some religions. Injection users are rarely religious.

Table 4.2. Education, partner at the time of decision, and religiosity by contraceptive method

Method (n)	higher educ. (%)	partner at decis.(%)	religiosity (%)
OCPs (521)	55.7▽	45.5▽	38.6
Injection (39)	38.5▽	78.1	17.9▽
Ring (99)	77.8△	89.4△	37.4
Implant (25)	60.0	100.0△	24.0
Hormonal IUS (199)	57.3	90.6△	39.7
Copper IUD (61)	70.5	77.8	36.1
Sterilisation (28)	39.3▽	72.0	42.9
Vasectomy (33)	60.6	81.8	60.6△
Condom (189)	58.2	70.7	46.0
NFP (54)	77.8△	69.8	75.9△
Withdrawal (17)	64.7	93.3△	35.3
TOTAL (1265)	59.1	67.4	40.9

△ and ▽ = significant difference between methods on the other variables, χ^2 test, $p \leq .05$.

4.2. Determinants

The relationship between contraceptive method that is being used on the one hand and what was considered important about contraception and decisional esteem was investigated. The results are shown in table 4.3. Women using different methods for contraception value other aspects of contraception and also differ in decisional esteem. However, although significant differences exist between users of different contraceptive methods, most averages approach the 'neutral' score of 3. Only ease of use and decisional esteem have average values exceeding the range of 2 to 4. Furthermore, differences between different aspects that are considered important about contraception are as large as or even larger than the variation for each of these aspects between users of various methods. Ease of use is considered relatively important and impact on daily life relatively unimportant at the time when women chose their current contraceptive method. Decisional esteem is generally high.

Decisional esteem is relatively low among women using withdrawal. Low decisional esteem can be reason for concern, because apparently these women feel less capable of taking their reproductive lives into their own hands. Contrarily, women who were sterilised or whose partners had a vasectomy have relatively high decisional esteem.

Users of different methods differ in the extent to which they deem certain aspects of contraception important. By and large, the differences seem to be consistent with known characteristics of contraceptive methods. For example, women who use natural family planning or whose partners had had a vasectomy consider shared responsibility more important. These are methods in which the partner is involved or even primarily responsible. Women who find ease of use important are more likely to use 'new' hormonal methods and less likely to use oral contraception or condoms. When menstrual control is a

concern for women, hormonal methods are used. In addition to shared responsibility, health concerns and impact on sexuality seem to be important for natural family planners only, while ease of use is less of a concern to them.

Table 4.3. What women find important about contraception and decisional esteem by contraceptive method, corrected for age

Method (n)	Menstr control	Health	Impact	Ease of use	Sexuality	Shared resp.	Decis. esteem
OCPs (521)	3.9▲	3.2	2.8	3.7▼	3.2▼	3.3	4.1
Injection (39)	3.8▲	3.2	2.7	4.3▲	3.1	3.5	4.1
Ring (99)	3.3△	3.4	2.6	4.4▲	3.6△	3.1▼	4.2
Implant (25)	3.4△	3.1	2.5	4.5▲	3.5	3.4	4.3
Hormonal IUS (199)	3.6▲	3.2	2.5	4.2▲	3.4	3.1▼	4.3
Copper IUD (61)	2.6▼	3.1	2.5	4.1	3.2	2.8▼	4.2
Sterilisation (28)	2.7	3.0	2.2▼	4.1	3.4	2.9	4.6△
Vasectomy (33)	2.5▼	2.7▼	2.3	4.0	3.2	3.8▲	4.7▲
Condom (189)	2.9▼	3.4△	2.8▲	3.6▼	3.2▼	3.6	4.1
NFP (54)	2.4▼	3.6▲	2.6	3.2▼	3.7▲	4.0▲	4.1
Withdrawal (17)	2.5▼	3.2	3.0▲	3.6▼	3.6	3.7	4.1▼
TOTAL (1265)	3.4	3.2	2.7	3.9	3.3	3.3	4.2

▲ and ▼ = significant difference between methods, MANOVA, $p \leq .01$, △ and ▽ = $p \leq .05$.

4.3. Outcomes of contraceptive method choice

Table 4.4 shows the outcome scores for users of the various contraceptive methods. The outcomes are most negative for OCP and condom users. For condom users, lack of satisfaction and difficulty with correct use contribute to the negative result. Surprisingly, OCP users are relatively satisfied with their method, even though worries about pregnancy and problems with correct use are relatively prevalent. Users of long-term contraceptive methods have relatively good outcome results, mainly because these women are less worried about pregnancy. Users of copper IUDs and especially implant users are exceptions. Satisfaction among implant users is particularly low.

Table 4.4. Percentages scoring positively on the outcome measures by contraceptive method

Method (n)	% Satisfied	% No worries pregnancy	% No diffic. correct use	% Total
OCPs (521)	84.1△	36.1▼	82.7▼	26.1▼
Injection (39)	69.2	56.4	92.3	33.3
Ring (99)	78.8	54.5	88.9	44.4
Implant (25)	60.0▼	48.0	96.0	36.0
Hormonal IUS (199)	85.4△	61.3△	96.0△	54.8△
Copper IUD (61)	72.1	62.3△	95.1△	45.9
Sterilisation (28)	89.3	75.0△	92.9	64.3△
Vasectomy (33)	87.9	81.8△	97.0	75.8△
Condom (189)	59.8▼	43.4	75.7▼	23.8▼
NFP (54)	85.2	44.4	87.0	37.0
CI (17)	64.7	35.3	58.8▼	23.5
TOTAL (1265)	78.7	47.1	85.8	35.7

△ and ▽ = significant differences between methods, χ^2 test, $p \leq .05$.

In order to validate the total outcome measure, experiences of unwanted pregnancy and other adverse events were compared for women with a positive outcome versus the ones with a negative outcome. Women with a negative total outcome score were almost eight times more likely to have experienced unwanted pregnancy while using the current method, compared to women with a positive outcome (5.4% vs. .7%). They were a little bit more likely to have had a medical abortion (21.1% vs. 16.4%). Finally, they were almost five times more likely to have used emergency contraception during their current method (15.8% vs. 3.3%). This last measure must be treated with caution because emergency contraception is not necessarily a sign of irresponsible contraception use (cf. Van Lee, Picavet & Wijzen, 2006). However, these findings suggest the total outcome measure may be a valid indicator for possible problems with contraceptive use.

4.4. Risk profiles

In order to determine whether risk factors can be identified for negative outcomes of contraceptive method choice, background characteristics and determinants of contraceptive method choice were associated with the outcome measures. While in section 4.1 only background characteristics were taken into account as they were relevant at the time of the contraceptive method choice, other factors can be included for the purpose of identifying risk profiles: current age and partner status, income, child wish, relationship secureness, sexual behaviour and duration of use for the current contraceptive method.

Table 4.5: Possible risk factors for negative outcomes of contraceptive use

Factor		Positive outcome (n=451)	Negative outcome (n=814)	Total (n=1265)
Current age	mean (sd)	29.3 (9.0)▲	25.6 (7.9)▼	26.9 (8.5)
Number of methods	mean (sd)	2.9 (1.2)	2.8 (1.3)	2.8 (1.2)
Duration of use	mean (sd)	4.3 (5.1)	4.6 (4.9)	4.5 (5.0)
Partner status	with partner (%)	85.4	84.8	85.0
Secureness	secure (%)	81.3	77.5	78.9
Sex frequency	> once a week (%)	45.1	49.5	48.0
Nr. of sex partners	0 (%)	7.1	4.7	5.5
	1 (%)	76.1	77.8	77.2
	> 1 (%)	16.9	17.6	17.3
Education	higher (%)	57.0	60.3	59.1
Income	higher (%)	46.3△	32.8▽	37.5
Religiosity	religious (%)	41.0	40.9	40.9
Current child wish	yes (%)	7.8	7.6	7.7
	no (%)	86.3	85.9	86.0
	don't know (%)	6.0	6.5	6.3
Future child wish	yes (%)	50.8▽	61.9△	57.9
	no (%)	36.8△	19.8▽	25.8
	don't know (%)	12.4▽	18.3△	16.2

▲ and ▼ = significant difference between women with positive and negative total outcomes, MANOVA, $p \leq 0.01$. △ and ▽ = significant difference between positive and negative outcomes, χ^2 test, $p \leq .05$.

As shown in table 4.5, some traditional reproductive health risk factors seem related to the total outcome as measured in this study. Women who score negatively on outcome are

younger than the ones with a positive outcome. Furthermore, they are more likely to report that they want to have children in the future and they have lower income. However, these latter findings are not surprising, given the age difference between the two groups. There are no differences in educational level, religiosity, partner status, relationship secureness, number of sex partners in the past six months, frequency of intercourse and current child wish. Contraceptive history appears unrelated to outcome as well. Both duration of current contraceptive method use and number of previously used methods are the same for both groups. Therefore, it seems unnecessary to take anything but age into account in order to assess for negative outcome risk during contraceptive counselling.

Next to background characteristics, women with positive and negative outcomes have been compared on determinants of contraceptive method choice (table 4.6). The question is whether importance of aspects of contraception and decisional esteem predispose women to a negative outcome. Decisional esteem appears to be a strong predictor. Women who feel more confident in making their contraceptive method choice are more likely to have a positive outcome. Furthermore, women who think ease of use is important for contraception are more likely to have a positive outcome. However, the differences between women with positive and negative outcomes remain small.

For three methods, OCPs, condom, and hormonal IUS, the sample was large enough to compare between women with positive and negative outcomes per method. For all three methods, decisional esteem is related to the outcome. Women with high decisional esteem are more likely to have a positive outcome of their contraceptive use. Outcome is also related to having a higher income, but only for pill users. No relationship is found between outcome and any of the aspects of contraception that were important for women at the time of their contraceptive method choice.

Table 4.6: Multivariate relationships between outcome on the one hand, and background factors and determinants on the other for all women and users of OCPs, condom, and hormonal IUS.

Predictors	All (n=997)	OCPs (n=392)	Condoms (n=142)	Hormonal IUS (n=170)
Age	1.04 (1.02-1.06)**	1.03 (.99-1.07)	1.06 (1.00-1.13)	1.01 (.96-1.05)
Partner status	.81 (.66-.99)*	.81 (.59-1.10)	.93 (.52-1.68)	.62 (.31-1.23)
Education	.97 (.71-1.30)	.73 (.42-1.28)	1.33 (.51-3.43)	1.36 (.66-2.80)
Income	1.25 (.90-1.73)	2.06 (1.14-3.74)*	.80 (.28-2.24)	.77 (.37-1.62)
Religiousness	1.00 (.87-1.17)	1.06 (.81-1.39)	1.15 (.73-1.83)	1.06 (.75-1.49)
Decisional esteem	1.79 (1.48-2.18)**	1.74 (1.25-2.42)**	1.93 (1.01-3.69)*	2.01 (1.25-3.22)**
Importance of:				
- Shared responsibility	.96 (.84-1.11)	.81 (.61-1.07)	1.18 (.70-2.00)	.80 (.56-1.14)
- Sexuality	.97 (.82-1.15)	1.06 (.76-1.46)	.69 (.40-1.19)	.96 (.66-1.41)
- Ease of use	1.32 (1.06-1.64)*	1.07 (.61-1.88)	.85 (.37-1.96)	.67 (.41-1.10)
- Impact	1.04 (.80-1.34)	1.14 (.69-1.90)	1.93 (.80-4.67)	1.47 (.80-2.72)
- Health	.94 (.79-1.12)	1.05 (.76-1.44)	1.03 (.57-1.85)	.81 (.51-1.29)
- Menstual control	.91 (.78-1.05)	1.01 (.75-1.37)	1.12 (.69-1.82)	1.25 (.78-2.01)

* = significant difference between women with positive and negative total outcomes, multivariate logistic regression, $p \leq .05$. ** = $p \leq .01$.

Chapter 5: The role of the social environment

In chapter 4, individual characteristics of women were described and related to contraceptive outcomes. This chapter will go into the role of the social environment of the women. Particular attention will be given to the partner and the family practitioner, because both are known to be important in contraceptive decision-making. First, we consider sources of information and advice for the women. Then, the role of the partner is described, both his actual involvement and women's desire for their involvement. This is followed by an exploration of the role of the family doctor, as perceived by the respondents.

5.1. Information and advice from social environment

Information provision

A well-conceived decision about what contraceptive method to use presupposes that the woman making the decision has enough knowledge about relevant options. This knowledge may originate from different sources, some more reliable than others. In this study, women have been asked whether different possible sources of information on contraception have provided them with information about contraception. The results in table 5.1 for the total sample show the family doctor is the most important source of contraceptive information, even more important than the internet, friends and parents. It is surprising that school is mentioned by only about half of the women. In the Netherlands, comprehensive sex education is part of the curricula of most secondary and even many primary schools. The partner is rarely seen as a source of information about contraceptive methods.

Table 5.1. Source of contraceptive information by current contraceptive method

	% Partner	% Friends	% Parents	% School	% Family doctor	% Mid wife	% Gynecol ogist	% Bro chure	% Interne t	% Other
OCPs	18.4	73.9	77.5 ▲	64.1 ▲	83.1	6.5 ▼	9.6 ▼	47.4 ▼	70.8 ▼	27.3 ▼
Inject	17.9	59.0	48.7	30.8	92.3	17.9	17.9	46.2	82.1	33.3
Ring	10.1▼	74.7	42.4	33.3	86.9	6.1 ▼	15.2 ▼	54.5	90.9 ▲	35.4
Impl	16.0	60.0	28.0	32.0	84.0	24.0	36.0	64.0	100.0 *	48.0
IUS	19.1	74.9	44.2	32.7	84.9	32.2	47.7▲	60.3	81.9	28.6
IUD	19.7	68.9	54.1	39.3	88.5	34.4	55.7 ▲	54.1	88.5	34.4
Steril	17.9	57.1	35.7	28.6	85.7	35.7	74.1 ▲	53.6	67.9	25.0
Vasec	45.5 ▲	75.8	45.5	57.6	87.9	45.5 ▲	48.5	84.8 ▲	72.7	54.5
Cond	37.6 ▲	75.7	52.9	58.7 ▲	70.9 ▼	25.9	26.5	67.7	82.0	38.1
Nfp	31.5	75.9	61.1	42.6	51.9▼	42.6▲	31.5	81.5 ▲	81.5	53.7▲
Ci	47.1	64.7	82.4	47.1	76.5	17.6	23.5	41.2	76.5	29.4
Total	22.4	73.0	60.5	51.0	81.2	18.8	25.1	56.1	78.1	32.5

▲en▼ = significant difference between methods, $p \leq 0.01$.

* The relationship between internet and implant use could not be tested.

The relationship between information sources and current contraceptive method was examined (table 5.1). No differences were found between contraceptive methods on friends as source of information. Women who received more information from their family doctors are less likely to use condoms or natural family planning. This is not surprising, because for these methods no appointment with a physician needs to be made. Internet is used relatively often as information source by ring users. Oral contraceptive users make use of the internet less often for contraceptive information. It is notable that women who claim to have received more information at school are more likely to use the 'classic' contraceptive methods, oral contraceptives and/or condoms. Perhaps these methods are most commonly mentioned in school-based sex education. Similarly, women who have received contraceptive information from their parents are more likely to use oral contraceptives.

There are also differences in the number of women receiving information from sources that were mentioned less often. It is not surprising that women who more often received information from a gynecologist are likely to use methods for which a gynecologist's intervention is required: intrauterine methods or sterilization. They are less likely to use oral contraception. The few women who received information from their partners are likely to use the 'male' contraceptive methods, condom or vasectomy. On the other hand, they are less likely to use the ring. Furthermore, natural family planners more often have had information from brochures and midwives or other sources than the ones listed. Women who received information from birth attendants are also more likely to use vasectomy and less likely to use oral contraception or the ring. Finally, brochures are more often mentioned as information sources by women whose partners have had a vasectomy and less often by oral contraception users. This is remarkable, because oral contraceptives are the subject of much written information material.

Advice

Next to being given information, women can be advised about contraceptive options as well. It was asked whether the same sources had given advice about contraception. The results for the total sample in table 5.2 show that largely the same sources that are responsible for contraceptive information also give advice. However, more women receive information than advice from most sources. The only notable difference with the findings in table 5.1 is the proportion of women who receive advice from their partner. The partner is more often source of advice than a source of information.

The relationship of sources of advice with current contraceptive method is examined. Again, for friends no differences were found between users of the various methods. The family doctor most often gave advice to users of injectables. In chapter 4, we saw that this groups is relatively young, but has used relatively many contraceptive methods already. This may explain the involvement of the family doctor. Condom users and natural family planners don't receive as much advice from their family doctors as other groups. Internet advice is least often mentioned by oral contraception users. Because internet advice often requires an active search, apparently pill users feel less need to look for advice on the internet. Parents most often advise oral contraception users and hormonal IUS users receive less advice from their parents.

Table 5.2. Source of important contraceptive advice by current contraceptive method

	% Partner	% Friends	% Parents	% School	% Family doctor	% Mid wife	% Gynecologist	% Brochure	% Internet	% Other
OCPs	24.0 ▼	58.2	66.8 ▲	38.6 ▲	72.9	7.1 ▼	10.0 ▼	29.6 ▼	48.2 ▼	16.1 ▼
Inject	28.2	48.7	43.6	15.4	87.2 ▲	17.9	17.9	43.6	79.5	25.6
Ring	21.2 ▼	45.5	28.3	10.1	75.8	6.1 ▼	15.2 ▼	40.4	70.7	18.2
Impla	20.0	44.0	24.0	12.0	76.0	24.0	32.0	48.0	88.0	40.0
IUS	25.1 ▼	54.8	26.6 ▼	11.6	69.3	25.6	47.2 ▲	44.7	67.8	21.6
IUD	21.3	47.5	29.5	4.9	70.5	21.3	45.9 ▲	26.2 ▼	70.5	26.2
Steril	46.4	42.9	32.1	21.4	67.9	28.6	78.6 ▲	42.9	50.0	21.4
Vasec	60.6 ▲	54.5	45.5	30.3	72.7	33.3	42.4	69.7 ▲	60.6	42.4
Cond	47.6 ▲	61.9	39.7	34.9 ▲	55.0 ▼	21.2	25.4	46.6	60.3	23.3
Nfp	57.4 ▲	53.7	35.2	14.8	27.8 ▼	25.9	18.5	51.9	59.3	50.0 ▲
Ci	58.8 ▲	58.8	47.1	11.8	64.7	11.8	11.8	35.3	52.9	23.5
Total	30.8	55.5	47.1	26.7	68.1	15.4	23.7	38.3	58.6	21.8

▲en▼ = significant difference between methods, $p \leq 0.01$.

The partner relatively often advised women using methods in which male involvement is needed, vasectomy, condoms, natural family planning and withdrawal. Partner advice is mentioned less frequently by users of oral contraception, the ring, and hormonal IUS. Brochures are relatively often mentioned as sources of advice by women whose partners have had a vasectomy. Oral contraception and copper IUD users receive relatively little advice from brochures. As with regard to information, oral contraceptive and condom users relatively often indicate that they received advice from school. Both birth attendants and gynecologists infrequently advise oral contraception and ring users. Gynecologists have given advice to women currently using intra-uterine contraception and sterilization. Other sources of advice are mainly reported by natural family planners and rarely by oral contraception users.

Which advice the respondents receive is assessed with an open question. The responses are categorized into nine categories. Table 5.3 shows how many times the respondents receive a certain type of advice. Most advice is aimed at the use of a particular method. Mostly, women are advised to start using oral contraception or to switch to another pill (N=371). Hormonal IUS is also recommended relatively frequently (N=137). Information about contraception or contraceptive experiences is relatively common as well. Other types of advice are rare.

Table 5.3. Type of advice by social environment on contraception

Type of advice	Frequency
None *	12.5 % (158)
Use a particular method	69.2 % (875)
Do not use a particular method	1.2 % (15)
Information about contraception or contraceptive experiences	8.9 % (112)
Health	0.9% (11)
How to use contraception correctly	2.1% (26)
Have safe sex	1.4% (18)
How to make a good choice	3.1 % (39)
Other	0.9% (11)

* No advice: respondent received no advice or did not answer the question

5.2. Role of the partner

Importance of joint decision making and partner involvement

In this section, scores of single and committed women are taken together. Results in table 5.4 show that both the importance of joint decision making and of partner involvement is seen as moderate for the group as a whole. It is considered little more important than the neutral stance of 3.0. Deciding with a partner which contraception to use is rated less important by women using the contraceptive pill, injection or ring compared to women using other contraceptives. Women who currently protect themselves from pregnancy through natural family planning or male sterilization rate deciding together with a partner as more important than women using other contraceptives. Partner involvement is rated as less important by oral contraception users and as more important by users of condoms and natural family planning and by women whose partners have had a vasectomy. It is remarkable that withdrawal users don't think the partner should have a particularly big role in contraception, even though withdrawal requires the partner's consent. Similarly, condom users don't think their partner should be involved in decision making.

Table 5.4. Importance of partner involvement and joint decision making by contraceptive method

Method	Importance of joint decision making	Importance of partner involvement
OCPs	3.33 ▼	3.41 ▼
Injection	3.26 ▼	3.38
Ring	3.33 ▼	3.55
Implant	3.32	3.44
Hormonal IUS	3.62	3.71
Copper IUD	3.61	3.51
Sterilization	3.86	3.64
Vasectomy	4.45 ▲	4.39 ▲
Condom	3.81	3.97 ▲
Nfp	4.69 ▲	4.54 ▲
Withdrawal (CI)	3.65	3.71
Total (n=1265)	3.56	3.64

▲en▼ = significant difference between methods, $p \leq 0.01$.

Actual partner involvement, responsibility and satisfaction

In this section only women with a steady partner are taken into account. The actual involvement of the partner is assessed. In table 5.5, the results are presented of a multiple analyses of variance on partner involvement, responsibility and satisfaction with the current method for users of different methods. All three questions were rated on a 5 point scale. Actual partner involvement receives a similar rating as desired partner involvement, as reported before. This could mean women's partners are involved at the level the women desire. However, since the scales are not rated similarly, this conclusion must be treated with caution. Not surprisingly, partner involvement and responsibility are high among condom users, natural family planners and women whose partners have had a vasectomy. Injection users report low partner involvement and responsibility. Oral contraception users also report low partner involvement. Partner satisfaction, as rated by the women, is high among oral contraception and hormonal IUS users and among women who were sterilized or whose partners had a vasectomy. Low satisfaction is found among users of condoms and withdrawal.

Table 5.5. Differences in mean scores of partner involvement, partner responsibility and partner satisfaction between current contraceptive methods

Method	Partner involvement	Partner responsibility	Partner satisfaction
OCPs	3.36 ▼	3.72	4.53 ▲
Injection	3.00 ▼	3.42 ▼	4.00
Ring	3.62	3.69	4.34
Implant	3.82	3.68	4.27
Hormonal IUS	3.76	3.81	4.62 ▲
Copper IUD	3.63	3.81	4.41
Sterilization	3.96	3.52	4.76 ▲
Vasectomy	4.24 ▲	4.79 ▲	4.88 ▲
Condom	4.11 ▲	4.36 ▲	3.90 ▼
Nfp	4.38 ▲	4.38 ▲	4.47
Withdrawal (CI)	3.69	3.31	3.31 ▼
Total (n=1265)	3.66	3.87	4.41

▲en▼ = significant difference between methods, $p \leq 0.01$.

Communication with partner concerning contraceptives

We examined the relationship between current contraceptive method and the degree of communication with a partner about contraceptive method use, contraceptive experiences and pregnancy scares (table 5.6). All questions were rated on a 4 point scale. For this analysis, only scores of women in a steady relationship were taken into account. Communication with the steady partner seems to be more common among natural family planners and less common among oral contraceptive users.

Table 5.6. Level of communication between partners for users of different methods

Method	Communication method	Communication experiences	Communication Pregnancy scares
OCPs	2.57 ▼	2.34 ▼	1.88 ▼
Injection	2.88	2.61	2.03
Ring	3.00	2.74	2.16
Implant	2.91	2.86	2.09
Hormonal IUS	2.98	2.86	1.99
Copper IUD	2.94	2.76	2.17
Sterilization	3.16	3.16	2.12
Vasectomy	3.18	3.06	2.33
Condom	2.89	2.75	2.12
Nfp	3.47 ▲	3.15 ▲	2.47 ▲
Withdrawal (CI)	2.87	2.69	2.44
Total (n=1265)	2.83	2.64	2.04

▲en▼ = significant difference between methods, MANOVA, $p \leq 0.01$.

Partner's attitudes toward contraceptive methods

Women with steady partners were asked to rate whether their partners were likely to accept all contraceptive methods on a 4 point scale (1=absolutely not, 2=likely not, 3=likely, 4=absolutely). Results in table 5.7 show that the oral contraceptive pill is thought to be the most acceptable method to partners. This is the only method with an average score of higher than 2.5, the scale's neutral point. This is mostly due to the high number of women using OCP's. All other methods are on average thought to be more or less unacceptable to the partners. Withdrawal, vasectomy, sterilization, natural family planning and the implant have average scores below 2, between absolutely not and likely not.

Women all think the method of their choice is relatively acceptable to their partners. Furthermore, natural family planners think their partners wouldn't approve hormonal methods or copper IUD's. Next to natural family planning, only condoms and withdrawal would be relatively acceptable to them. A bit surprising perhaps is that vasectomy is considered to be relatively unacceptable to partners of OCP and injection users only. Partners of sterilized women are thought to be relatively opposed to oral contraceptives and the hormonal IUS. The partners of condom users are believed to be against injectables, while the partners of pill users find them relatively acceptable. Partners of hormonal IUS users are considered to be relatively opposed to natural family planning.

Table 5.7. Partner's acceptance of methods by current contraceptive method

Method used	Method rated										
	pill	inject	ring	impl	IUS	IUD	steril	vasec	cond	nfp	ci
OCPs	3.8 ▲	2.4 ▲	2.1	2.0	2.3	2.1	1.3	1.2 ▼	2.4	1.3	1.4
Injection	2.7	3.0 ▲	1.4	1.4	1.9	1.7	1.1	1.1 ▼	2.1	1.4	1.4
Ring	3.0	1.8	3.6 ▲	2.2	2.3	2.0	1.3	1.2	2.2	1.4	1.4
Implant	3.1	2.4	2.3	3.3 ▲	2.2	2.2	1.3	1.5	1.8	1.3	1.2
IUS	2.4	1.9	1.8	1.8	3.8 ▲	2.0	1.8	1.8	2.1	1.4 ▼	1.4
IUD	2.1	1.9	1.8	1.9	2.2	3.3 ▲	1.5	1.5	1.9	1.5	1.5
Steriliz	2.0 ▼	1.4	1.4	1.3	1.6 ▼	1.5	3.8 ▲	1.5	1.7	1.4	1.2
Vasect	2.2	1.9	1.5	1.8	2.0	1.7	2.3	3.4 ▲	2.2	1.2	1.2
Condom	2.9	1.8 ▼	1.7	1.7	1.9	1.9	1.6	1.5	3.3 ▲	1.6	1.6
Nfp	1.7 ▼	1.3 ▼	1.5 ▼	1.3 ▼	1.5 ▼	1.4 ▼	1.5	1.5	2.5 ▲	3.7 ▲	2.1 ▲
Ci	2.3	1.7	1.9	1.7	2.1	2.0	1.4	1.3	1.9	2.1	3.3 ▲
Total (n=1075)	3.0	2.0	2.1	1.9	2.5	2.0	1.5	1.5	2.4	1.5	1.5

▲en▼ = significant difference between methods, MANOVA, $p \leq 0.01$.

5.3. Role of the family doctor

Consulting family doctor about contraceptives

89.9% of the respondents has consulted a family doctor at least once concerning contraception. To find out how much information was provided by the family doctor, four questions were asked. Results show women received significantly more information from their family doctor concerning method effectiveness than they did about other methods than the pill or condom, available methods of contraception or advantages and disadvantages of all available methods. Women also received significantly more information about all available methods than information about alternatives to the pill or condom.

We executed a multivariate analysis of variance to examine the relationship between current contraceptive method and the amount of information provided by the family doctor according to the respondents (see table 5.8). On all 4 measures, natural family planners say they received less information from their family doctors than the other women. Oral contraception users also received relatively little information, except on effectiveness of the pill. On the other hand, users of intrauterine contraceptive methods received relatively much information on alternatives for the pill and condom and on the effectiveness of their method. Injection users received more information on all available methods than the other women and also on (dis)advantages of the various methods. Ring

users said they received relatively much information on alternatives for pill and condom and on (dis)advantages.

Table 5.8. Information from the family doctor by current contraceptive method

Method	Other methods than pill or condom	Available methods of contraception	(Dis)advantages of all available methods	Effectiveness of chosen method
OCPs	1,57 ▼	1,69 ▼	1,72 ▼	2,08
Injection	2,26	2,42 ▲	2,34 ▲	2,37
Ring	2,25 ▲	2,21	2,15 ▲	2,26
Implant	2,12	2,12	2,00	2,28
Hormonal IUS	2,18 ▲	2,14	2,10	2,33 ▲
Copper IUD	2,36 ▲	2,22	2,08	2,51 ▲
Sterilization	2,04	2,07	2,04	2,04
Vasectomy	1,81	1,78	1,81	2,25
Condom	1,82	1,95	1,95	2,04
Nfp	1,47 ▼	1,57 ▼	1,30 ▼	1,53 ▼
Withdrawal (CI)	2,00	1,92	1,83	2,08
Total (N=1138)	1,86	1,92	1,90	2,16

▲en▼ = significant difference between methods, MANOVA, $p \leq 0.01$.

Influence of family doctor on contraceptive choice

Additionally, women were asked if they started using the contraception they intended on using before they consulted the doctor. 79.6% Of the 1252 women who consulted a family doctor at least once in their life, started using the contraceptive method they intended to use before the consultation. 10.2% of the women started using another method after the consult than the one they initially intended to use before the consult. The group of respondents that did change their contraceptive choice after a doctor's consult were subsequently asked in an open question why they changed their method choice.

For a group of women, the doctor influenced their decision only indirectly. After their doctor educated them on contraception methods, these women searched for more information concerning the available alternative methods of contraception and chose their method of choice after a consideration of alternatives:

"The family doctor told me about the Mirena IUS. After looking on the internet and having heard from two women I know that they were not very satisfied (often loss of blood between periods), my husband and I decided that I would stop using the pill (because of side effects) and just use condoms (most natural situation without hormones)".

Another group of women is advised to use another method of contraception than the one they intended using themselves. The advised method would suit the woman's lifestyle, health or age, or would better match with breastfeeding etc.:

"We wanted to get my husband sterilized, but because of my extreme blood loss and other complaints during my menstrual period, our family doctor advised us Mirena IUS."

"The doctor thought the other methods of contraception were not suited for me because of my age (injection, IUS etc.) or because they were not scientifically proven to be reliable enough (like the patch)."

For a third group of women, the information provision by their doctor resulted in not choosing the intended method. The introduction of a new method or new information about known methods given by the family doctor can help women decide the most appropriate contraceptive method:

“I had no idea what the Nuvaring entailed. When I heard about it, I was decided.”

“My family doctor recommended me the Nuvaring. I came to get the pill. I was very content with his advice and recommend it to everyone.”

Another reason for women changing their opinion was related to medical procedures. Doctors sometimes did not approve of insertion of intrauterine devices or did not want to insert the contraceptive themselves. Sometimes the patient or her partner was too scared to have surgery performed:

“My family doctor did not want to insert the implant because of negative experiences.”

“Many doctors appear to make mistakes at the insertion. This has happened to a friend of mine. I trust first-hand information a lot.”

“Husband does not dare yet.”

Other reasons for changing opinions that were given were related to blood loss, side-effects or a lack of confidence in the family doctor.

Chapter 6: Conclusions and practical implications

In this chapter, the research questions of chapter 2 are considered, as well as the implications for counseling women on contraception. In the final section study limitations will be discussed and directions are presented for further research.

6.1. Contraceptive method choice

The first research question is which factors determine women's contraceptive method choice. There is not a single answer to this question. Contributing factors differ for different methods. There are a few methods that stand out. For example, users of contraceptive injections have used relatively many contraceptive methods, despite their young age. They are also less educated and tend not to be religious. In contrast, natural family planners are relatively often higher educated and religious. Values about what women find important with regard to contraception are consistent with the methods being used. Ease of use is generally considered to be the most important aspect of the method, while impact on day-to-day life is considered least important. Furthermore, women choosing coitus interruptus as their contraceptive method are less confident in their decision-making abilities. Women who have a high decisional esteem are more likely to have a partner who has had a vasectomy.

Conclusions

- For most women, contraceptive method choice seems to be consistent with personal values and background characteristics. Women seem to know what they want and act accordingly.
- However, the low decisional esteem of women using coitus interruptus may be reason for concern.

6.2. Outcomes

The second and third research questions are about the outcome of contraceptive decision-making. A good outcome is defined as method satisfaction, no worries of being pregnant and no difficulty using the method correctly. On the one hand, the various methods are compared on outcome measures. On the other hand, risk factors for negative outcomes are identified. The most popular methods, oral contraception and condom users, have relatively negative outcomes, while long-acting contraceptive method users report relatively good outcomes. Especially the high number of pregnancy worries among oral contraception users and low levels of correct use among both pill and condom users is disconcerting.

Comparing users with positive and negative outcome scores, young age appeared to be an important predictor of negative outcomes. A higher income and no wish to have children in the future are associated with better outcomes. Furthermore, low decisional esteem is associated with negative outcomes, as well as finding ease of use relatively unimportant. For users of OCPs, condoms or hormonal IUS, method-specific risk factors could be identified. For all three methods, decisional esteem was the most important predictor of positive outcomes. What women value about contraception is not related to the outcome for users of any of these methods.

Conclusions

- Because oral contraception and condom users have relatively negative outcomes, it may be advisable to consider alternative methods for some of these users.
- Younger women who are less confident in making their contraceptive decisions are particularly vulnerable. This group deserves attention and counseling.
- There is no need to take other background characteristics into account for contraceptive counseling. Partner status, education, sexual behaviour, religiosity, and current child wish are not associated with contraceptive outcomes.
- Values regarding contraception are not related to the outcome of contraceptive use for users of OCPs, condoms or hormonal IUS.

6.3. Social influences

The final research question deals with the role of the social environment in contraceptive decision-making. The family doctor is the most common source of both information and advice on contraception. However, the information women receive from family doctors is very limited. They often do not receive information about other methods than OCPs or condoms, available methods, and advantages and disadvantages of different methods, but even about the effectiveness of the method that was chosen. Especially for women using OCPs, information was limited. 10% of the women left the family doctor with a prescription for a different method than the one they went to see him for. Other frequently mentioned sources of information or advice are friends and the internet. School is mentioned as a source more often by users of OCPs and condoms.

The partner is not often a source of information or advice for women. However, for methods that are (partially) controlled by the partner (condoms, vasectomy and natural methods) their influence is much more prominent. Women rate their partners' involvement in contraceptive decision-making and use as moderate. The majority of them do not find it particularly important that their partners are involved either. They do think their partners are very satisfied with the method that is currently used. They also tend to think that their partners regard the current method more favorably than other methods. Women who use OCPs communicate less with their partners about contraception than users of other methods. Users of natural family planning on the other hand communicate more with their partners.

Conclusions

- Although many women report having received information and advice from their family doctors, the amount of the information is limited, especially about alternative methods. Apparently these doctors only play a limited role in assisting in the decision-making process.
- Involvement of the partner is not very high according to the women, but they mostly do not expect high involvement either. Especially among OCP users partner involvement is low.
- School is mainly seen as a source of information by women who use OCPs or condoms as their contraceptive method. In total, only 51% of the women report having received information at school. As sexuality education is common practice in the Netherlands, this percentage is surprisingly low. The curricula should be updated to include more comprehensive information about contraception.

6.4. Study limitations

This study has a few limitations, which affect the interpretation and generalisability of the findings. First and foremost, the sample is not a representative sample of contraception users. Sampling was aimed at users of other methods than OCPs and condoms and furthermore women were mainly contacted through the internet. Because the focus of this study was not how many women choose a particular method or how many women have negative outcomes, this may be less problematic. Not the percentages matter, but the differences between users of different methods. As these women were mostly recruited in a similar way, biases in the sample are possibly evenly distributed among users of different methods.

The number of participants is low for some contraceptive methods. We had to exclude users of the contraceptive patch, female condom and diaphragm. For some other methods the number of participants was so low, that the generalisability may be compromised. Furthermore, some groups of women are underrepresented in this sample. Particularly women from a non-western background are almost entirely absent. Therefore, this study cannot be used to say anything about non-Western migrants. This is unfortunate, because women of non-Western backgrounds are more likely to experience unwanted pregnancies. It is known that these groups are unlikely to participate in quantitative surveys and qualitative methods may be indicated to reach these women.

Although the study was based on theories and previous research on contraceptive decision-making, the study may not have assessed all relevant constructs in decision-making. For example, beliefs - correct or incorrect - about contraceptive methods were not included. Furthermore, the decision-making process itself was not investigated, with all its considerations and reflections, but only the predictors of the outcome of this process. As these predictors were assessed retrospectively, a response shift may have occurred, streamlining what was thought to be important about contraception with the method that was currently used. For a study of the decision-making process, qualitative methods are more suitable. In further research, both qualitative methodology and a prospective design would be indicated.

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