PARENTING AND ADOLESCENTSô SEXUAL HEALTH

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Parenting and Adolescentsô Sexual Health

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(with a summary in English)

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CONTENTS

CHAPTER 1

GENERAL INTRODUCTION[1]

Adolescence is a period of multiple developmental transitions. Growth and development occur in various domains: adolescents mature physically, they develop a sense of identity, reassess relationships with parents and peers, and grow in their cognitive abilities (Havighurst, 1971, Dekovic, Noom, & Meeus, 1997). Sexuality is one of the areas that is subject to important changes during adolescence. Although sexual development is a lifelong process, there is no other life stage where it is more striking. In Western countries, most young people have not yet kissed at the start of adolescence, whereas by the end of this period, the majority has engaged in sexual intercourse (de Graaf, Meijer, Poelman, & Vanwesenbeeck, 2005; Mosher, Chandra, & Jones, 2005).

Sexual experiences can have positive as well as negative consequences. Sexual intimacy and pleasure are associated with personal well-being, and thereby contribute to public health more generally (Hull, 2008; Whipple, 2007). However, sexuality also entails risks of unintended pregnancy, sexually transmitted infections (STIs), and sexual coercion. These experiences can have long-lasting negative consequences. The emotional, medical, and financial costs of these risks highlight the importance of studying sexual development and the factors that contribute to positive outcomes.

1.1 The sexual trajectory

The ñsexual trajectoryò is an age-graded set of various new sexual experiences. Most prior research on sexual initiation has been restricted to the first sexual intercourse, an important turning point in the sexual trajectory. A full description of sexual trajectories should encompass more than that. The sexual trajectory starts long before first sexual intercourse, with kissing and petting. These experiences offer important opportunities for adolescents to learn about their sexual likes and dislikes, in order to be better prepared for more intimate sexual experiences.

[1] Parts of this chapter are taken from: Graaf, H. de, Woertman, L., & Meeus, W. (in press). Sexual trajectories. In: Levesque, R. (ed.). *Encyclopedia of Adolescence*. Springer Publishing.

Furthermore, not merely the timing of various first sexual experiences is important. According to Hagestad (1996), who investigated trajectories in aging and illness processes, a full description of trajectories encompasses three key dimensions: (1) sequence, or the order of the various experiences; (2) duration, or the time it takes to go through the various steps; and (3) timing, or the age at which the trajectory is completed.

The most common sequence in sexual trajectories is a progression from less sexually intimate (e.g. kissing) to more sexually intimate behavior (e.g., intercourse). Average ages of first intercourse are in general higher than average ages of first kissing or petting experiences (Brugman, Goedhart, Vogels, & van Zessen, 1995; Feldman, Turner, & Araujo, 1999; Rosenthal & Smith, 1997). In addition, individuals who have engaged in more sexually intimate behaviour, in general also experienced ñlower levelò behaviors, or have a greater probability than null to have experienced these behaviors (Brook, Balka, Abernathy, & Hamburg, 1994; Cowart- Steckler, 1984; Hansen, Wolkenstein, & Hahn, 1992; Jakobsen, 1997; Lam, Shi, Ho, Stewart, & Fan, 2002). All prior studies on the sequence of sexual milestones used variable-centered analyses, thus providing no insight into individual patterns of sexual trajectories.

Although there are, to our knowledge, no studies that include sequence, duration and timing into a description of sexual trajectories, there are studies that focus on one of these dimensions. Some of these studies found differences on timing or sequence with regard to gender, ethnic background or educational level (de Graaf et al., 2005; Feldman et al., 1999; Hansen et al., 1992; Mosher et al., 2005; Smith & Udry, 1985). There is also some evidence that the timing or sequence of sexual trajectories has consequences for sexual risks in the long-term (Davis & Lay-Yee, 1999; Greenberg, Magder, & Aral, 1992; Petersen et al., 1995; Sandfort, Orr, Hirsch & Santelli, 2008; Van Zessen, 1995; Vanwesenbeeck, 1997). In summary, there are signals that sexual trajectory types matter in terms of sexual health and that some groups are more likely to follow the trajectory type that has more healthy outcomes.

1.2 Sexual health

According to the World Health Organisation, sexual health is ña state of physical, emotional, mental and social well-being related to sexuality; not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination and violenceò (WHO, 2007).

In spite if this WHO definition, the vast majority of research on adolescentsô sexual experiences focuses on the timing of first sexual intercourse. Measures of sexual health are usually restricted to protection against sexual risks, such as sexually transmitted infections (STIs) or unwanted pregnancy. However, while it is important that adolescents have safe sexual experiences when they eventually do become sexually active, it is also important that these experiences are consensual and pleasurable for both partners. A comprehensive measure of sexual health should therefore not be restricted to behavior, but also encompass cognitions and emotions.

Adequate social sexual skills, such as the ability to set oneôs limits, to articulate desires and to tune in to the needs of the partner, are essential for arranging sexual encounters in a mutually rewarding way. Prior relationships with parents and peers and the individualôs learning history determine which social sexual skills the adolescent eventually has to his or her disposal and which competencies are activated in sexual interactions (Vanwesenbeeck, van Zessen, Ingham, Jaramazovi! & Stevens, 1999). Furthermore, these social sexual abilities are strongly associated with age. Girls and boys age 14 or younger generally lack the cognitive maturity and social sexual skills that are necessary to have safe and consensual sexual experiences (Dixon-Mueller, 2008). An early sexual debut is, therefore, more often the result of persuasion or coercion, and also more often unprotected, than among older adolescents (de Graaf et al., 2005; Dickson, Paul, Herbison & Silva, 1998).

1.3 Parenting

The social environment in which this learning history takes place constitutes of various people and institutions, among which parents, peers, school and the media. Parents can increase the likelihood that the adolescentsô sexual experiences will be safe and pleasurable for both partners when they become sexually active. A positive and open attitude towards sexuality seems to be beneficial in this regard (DiIorio, Pluhar & Belcher, 2003), but the general parenting style seems to be at least equally important. A large number of studies report associations between parenting styles and sexual behavior (for example, the timing of first sexual intercourse) or sexual health (for example, the use of contraception). In these studies, three dimensions of parenting can be distinguished: support, control, and knowledge (of parents of their childôs whereabouts).

Support refers to the expression of affection, love, and appreciation. It encompasses aspects such as warmth, availability, responsiveness and child-

centeredness. In the literature on parenting, there are two sets of measurements that resemble support, but are still distinct: 1) involvement, usually measured as the amount of time parents and children spend together and 2) the perceived quality of or satisfaction with the relationship with the parents. Strictly speaking, one should know how time is spent together or what aspects of the relationship one is satisfied with, before these constructs can be classified as either support or control.

Control refers to parenting behavior that is intended to direct the childôs behavior in the manner desired by the parents. This dimension of parenting is less homogeneous than support, as is reflected in the diverse set of measurements in the literature. Measures of control encompass, for example, the number of rules parents set for their children, the level of autonomy children are granted, the childôs involvement in making decisions and (perceived) strictness. A number of researchers claim that there are actually two kinds of control, which are differentially associated with adolescent development: consistent, clear, and fair demands (structure, authoritative control) and arbitrary, controlling insistence on obedience (coercion, authoritarian control) (Maccoby & Martin, 1983; Skinner, Johnson & Snyder, 2005).

Parental knowledge of the childôs whereabouts is a third aspect of parenting that is studied extensively. This knowledge is generally called ómonitoringô, which leads to confusion with supervision. Active supervision, however, is neither a prerequisite nor a guarantee for this knowledge. According to Stattin and Kerr (2000), parental knowledge is more often the result of spontaneous disclosure of the child than of active parental supervision. Knowledge thus seems to be rather an interpersonal variable than purely a parental variable, and will therefore be treated as a separate concept.

1.4 The present study

Although there is abundant research on associations between parenting and sexual experiences of adolescents, important information is still missing. As indicated above, the large majority of research focuses on the age of first sexual intercourse. The present study adds to the existing literature by extending the limited description of sexual trajectories. This study is the first to include the sequence of various new sexual experiences, the time it takes to go through the various steps and the age at which the trajectory is completed into a typology of sexual trajectories. Furthermore, this study provides insight into the percentage of individuals in a representative Dutch sample who do not follow the linear trajectory that is repeatedly described.

In addition, this study adds to the literature by examining correlates of a broad range of sexual health aspects. This study is the first to examine the association between sexual trajectory type and sexual risk. Furthermore, there are no prior studies that examined associations between parental support and knowledge of the childôs whereabouts and a comprehensive description of sexual health, including age of first sexual intercourse, number of sex partners, protection against STIs and unwanted pregnancy, social sexual skills, and sexual satisfaction.

Finally, this study increases existing knowledge by investigating mediating factors and processes behind the association between parental support and sexual development in adolescence. Until now, no study has tried to disentangle the relative contribution of parental support and knowledge in predicting sexual health. This research is also the first to investigate whether the link between parenting and an early sexual debut is mediated by early romantic involvement in a longitudinal sample.

Research questions

We addressed the following research questions:.

1. Is it possible to identify a typology in (the early stages of) sexual trajectories, based on three key dimensions of trajectories: sequence of new behaviors, duration, and timing?
2. Is sexual trajectory type related to demographic characteristics, such as sex, ethnic background, and educational level?
3. What are the associations between sexual trajectory type and recent contraceptive and condom use?
4. Are parental support, control and knowledge of the childôs whereabouts related to adolescentsô sexual experience and sexual health (the ability to have safe and pleasurable sexual experiences)?
5. Are these associations between parental support and knowledge, on the one hand, and adolescentsô sexual experience and sexual health, different for males and females or for younger and older adolescents?
6. Which aspect of parenting, support or knowledge, is most important for adolescentsô sexual experience and sexual health?
7. Are first experiences with sexual intercourse in general preceded by romantic involvement?
8. Are low levels of family cohesion associated with an earlier onset of first romantic and sexual experiences?
9. Is the link between family cohesion and an early sexual debut mediated by early romantic involvement?

Methods

Data for this study were collected as part of two separate studies. The first study was ñSex under the age of 25,ò a representative study of sexual behavior and sexual health of Dutch adolescents (N = 4,820). The studies described in chapter 2 and chapter 4 are based on this data. The aim of chapter 2 was to describe the full sexual trajectory up to vaginal and/or anal intercourse. The purpose of chapter 4 was to investigate associations with sexual (health) variables that were only measured among participants who had experienced sexual intercourse. Participants who had not yet had sexual intercourse were, therefore, excluded from the analyses (N = 2,235).

This selection resulted in a final sample of 1,273 males and 1,360 females, aged 12 to 24 (M = 20.45 years, SD = 2.79). Limiting the sample to sexual experienced participants resulted in an uneven distribution of participants among age groups. Specifically, the sample was composed of 295 (11.2%) 12ï 16 year-olds, 1,124 (42.7%) 17ï 20 year-olds, and 1,214 (46.1%) 21ï 24 year-olds. The sample comprised of 81.1% native Dutch participants, 7.1% Western immigrants, and 11.8% non-Western immigrants. The sample used to evaluate ethnic differences in the chapter 2 study was extended with additional young first- and second-generation immigrants, and included 80.0% native Dutch, 2.5% Moroccan-Dutch, 3.2% Turkish-Dutch, 4.9% Surinamese-Dutch, and 4.3% Antillean-Dutch participants (N = 2,842).

For the study that is presented in chapter 5, data were collected as part of the "Utrecht Study of Adolescent Development", a longitudinal study with 3 waves at 3-year intervals (Meeus & 't Hart, 1993). In 1991 a representative sample of 3,392 Dutch adolescents aged 12 to 24 was drawn from an existing panel of 10,000 households. Although all of these subjects gave informed consent to remain participants in the longitudinal study, 822 of them ultimately refused to take part in the second or third wave (a response rate of 76%). For financial reasons, 1,302 subjects were randomly selected from the 2,570 subjects eligible for the longitudinal study.

Only participants who were 12 to 18 years old at the first wave (n=662) were included in the analyses described in chapter 5. However, more than one third of these adolescents had a brother or sister partaking in the study. To avoid violation of the assumption of independent observations, one adolescent per family was randomly selected. The final sample consisted of 314 girls (58.6%) and 222 boys (41.4%). The mean age was 14.5 years at the first wave (SD = 1.65).

For both ñSex under the age of 25ò and the ñUtrecht Study of Adolescent Developmentò, participants completed extensive questionnaires. The online questionnaire of ñSex under the age of 25ò contained measures of parental support and knowledge of the childôs whereabouts, various forms of sexual behaviour, contraceptive and condom use, social sexual skills and sexual satisfaction. Measures of the ñUtrecht Study of Adolescent Developmentò that were used in chapter 5 assessed family cohesion and the timing of first romantic and sexual experiences.

1.5 Outline of this dissertation

We will answer our research questions by means of one literature review and three empirical studies. These studies are presented in four chapters, which can be read separately. *Chapter 2* presents a questionnaire study of sexual trajectories and associations between these trajectories and demographic characteristics and sexual risks in a representative Dutch sample. *Chapter 3* reports a literature review that examines associations between parental support, control, and knowledge and adolescentsô sexual behavior and sexual health. *Chapter 4* presents a representative survey study of the relative contributions of parental knowledge and support in predicting adolescentsô sexual experience and social sexual skills. *Chapter 5* describes the results of a three-wave longitudinal study on associations between family cohesion and the timing of romantic and sexual initiation. This thesis will be concluded by a general discussion (*Chapter 6*) which presents the summary, general limitations and conclusions of the four studies.

CHAPTER 2

SEXUAL TRAJECTORIES DURING ADOLESCENCE: RELATION TO DEMOGRAPHIC CHARACTERISTICS AND SEXUAL RISK[2]

The ñsexual trajectoryò is an age-graded set of various new sexual experiences, deýned by three key dimensions: sequence, duration, and timing. A comprehensive description of sexual trajectories creates the possibility to investigate potential risks of certain trajectory types. The present study attempted to answer three questions: (1) Is it possible to identify a typology in (the early stages of) sexual trajectories? (2) Is sexual trajectory type related to demographic characteristics, such as sex, ethnic background, and educational level? (3) What are the associations between sexual trajectory type and recent sexual risk behavior? A representative Dutch sample of 1,263 males and 1,353 females (M = 20.46 years; range, 12ï25) who had engaged in sexual intercourse completed a questionnaire about sexual (health) behavior. About three quarters of participants followed a progressive sexual trajectory from less intimate (e.g., kissing) to more intimate behavior (e.g., sexual intercourse). Immigrant groups and less educated youth were more likely to follow a nonlinear trajectory. A progressive trajectory was associated with a higher likelihood of consistent contraceptive use with the most recent partner and, for girls, with a lower likelihood of having unprotected anal intercourse with the last partner. It was hypothesized that the nonlinear trajectory could be ascribed to a lack of opportunities or skills to plan and steer early sexual experiences and that these limitations were fairly stable over time. Sexual education should aim at providing adolescents with sufficient (self) knowledge and skills to construct their sexual trajectories according to their own wishes or needs.

2.1 Introduction

Adolescence is a period of multiple developmental transitions. Growth and development occur in various domains: adolescents mature physically, they develop a sense of identity, reassess relationships with parents and peers, and

[2] Graaf, H. de, Vanwesenbeeck, I., Meijer, S., Woertman, L., & Meeus, W. (2009). Sexual trajectories during adolescence: Relation to demographic characteristics and sexual risk. *Archives of Sexual Behavior, 38,* 276-282.

grow in their cognitive abilities (Havighurst, 1971, Dekovic Noom, & Meeus, 1997). Adolescent sexuality is one of the areas that is subject to important changes. In Western countries, most young people have not yet kissed at the start of adolescence, but, by the end of this period, the majority have engaged in sexual intercourse (de Graaf et al., 2005; Mosher et al., 2005).

The ñsexual trajectoryò is an age-graded set of various new sexual experiences. According to Hagestad (1996), who investigated trajectories in aging and illness processes, a full description of trajectories encompasses three key dimensions: (1) sequence, or the order of the various experiences; (2) duration, or the time it takes to go through the various steps; and (3) timing, or the age at which the trajectory is completed. There are, to our knowledge, no studies that include all of these aspects into a description of sexual trajectories, although there are studies that focus on one of these dimensions.

Most prior research on sexual initiation and its correlates has been restricted to the first sexual intercourse, an important turning point in the sexual trajectory. A full description of sexual trajectories should encompass more than that. Adolescents learn about their sexual likes and dislikes throughout their whole sexual trajectory and every new sexual experience offers an opportunity to further develop their preferences. A comprehensive description of various trajectories is important because it creates the possibility to investigate potential risks of certain trajectories and potential risk groups. This could help parents and educators to determine when and how to intervene.

Many studies of sexual milestones show that the most common sequence in sexual trajectories is a progression from less to more sexually intimate behavior (e.g., from kissing to intercourse). A number of studies based this conclusion on the average ages or frequency distributions of first sexual experiences (Brugman et al., 1995; Feldman et al., 1999; Rosenthal & Smith, 1997). Other studies demonstrated that individuals who had engaged in sexual behavior higher on a unidimensional, cumulative scale, in general also experienced all behaviors lower on the scale (Guttman scale) or had a greater probability than null to have experienced these ñlower levelò behaviors (Mokken scale) (Brook et al., 1994; Cowart- Steckler, 1984; Hansen et al., 1992; Jakobsen, 1997; Lam et al., 2002).

All of these prior studies used variable-centered analyses, and thus provided no insight into individual patterns of sexual trajectories. Even if the majority of adolescents follow a progressive trajectory, one could imagine some individuals engage in more sexually intimate behaviors (e.g., intercourse) without having experienced (all of) the less intimate ones (e.g., fondling and petting). According

to qualitative research (Thompson, 1990), some adolescents are rushing into sexual intercourse with almost no sexual preliminaries. There are, to our knowledge, no studies that give insight into the percentage of individuals to whom this statement applies.

A number of studies on sequence, duration, or timing of sexual trajectories investigated differences between certain population groups. The age of first intercourse appeared to be earlier for females, people with certain immigrant backgrounds, and less-educated youth (de Graaf et al., 2005; Feldman et al., 1999; Mosher et al., 2005). Some studies also found different sequences of sexual behaviors between various ethnic groups (Hansen et al., 1992; Smith & Udry, 1985). In addition, numerous studies described sexual differences between males and females, which could be related to different sexual trajectories. Females are, for example, more likely to believe that sexual behavior should happen within a meaningful relationship (Baumeister, 2000; de Graaf et al., 2005; Petersen & Hyde, 2010). For this reason, one could expect females to follow a gradual, progressive trajectory more often than males, because they wait for higher levels of relational commitment before they go any further. On the other hand, females are more often pressured into doing something that they do not want, possibly behavior that derails a progressive sexual trajectory (de Graaf et al., 2005).

There is some evidence that the timing of sexual trajectories has consequences for sexual risks in the long-term (Davis & Lay-Yee, 1999; Greenberg et al., 1992). Additionally, it has been argued that gradual development or moving from one new sexual experience to another at oneôs own pace is related to more healthy outcomes (Petersen et al., 1995; van Zessen, 1995; Vanwesenbeeck, 1997). The possible relation of sexual trajectories with long-term sexual risks, together with the emotional, medical, and financial costs of these risks, makes a comprehensive understanding of sexual trajectories all the more important.

The first goal of this study was to explore whether a typology in sexual trajectories can be identified. We examined the three key dimensions of trajectories mentioned above: sequence, duration, and timing. Specifically, we explored whether sexual trajectories clustered around one of these dimensions (e.g., early versus late starters or quick versus slow trajectories) or combinations of these dimensions (e.g., early, progressive trajectories, late progressive trajectories and nonlinear trajectories). Our second goal was to explore differences in sexual trajectory types with regard to sex, ethnic backgrounds, and educational level, with the hope of identifying particular subsets of individuals likely to belong to particular typologies. The third purpose was to

study the association between sexual trajectory type and recent sexual risks (viz. the risk of unplanned pregnancies and STIs). This was done separately for males and females, since protective behavior is fundamentally gender related (e.g., females can take oral contraceptives without consulting their male partners).

2.2 Method

Participants

Participants initially took part in ñSex under the age of 25,ò a representative study of sexual behavior and sexual health of 12ï 25 year-olds in the Netherlands (N = 4,820). This study was reviewed and approved by the review board of the Netherlands Organisation for Health Research and Development (ZonMW). Because the purpose of the present study was to describe the full sexual trajectory up to the most sexually intimate behavior (e.g., vaginal and/or anal intercourse), participants who had no experience with these forms of behavior were excluded from the analyses (N = 2,254).

This selection resulted in the inclusion of 1,208 males and 1,358 females, ranging in age from 12 to 24 years (M = 20.46 years, SD = 2.78). Limiting the sample to participants who had experienced intercourse resulted in an uneven distribution of participants among age groups. Specifically, the sample was composed of 2.6% 12ï 14-year-olds, 17.7% 15ï 17-year-olds, 33.7% 18ï 20-year-olds, and 46.0% 21ï 24-year-olds. For the purpose of comparing different ethnic groups, additional young first- and second-generation immigrants were recruited. The sample used to evaluate ethnic differences was extended with these immigrant groups, and included 80.0% native Dutch, 2.5% Moroccan-Dutch, 3.2% Turkish-Dutch, 4.9% Surinamese-Dutch, and 4.3% Antillean-Dutch participants (N = 2,842).

Measures

Ethnic Group. Consistent with the Dutch Bureau of Statistics definition of ethnic background, participants were categorized based on their parentsô native country. Participants whose parents were both born in the Netherlands were categorized as Dutch. Participants for whom at least one parent was not born in The Netherlands were categorized with the ethnic background of the non-native parent(s). If the parents were born in different countries, the native country of the mother was the deciding factor. People from Moroccan, Turkish, Surinamese, or Antillean origin are the four largest immigrant groups in the Netherlands. Participants from other backgrounds were included in the total sample, but not separately analyzed due to heterogeneity of the group.

Educational Level. Students were asked about their current level of education. Working and unemployed youth were asked to indicate the highest level of education they completed. Participants were classified as having a ñlowò educational level if they were junior general secondary, pre-vocational or senior secondary vocational students, or if they were no longer enrolled in school and completed pre-university education at most. Participants were classified as having a ñighò educational level if they were in the highest two levels of secondary education or if they were higher professional or university graduates.

Sexual Trajectory. Participants were asked whether or not they had experienced kissing, petting while dressed, petting while undressed, and sexual intercourse (vaginal and anal). Responses were dichotomous (yes/no). If yes, they were asked for the age of their first experiences with these behaviors. These ages were reported in years and could range from before age 8 through age 24. These measures of sexual behaviors were used in previous studies of Dutch youth (Brugman et al., 1995). The four items pertaining to age were used to calculate sequence, duration, and timing.

To assess sequence, all participants received a code representing the sequence of their first sexual experiences. Participants were categorized as ñlinearò if they reported a linear progression from less to more sexually intimate experiences, distributed over at least two years (for example, if sexual behaviors 1 and 2 were initiated at age x and sexual behaviors 3 and 4 at age x + 1, or all behaviors in four successive years). Participants were categorized as ñnonlinearò if more intimate experiences occurred before less intimate ones (for example, if sexual behavior 4 occurred at age x and sexual behavior 3 at an older age). If all new experiences occurred within the same year, the code was categorized as ñunknownò in sequence.

Duration was calculated by subtracting the age of the first sexual experience from the age of first sexual intercourse. Timing was assessed by the age of first sexual intercourse.

Sexual Risk Behavior. Three measures were included with regard to risk for unwanted pregnancy and STI: vaginal intercourse without contraception, vaginal intercourse without a condom, and anal intercourse without a condom, all with reference to the last partner. This could be a current partner, an ex-partner or a casual partner. Participants were asked whether or not they engaged in vaginal or anal intercourse with this partner and whether or not contraception (with vaginal sex) and/or condoms (with vaginal and anal sex) were used.

Contraception encompassed hormonal contraception methods, intrauterine devices, and barrier methods. Responses were always, sometimes, only in the beginning of our relationship (for condoms), and never. These were dichotomized into ñalwaysò and ñnot always,ò because we wanted to distinguish the group that runs any risk for a pregnancy or STI from the group that does not.

Procedure

Participants were recruited in two ways. Middle and high school students came from 29 randomly selected schools, geographically spread over the Netherlands. Furthermore, in the municipalities where these high schools were located, individuals 17ï25 years of age were randomly selected from the Municipal Basic Administration (MBA). This is a database containing demographic information about the residents of a municipality, available at every city hall in the Netherlands, which can be consulted for scientific purposes.

Prior to the study, high school students received a letter at school to take home to their parents, in which parents were informed about the study and the possibility to refuse their childôs participation. Five percent of the selected students did not participate because of their own refusal, their parentsô refusal or their absence during data collection. Participants who were selected from the municipal database received a letter in which they were invited to participate. Seventy-six percent of these youth did not respond to our invitation. Because of the high non-response in the MBA sample, the total sample was compared to the general population (using figures of Statistics Netherlands) on a number of demographic measures: sex, age, ethnic background, educational level, and religion. None of these comparisons showed significant differences.

The questionnaire started with written instructions explaining the importance of truthfulness, that anonymity was assured, the possibility to skip questions, and some practical directions. Students also received verbal instructions from their teacher. Participants recruited in high schools completed the questionnaires during a regular class period, and participants who responded positively to a letter of invitation completed the questionnaire at home. The questionnaire was computerized and all participants completed the measures online.

Statistical Analyses

A two-step cluster analysis on sequence, duration, and timing was used to explore whether a typology in sexual trajectories could be distinguished. Cluster analysis is an exploratory analytic tool, which aims to sort participants into groups, so that the degree of association is strong between participants in the same group and weak between participants in different groups (Nooij, 1995).

Since one of the variables (sequence) included in the analysis was categorical, a two-step cluster analysis was required. This type of cluster analysis automatically generates the optimal number of clusters, using the change in the Schwarz Bayesian Criterion (BIC). When BIC change is small, the number of clusters created thus far stabilizes. Cases were subsequently categorized under the cluster that was associated with the largest log-likelihood.

Differences in sexual trajectories between demographic groups were examined using binary logistic regression. This technique produced an odds ratio for every group that showed the likelihood of following a certain sexual trajectory type, compared to the reference group (viz. males, Dutch youth or lower educated youth). The same technique was used to examine the association between sexual trajectory type and sexual risk behavior. These analyses controlled for age, educational level, and ethnic background, to rule out spurious associations due to demographic factors. Adjusted odds ratios were calculated separately for males and females.

2.3 Results

Two-step cluster analysis on sequence, duration, and timing revealed two sexual trajectory subtypes. Table 2.1 shows the three basic characteristics of both subtypes. The first trajectory progressed from less to more sexually intimate behavior. The majority (73%) of the participants followed this trajectory. About one quarter of the participants demonstrated the second trajectory, having either more sexually intimate before less sexually intimate experiences or having all new sexual experiences within a single year. Nonlinear trajectories started significantly earlier than progressive trajectories, t(2,565) = ï 7.61, $p < .001$.

Table 2.1. Cluster analysis on timing, duration, and order of sexual trajectories

		Timing (Age)		Duration (Years)		Sequence (%)		
	N	M	SD	M	SD	Nonlinear	Unknown	Linear
Progressive trajectory	2,112	16.4	1.98	3.0	1.81	0	0	100
Deviant trajectory	780	15.6	2.57	1.7	1.77	66	34	0

A nonlinear sexual trajectory was more common in some population groups than in others. Table 2.2 shows the percentage that followed a progressive trajectory within each demographic group. Odds ratios showed the likelihood of following a progressive trajectory was significantly lower for young people from Morocco (OR = .32 (.20ï .50), $p < .001$), Turkey (OR = .35 (.23ï .53), $p < .001$), Surinam (OR = .39 (.28ï .55), $p < .001$), and the Dutch Antilles (OR = .45 (.31ï .66), $p <$

.001) compared to native Dutch youth. The opposite was true for higher-educated youth compared to the ñlowò education group (OR = 1.65 (1.35ï 2.02), $p < .001$). The difference between males and females was small and not significant.

Table 2.2. Binary logistic regression analysis of sex, ethnic background, and educational level on progressive sexual trajectory

	N	%	OR	95% CI	*p*
Males	1,209	73	1.00		
Females	1,358	76	1.20	1.00ï 1.43	ns
Dutch	2,292	77	1.00		
Moroccan	77	52	.32	.20ï .50	<.01
Turkish	94	54	.35	.23ï .53	<.01
Surinamese	147	57	.39	.28ï .55	<.01
Antillean	127	61	.45	.31ï .66	<.01
Lower-educated	1,726	72	1.00		
Higher-educated	831	81	1.65	1.35ï 2.02	<.01

Results of the logistic regression analyses on different forms of risk behavior (viz. vaginal intercourse without contraception or condoms and unprotected anal intercourse) are summarized in Table 2.3. Males and females who followed a progressive trajectory were significantly less likely to engage in vaginal intercourse without contraception, compared to those who followed a nonlinear trajectory (respectively, OR = .73 (.53ï .99), $p < .047$ and OR = .58 (.43ï .79), $p < .001$). Males and females who reported a desire to conceive a child were excluded from these analyses. Timing of the nonlinear trajectory could not solely explain this result, since for females no significant association was found between age of first intercourse and use of contraception with the last partner. Furthermore, females whose sexual trajectory developed in a progressive way were significantly less likely to have practiced unprotected anal intercourse with the last partner (OR = .51 (.37ï .72), $p < .001$).

Table 2.3. Binary logistic regression analysis of progressive sexual trajectory on sexual risks

	N	Progressive (%)	Nonlinear (%)	OR[a]	95% CI	*p*
Males						
Intercourse without contraception	1,192	20	28	.73	.53-.99	.047
Vaginal intercourse without a condom	1,218	65	59	1.17	.88-.56	ns
Anal intercourse without a condom	1,189	12	14	.90	.61-1.33	ns
Females						
Intercourse without contraception	1,304	21	34	.58	.43-.79	.001
Vaginal intercourse without a condom	1,311	81	77	.82	.58-1.16	ns
Anal intercourse without a condom	1,324	13	23	.51	.37-.72	.000

[a] OR corrected for age, ethnic background, and educational level

2.4 Discussion

The first purpose of this study was to explore whether a typology in sexual trajectories could be distinguished based on three key dimensions of these trajectories: sequence of new behaviors, duration, and timing. A cluster analysis showed that this was indeed possible. The broad range of sexual trajectories was narrowed down to two subtypes: the type that follows the well-documented progression from kissing to petting when dressed and undressed to sexual intercourse, and the type that follows a different path.

Rademakers and Straver (1986) described the process of constructing the progressive trajectory based on in-depth interviews. They concluded that, in general, adolescents play an active role in this construction. At the start of this trajectory, most adolescents engage in the least sexually intimate behaviors because these are consistent with their own needs. They experiment with these behaviors for a while, investigate their own thoughts and feelings about them, and gradually move on to other forms of sexual behavior when merely kissing or petting are no longer satisfactory. To accomplish this, adolescents require certain skills, such as being aware of their own wishes and needs, communicating these to a partner, and being able to refuse unwanted sexual experiences.

We hypothesize that participants who did not follow this progressive trajectory possibly lacked some of these skills. For example, they could be persuaded into more sexually intimate behavior, because they were not aware of (or able to protect) their own boundaries. Another explanation may be the lack of a willing partner for a period of time, resulting in a rush into sexual intercourse when a partner was finally available (Baumeister, 2000). Of course, we cannot rule out that the nonlinear sexual trajectory was consistent with some adolescents own sexual wishes and needs. Furthermore, it is possible that they deliberately engaged in sexual interactions for reasons other then their own sexual needs, such as to gain self-confidence, to please a partner, to impress their peer-group or to rebel against their parents (Feldman et al., 1999). Whatever the explanation for following a nonlinear sexual trajectory, doing so potentially leaves adolescents with limited learning opportunities before moving on to sexual behaviors that make higher demands on oneôs emotional, social, and planning skills.

The likelihood of following a nonlinear sexual trajectory was nearly equal for males and females. It is possibly the context of sexual trajectories, rather than the prevalence of nonlinear trajectories, that is different for males and females. In general, girls more often than boys are pressured into doing something that is contrary to their sexual wishes or needs. In contrast, boys more often lack the opportunity to engage in behaviors for which they feel they are ready, because they cannot find a willing partner (Baumeister, 2000).

Although the majority of all population groups followed a progressive trajectory, nonlinear trajectories were more common among ethnic minority and lower-educated young people than among native Dutch and higher-educated youth, respectively. As stated earlier, this could be a result of different sexual desires, but also of less opportunities and skills to fulfill these sexual desires within these population groups. Differences in parental guidance associated with income level (Dutch Bureau of Statistics), and lower levels of sexual knowledge, communication, and positive attitudes with regard to sexuality could all potentially affect the development of these insufficient skills and opportunities (de Graaf et al., 2005; van Ginneken, Ohlrichs, & Van Dam, 2004).

This study showed an association between the course of the sexual trajectory and present efforts to protect against unwanted pregnancy. Individuals who followed a nonlinear trajectory in the earliest stages of their sexual histories more often had vaginal intercourse without contraception with their last partner, although they reported no desire to conceive a child. This association was

stronger for females than for males, indicating that pregnancy prevention may still be perceived as the responsibility of the female. To the extent that our earlier hypothesis regarding insufficient knowledge, skills, and learning opportunities in the nonlinear trajectory type is correct, it could be suggested that these same limitations have an effect on contraceptive behavior in the most recent sexual interactions.

There was no significant association between sexual trajectory type and condom use during vaginal intercourse. Supposedly, the association between condom use and the ability to control sexual interactions is not that straightforward. Apart from consequently using a condom, there are more strategies to prevent STI infection that can be called ñeffectiveò and a sign of competence, such as having a monogamous relationship with someone who is tested for STI. Contrary to this, vaginal intercourse without contraception always puts someone at risk of an unplanned pregnancy, provided that one does not wish to conceive.

Among females, an association was found between having a nonlinear sexual trajectory and having unprotected anal intercourse. This could be explained in terms of a higher prevalence of anal intercourse with the last partner among these females. Anal intercourse is not a common form of sexual behavior in heterosexual relationships (de Graaf et al., 2005). There is evidence that, especially for females, engaging in anal intercourse is more often a result of persuasion than engaging in vaginal intercourse (de Graaf et al., 2005). It is possible that females in the nonlinear trajectory group were more easily persuaded to have anal intercourse than females following a progressive trajectory.

In summary, this study has provided evidence that not all adolescents follow the progressive sequence of sexual behaviors documented in prior research (Brook et al., 1994; Brugman et al., 1995; Cowart-Steckler, 1984; Feldman et al., 1999; Hansen et al., 1992; Jakobsen, 1997; Lam et al., 2002; Rosenthal & Smith, 1997). To explain this finding, we suggested that some adolescents reporting a nonlinear trajectory have insufficient knowledge and skills (such as being aware of their own sexual likes and dislikes, and being able to protect their boundaries) to gradually progress from less to more sexually intimate behavior. To the extent that this interpretation is correct, it is plausible that these limitations are fairly stable over time and that the likelihoods of some sexual risks were therefore higher for individuals following a nonlinear sexual trajectory. In this case, parents, educators, and health care workers should attempt to address these gaps in knowledge and skills, with the goal of helping youth to protect themselves against unwanted sexual outcomes.

The present study was not without limitations. First, the ages of first new experiences were measured in years, making it impossible to determine the exact sequence of two experiences if these happened within 1 year. Fortunately, only 9% of the sample had to be categorized as an ñunknown sequenceò. Cluster analyses showed that this trajectory did not differ strongly from the linear trajectory, with regard to timing and duration. A second limitation was that the study was cross-sectional, making it hard to draw conclusions about causal relationships. The third limitation was that the ages of first sexual experiences were measured retrospectively and, therefore, could be distorted by memory or social acceptability biases.

This study raises some questions that could be addressed in future research. The causal associations between the abandonment of a progressive trajectory and limited sexual knowledge and/or skills should be investigated, preferably by a longitudinal design. Furthermore, it is of interest what causes these limited skills and knowledge to develop in the first place. For example, evidence exists that the emotional climate in the family of origin or interactions with peers have an effect on the ability to actively plan and steer sexual interactions (van Zessen, 1995). Finally, the present study did not assess whether self-reported sexual experiences were consensual. It is plausible that both following the nonlinear sexual trajectory and later sexual risk behavior are the result of non-consensual sexual activity. Further research on these topics is advisable.

CHAPTER 3

PARENTING AND ADOLESCENTSô SEXUAL DEVELOPMENT IN WESTERN SOCIETIES: A LITERATURE REVIEW[3]

This review examines associations between parenting styles and the psychosexual development of adolescents. Methods and results of empirical studies of associations between parental support, control, and knowledge and the sexual behavior and sexual health of adolescents are described and evaluated. The results show that, in general, higher scores on support, control and knowledge relate to a delay of first sexual intercourse, safer sexual practices and higher sexual competence. Despite the vast amount of literature on this subject, the majority of these studies focus on single dimensions of parenting and unidirectional parenting influences. This review generates hypotheses regarding interactions of different parenting styles and reciprocal associations between parents and their children. There is a need for more dynamic, dialectical studies of parenting and children's sexual development.

3.1 Introduction

Adolescence can be characterized as a period of growth and development, particularly in the area of sexuality. Most adolescents go through tremendous changes with regard to sexuality. They have their first relational and sexual experiences, have to learn what they like and dislike, how to make sexual experiences mutually rewarding, and how to prevent potentially negative consequences of having sex. Although most young people in Western societies (North America, Western Europe, Australia and New Zealand) have at least some sexual experiences during adolescence, large individual differences in sexual development also exist. In the Netherlands, about one in ten 14-year-olds has already engaged in sexual intercourse, whereas one in ten 19-year-olds has not even kissed yet (De Graaf et al., 2005).

Parents are considered to play a role in these individual differences. A large number of studies report associations between aspects of parenting and sexual behavior (for example, the timing of first sexual intercourse) or sexual health

[3] De Graaf, H., Vanwesenbeeck, I., Woertman, L., & Meeus, W. (in press). Parenting and psychosexual development in adolescence: A literature review. *European Psychologist.*

(for example, the use of contraception or sexual esteem). Both sexuality related parenting (for example, communication about sexual issues) and general parenting styles are studied. For the purpose of reducing the amount of literature and attaining a higher level of homogeneity, this review will focus on three dimensions of general parenting that have been studied rather extensively: support, control, and knowledge (of parents of their childôs whereabouts). Studies of associations between these parenting dimensions and sexual health will be described and evaluated, in order to determine what is currently missing (with respect to content and methodology) and what is needed in future studies.

This review extends beyond a plain description of the separate associations between these three dimensions of parenting and sexual development. Support, control, and knowledge are very likely to be interrelated. We will therefore also describe, if possible, the relative effect of each of these parenting styles and generate hypotheses regarding mediating effects of some parenting styles on others. In addition, we will criticize the unidirectional approach of most empirical studies. Results are usually described as if parents influence their children, not vice versa. In this review, we will suggest alternative, reciprocal explanations for these associations between parenting styles and sexual development.

Literature Search and Selection

Literature was found using PsychInfo, Medline and Social SciSearch. The search terms were based on the thesauruses of these databases. Descriptors such as ófamily of originô, ófamily relationsô, ófamily backgroundô, óparental characteristicsô, óparenting styleô, óparent child relationsô, óparent child communicationô, óchildrearing practicesô, óparental roleô, and óparental involvementô were used, combined with ópsychosexual behaviorô and ópsychosexual developmentô. The searches were limited to empirical studies focusing on adolescents or emerging adults (age 12-25), carried out in North America, Western Europe, Australia or New Zealand. Only studies published in 1990 or thereafter were included, because research on parenting and adolescentsô sexual development largely expanded in this decade. To limit the large number of studies of parenting and age of first sexual intercourse, six studies using small, selective samples (less than 200 respondents) were excluded from the final result, which consisted of 55 empirical studies. Characteristics of these studies can be found in Table 3.1.

Table 3.1. Characteristics of literature described in the present study

Study	Description of parenting measure [a]	Description of sexual outcome measure	Sample
Barnett et al., (1991)	perceived family cohesion and strengths (s); openness of parent-child communication (s)	pregnancy status	124 sexual experienced females, aged 13-19
Bates et al., (2003)	perceived parental permissiveness (c); monitoring (k)	number of sexual partners at ages 16-17	458 adolescents, followed from age 5 till age 16-17
Biglan et al., (1990)	coercive exchanges (s); monitoring (k); spending time, having fun together (s); family problem-solving skills (s)	number of (sexual risky) partners, condom use, experience with anal sex	sample 1: 131 8th-12th graders and their parents; sample 2: 99 8th-12th graders
Borawski et al., (2003)	monitoring (k), opportunity to spend unsupervised time with peers (c), perceived parental trust (s)	sexual intercourse initiation, number of sexual partners, experience with STD, condom use	692 adolescents in 9th and 10th grade
Capaldi et al., (1996)	parental supervision of peer group activities (c); limits on unsupervised time (c)	sexual intercourse initiation, age of first sexual intercourse	201 males, followed from age 10 till age 18
Cotton et al., (2004)	amount of time spend without adult supervision (c); indirect monitoring (k)	perception of the timing of first sexual intercourse	127 sexual experienced females, followed from age 12-15 till age 15-18
Crosby et al., (2002b)	monitoring (k)	experience with STD	217 low income African American females, aged 14-18
Crosby et al., (2002a)	perceived family support (s)	communication with sex partners about (safe) sex, self-efficacy to negotiate condom use, condom use	469 low income African American females, aged 14-18
De Graaf et al., (2005)	perceived parental responsiveness and affection (s); monitoring (k)	sexual intercourse initiation, contraceptive and condom use, sexual satisfaction, assertiveness, esteem	4,821 Dutch adolescents, age 12-25
Dittus & Jaccard (2000)	satisfaction with maternal relationship (s)	sexual intercourse initiation, contraceptive use at most recent intercourse, pregnancy	20,745 adolescents, age 12-18

Dittus et al., (1999)	satisfaction with maternal relationship (s)	sexual intercourse initiation	751 African American adolescents, age 14-17, and their mothers
Doljanac & Zimmerman (1998)	time spend with parents (s); parental support (s); having a nighttime curfew (c); family problem solving (c)	sexual intercourse initiation, age of first sexual intercourse, number of sexual partners, condom use	824 9th graders
Fingerson, L. (2005)	satisfaction with maternal relationship (s)	number of sex partners	9,530 adolescents (age 15-18) and their mothers
Frisco, M.L. (2005)	involvement in education (s); supervision (check homework, set limits) (c); permissive parenting (c)	contraceptive use at most recent intercourse	3,828 females, followed from 8th grade till 12th grade
Hope & Chapple (2005)	maternal attachment (s); parental monitoring (k)	sexual intercourse initiation, number of sex partners, and relationship to last sex partner	709 adolescents, age 15-17
Huebner & Howell (2003)	monitoring (c & k); communication (s); decision making (authoritative versus non-authoritative) (c)	sexual risk (more than one sex partner and/or no condom at most recent intercourse)	1160 sexual experienced adolescents, 7th-12th grade
Hutchinson (2002)	perceived quality of communication with parents (s)	age of first sexual intercourse, experience with STD, condom use before age 18	234 females, age 19-21
Jaccard et al., (1996)	satisfaction with parent-child relationship (s)	experience with and frequency of sexual intercourse, consistency of contraceptive use	751 African American adolescents, age 14-17, and their mothers
Jemmott & Jemmott (1992)	perceived parental level of strictness (c)	experience with and frequency of sexual intercourse, number of partners, condom use, fathering a pregnancy	200 Black males, age 11-19
Karofsky et al., (2000)	perceived quality of communication with parents (s)	sexual intercourse initiation	203 adolescents, followed from age 12-21 till age 17-26
Lammers et al., (2000)	perceived availability of a caring adult (s)	sexual intercourse initiation	26,023 adolescents, 7th-12th grade
Longmore et al., (2001)	parental support (s); coercive control (c); rules, supervision (c)	age of first date and first sexual intercourse	752 adolescents, as from age 13 at wave 2, and their parents

Luster & Small (1994)	monitoring (s & k), perception of parent as caring, fair, available (s)	number of partners, contraceptive use	2,567 adolescents, age 13-19
McNeely, et al., (2002)	satisfaction with mother-child relationship (s)	age of first sexual intercourse	2,006 adolescents, age 14-15, and their mothers
Meschke & Silbereisen (1997)	parental monitoring (k)	age of first sexual intercourse	702 German adolescents, age 15-18
Metzler et al., (1994)	availability of parental figures (s); supervision (c)	number of sex partners, risky partners, contraceptive and condom use, sexual intercourse initiation, experience with anal sex and STD	609 adolescents, age 14-17; 131 adolescents, age 15-17; 99 adolescents, age 15-18
Miller et al., (1986)	perceived parental strictness and rules (c)	premarital sex attitudes, sexual intercourse initiation	2,423 adolescents, age 15-18, and their parents
Miller et al., (1997)	perceived parental permissiveness (rules, keeping track) (c); coercion (spanking, threatening) (s); love withdrawal (s); support, closeness (s)	age of first sexual intercourse	1,145 children, age 7-11 (Wave 1), 12-16 (Wave 2), and 18-22 (Wave 3)
Miller et al., (1999)	maternal monitoring (k), mother-adolescent communication (s)	sexual intercourse initiation, number of sex partners, age of first sexual intercourse, condom use	907 Black and Hispanic adolescents, age 14-16, and their mothers
Moore & Chase-Lansdale (2001)	quality of parent-child relationship (mutual trust, quality of communication, extent of anger and alienation) (s)	age of first sexual intercourse, pregnancy	289 African American females, age 15-18, and their mothers
Moore & Davidson (1997)	perceived communicativeness (s); strictness (c)	guilt at first sexual intercourse, current sexual satisfaction	570 female college students, age 18-23
Mueller & Powers (1990)	parental communicator style (s)	frequency of sexual intercourse, contraceptive use, sexual knowledge accuracy	160 college students, age unknown

Paul et al., (2000)	family cohesion (s); expressiveness (s); parent attachment (s)	sexual intercourse initiation before age 16	1,020 children, followed from age 3 till age 21, and their parents
Pedersen et al., (2003)	affection (s); control (overprotection) (c); monitoring (k)	age of first sexual intercourse	1,399 adolescents, followed from age 13 till age 20
Rai et al., (2003)	perceived parental monitoring (k)	sexual intercourse initiation, condom use	1,279 low income African American adolescents, age 13-16
Ream (2006)	problem-focused interactions (s)	sexual intercourse initiation	10,873 adolescents, 7th to 12th grade
Ream & Savin-Williams (2005)	perceived love and care (s); satisfaction with communication and relationship (s); shared activities (s); problem-focused interactions (s)	sexual intercourse initiation	13,570 adolescents, 7th to 12th grade
Resnick et al., (1997)	connectedness (closeness, perceived love and care, satisfaction with the relationship) (s); number of shared activities (s); parental presence (s)	sexual intercourse initiation, pregnancy	26,023 adolescents, 7th to 12th grade
Roche et al., (2005)	number of domains where parent makes decisions (c)	initiation of sexual intercourse between first en second Wave	2,559 adolescents, age 12-16, virgins at Wave 1
Rodgers (1999)	perceived parental support (s); monitoring (k); perception of parents' use of guilt as a controlling mechanism (c)	number of sexual partners, consistency of contraceptive use, effectiveness of contraceptive method, condom use at most recent intercourse	350 sexually experienced adolescents, 9th to 12th grade
Rose et al., 2005	monitoring (k), quality of parent-child relationship, family cohesion (s)	sexual intercourse initiation, anticipated sexual activity in the next 12 months	408 adolescents, 5th grade
Russell (2002)	maternal interest in education (s)	childbearing at age 19 or younger	4,928 British adolescents, surveyed at age 16 and 23
Sionéan et al., (2002)	family support (s)	refusal of unwanted sexual activity	522 African American females, age 14-18

Small & Luster (1994)	parental monitoring (k), perceived parental support (s)	sexual intercourse initiation	2,168 adolescents in 7th, 9th and 11th grade
Small & Kerns (1993)	monitoring (k), authoritative versus non-authoritative decision making (c)	unwanted touching, unwanted sexual intercourse, no unwanted sexual contact	1,149 female adolescents in 7th, 9th and 11th grade
Smith (1997)	parent attachment (s); child maltreatment (neglect and abuse) (s); supervision (c)	first sexual intercourse at age 15 or younger	803 African American and Hispanian adolescents, followed from age 13 till age17
Stone & Ingham (2002)	warmth of relationship with parents (s); perception of parents as trusting and available (s)	(discussing) contraceptive use at first intercourse	963 adolescents, age 16-18
Taris & Semin (1997)	amount of disagreement with regard to going out or sexual issues (c); closeness (s); importance attached to rules and discipline (c)	sexual intercourse initiation	333 (Wave 1) and 255 (Wave 2) adolescents, age 14-18, and their mothers
Taris & Semin (1998)	closeness (s); importance attached to rules and discipline (c)	sexual intercourse initiation, self-efficacy with regard to asking sexually sensitive questions	253 British adolescents, age 15-18, and their mothers
Troth & Peterson (2000)	family conflict resolution (c)	comfort in discussing safe sex, condom discussion, condom use	237 Australian adolescents, age 16-19
Van Zessen, G. (1995)	warmth (s); rejection (s); structure (c); autonomy support (c)	sexual satisfaction	124 adults with 3 or more sexual partners in past year
Vesely et al., (2004)	family communication (s)	sexual intercourse initiation, age at first intercourse, number of sex partners, contraceptive use	1,253 adolescents, age 13-19, and their parents
Werner-Wilson & Vosburg (1998)	perceived love and esteem (s)	experience with risky sex partners, contraceptive and condom use	271 undergraduate students, mean age 20.3
Wight et al., (2006)	rules for going out in the evening (c)	sexual intercourse initiation, age at first intercourse, number of sex partners, condom and contraceptive use	5,041 adolescents, age 13-14 (time 1) or age 15-16 (time 2)

[a] (s) = support, (c) = control, (k) = knowledge

Conceptualizing support, control and knowledge

Support and control are two dimensions generally found in the literature on parenting (Maccoby & Martin, 1983). Support refers to the expression of affection, love, and appreciation; it encompasses warmth, availability, responsiveness and closeness. In the literature on parenting, there are two sets of measurements that resemble support, but are still distinct: 1) involvement, usually measured as the amount of time parents and children spend together and 2) the perceived quality of or satisfaction with the relationship with the parents. Strictly speaking, one should know how this time is spent together or what aspects of the relationship one is satisfied with, before these constructs can be classified. For pragmatic reasons, however, associations with both these constructs will be described in the sections on support.

Control refers to parenting behavior that is intended to direct the childôs behavior in the manner desired by the parents. This dimension of parenting is less homogeneous than support, as is reflected in the diverse set of measurements in the literature. Measures of control encompass, for example, the number of rules parents set for their children, the level of autonomy children are granted, the childôs involvement in making decisions and (perceived) strictness. A number of researchers claim that there are actually two kinds of control, which are differentially associated with adolescent development: consistent, clear, and fair demands (structure, authoritative control) and arbitrary, controlling insistence on obedience (coercion, authoritarian control) (Maccoby & Martin, 1983; Skinner et al., 2005). Although we acknowledge that this distinction is useful, in most of the studies reviewed it has not been made yet. For pragmatic reasons, we will therefore describe associations with both dimensions of control in the same paragraph.

Parental knowledge of the childôs whereabouts is a third aspect of parenting that is studied extensively. This knowledge is generally called ómonitoringô, which leads to confusion with supervision. It is evident that knowledge of the childôs whereabouts does not necessarily require supervision and that the child at least has to cooperate a little bit for parents to obtain this knowledge (provided that the child spends some time unsupervised). Some researchers claim parental knowledge is most often the result of the childôs spontaneous disclosure (Stattin & Kerr, 2000). Knowledge thus seems to be rather an interpersonal variable than purely a parental variable, and will therefore be treated as a separate concept.

In the sections that follow, we will review successively the literature on parental support, control and knowledge. Within each section, associations with sexual experience, the use of protection (viz. contraception and condoms) and the

quality of sexual experiences (viz. positive feelings regarding sexuality and competence in sexual interactions) will be described.

3.2 Support

Sexual experience

Although there are many other forms of sexual behavior adolescents can engage in, most studies focus on sexual intercourse. Almost all of these studies found that a higher score on parental support is associated with a delay of first sexual intercourse. In an American population study of 13 to 18 year olds, for example, correlates were found between perceptions of parental care, parental closeness and affection, and satisfaction about the relationship with the parents on the one hand, and a delay of first sexual intercourse on the other hand (Lammers, Ireland, Resnick & Blum, 2000; Resnick et al., 1997). Other nationally representative studies and a study of African American adolescents resulted in comparable findings (Dittus & Jaccard, 2000; Dittus, Jaccard & Gordon, 1999; Fingerson, 2005).

Some longitudinal studies confirmed these findings and show that high levels of parental support (at least also) precede relatively little sexual experience. A New-Zealand study found that the odds of having had sexual intercourse before the age of 16 are higher for youth coming from families with less cohesion and expressiveness and more conflict at the ages 7, 9 or 13 (Paul, Fitzjohn, Herbison & Dickson, 2000). Norwegian researchers found that less family affection at the age of 12 to 14 is associated with a younger median age of first sexual intercourse (Pedersen, Samuelsen & Wichstrømn, 2003). Other longitudinal studies found comparable results (Davis & Friel, 2001; Longmore, Manning & Giordano, 2001; Smith, 1997). One longitudinal study did not find any correlation, however, between parenting and sexual behavior (Taris & Semin, 1998).

The association between parental support and experience with sexual intercourse seems to be stronger in the youngest age groups (Lammers et al., 2000; Taris & Semin, 1998). Furthermore, several studies find exclusive or stronger associations for girls than for boys, whereas there are no studies that find the opposite (Davis & Friel, 2001; McNeely et al., 2002; Miller et al., 1997; Small & Luster, 1994; Rose et al., 2005).

Use of protection

Several studies show that young people use contraception more consistently if they are more satisfied with the maternal relationship or if they experience more

support, involvement in school or positive communication styles from their parents (Dittus & Jaccard, 2000; Dittus et al., 1999; de Graaf et al., 2005; Frisco, 2005; Jaccard, Dittus & Gordon, 1996; Mueller, & Powers, 1990). Furthermore, the likelihood of involvement in a pregnancy is smaller for young people reporting a relatively warm family climate (Barnett, Papini, & Gbur, 1991; Dittus & Jaccard, 2000; Moore & Chase-Lansdale, 2001; Resnick et al., 1997; Russell, 2002).

Results on the role of parental support in condom use are less straightforward. Hutchinson (2002) found that girls who can talk to their mother about important things use condoms more consistently before age 18. Biglan et al., (1990) also reported a negative association between parental support (spending much time together, having fun) and "sexual risk behaviorò. Other studies found no associations between parental support and condom use (Miller, Forehand & Kotchick, 1999), or only associations for sex with steady partners (Crosby, DiClemente, Wingood & Harrington, 2002a) or, on the opposite, casual partners (de Graaf et al., 2005). Some studies only found associations for girls (Werner-Wilson & Vosburg, 1998) or for African American youth (Huebner & Howell, 2003). Doljanac & Zimmerman (1998) found, on the opposite, stronger associations for white than for African American youth.

Pleasurable sexual experiences

Sexual health also encompasses the ability to have pleasurable sexual experiences (WHO, 2007). A number of studies report associations between parental support and positive feelings regarding sexuality or competence in sexual interactions. Dutch girls are, for example, more satisfied with their sex lives when they receive more parental support (de Graaf et al., 2005). Another study reports associations between uncommunicative parents and a girlôs feelings of guilt regarding first sexual intercourse (Moore & Davidson, 1997). Furthermore, young people who perceive their parents as more affectionate seem to be more capable of feeling close, talking about (safe) sex and refusing unwanted sexual contact in sexual interactions (Crosby et al., 2002a; Sionéan et al., 2002; Stone & Ingham, 2002; Taris & Semin, 1998; Troth & Peterson, 2000; Van Zessen, 1995).

3.3 Control

Sexual experience

Most studies of parental control and sexual experience find that higher levels of control (less permissiveness, more supervision, parents perceived as more strict), correlate with a delay of first sexual intercourse (Bates, Alexander, Oberlander,

Dodge, & Pettit, 2003; Borawski, Ievers-Landis, Lovegreen & Trapl, 2003; Capaldi, Crosby & Stoolmiller, 1996; Jemmott & Jemmott, 1992; Longmore et al., 2001; Smith, 1997; Taris & Semin, 1997). Almost all of these studies are longitudinal, thus showing that postponement of sexual experience (also) follows parental control.

Some other studies, however, showed opposite results. This appears to depend on the operationalization of control: authoritarian control or overprotection seem to correlate with earlier sexual experience. Children are more likely to be sexually experienced, for example, if mothers attach more importance to strict obedience and discipline (Taris & Semin, 1998). A Norwegian longitudinal study found that adolescents who are not allowed to make their own decisions are more likely to have their first sexual intercourse at a younger age (Pedersen et al., 2003). Roche et al., (2005) found that sexual experience is indeed highest if parents do not set any rules at all, but also higher when parents are very strict, compared to moderately strict parents. In addition, setting more rules correlates with higher levels of sexual experience in socioeconomically advantaged neighborhoods in this study. Possibly, adolescents are relatively likely to perceive very strict rules as unnecessary and therefore unfair in these neighborhoods, leading to disadvantageous outcomes.

Use of protection

Results on associations between parental control and adolescentsô safe sex behavior is inconsistent, possibly because control is defined in many different ways. A certain amount of rules or parental input in decision making seems to be beneficial. White 9th graders, for example, use condoms more frequently if they have a nighttime curfew (Doljanac & Zimmerman, 1998). Male adolescents who perceive the father as more strict use condoms more consistently (Jemmot & Jemmot, 1992). Frisco (2005) also found a negative association between permissive parenting and contraceptive use in female adolescents. A certain amount of autonomy granting, however, is also desirable. Borawski et al., (2003) found that young people use condoms more consistently if they are allowed to spend more unsupervised time with peers. Another study that reported only multivariate associations found, on the opposite, no direct effect for authoritative parenting on sexual risk behavior (Huebner & Howell, 2003).

Pleasurable sexual experiences

High levels of (authoritarian) control are not beneficial for having pleasurable experiences. One study found that women with overly strict father figures reported higher levels of guilt with regard to first sexual intercourse (Moore & Davidson, 1997). Adolescents whose mothers attach more importance to strict

obedience and respect for authority, expect to have more difficulty in sexual communication with potential partners (Taris & Semin, 1998). In addition, girls more often report unwanted sexual contact if their parents do not use an authoritative parenting style (Small & Kerns, 1993).

3.4 Knowledge of the childôs whereabouts

Sexual experience

Unlike control, higher levels of parental knowledge are unambiguously related to adolescentsô sexual behavior. Both cross-sectional and longitudinal studies found that higher levels of knowledge are related to a lower likelihood of being sexually active or a lower intention to become sexually active (Borawski et al., 2003; Meschke & Silbereisen, 1997; Small & Luster; Rose et al., 2005). Hope & Chapple (2005) found that young people who informed their parents of their whereabouts at ages 11 to 13, were less sexually experienced when they reached age 15 to 17. Bates et al., (2003) reported a negative association between the level of parental knowledge at age 13 and the number of sexual partners at age 16 or 17. In Norway, a positive correlation between parental knowledge at ages 12 to 14 and the median age of first sexual intercourse was found (Pedersen et al., 2003).

Use of protection

Studies suggest that young people whose parents know more about their whereabouts, use condoms more consistently and/or have lower scores on measures of sexual risk behavior (Borawski et al., 2003; Huebner & Howell, 2003; Luster & Small, 1994; Metzler et al., 1994; Miller et al., 1999; Rodgers, 1999). The one study that did not confirm this finding focuses on condom use only (Rai et al., 2003). In a prospective study among African American girls, lower levels of knowledge were also found to relate to a higher chance of contracting an STI in the next 18 months (Crosby, DiClemente, Wingood, Lang & Harrington, 2002b). In addition, higher levels of knowledge are associated with more consistent contraceptive use and lower odds of unwanted pregnancy (de Graaf et al., 2005).

Pleasurable sexual experiences

Young adolescents who perceive the timing of their first sexual experiences as `just right´, report that their parents know more about them (Cotton et al., 2004). Furthermore, higher levels of parental knowledge correlate with higher levels of satisfaction, assertiveness and self-confidence in sexual interactions (de Graaf et al., 2005) and lower odds of unwanted sexual activity (Small & Kerns, 1993).

3.5 Summary and conclusions

Most studies of associations between parental support, control, and knowledge on the one hand and adolescentsô sexual experience and sexual health on the other focus on experience with sexual intercourse. Sexual experience per se is not a very good measure of sexual health. After all, almost everyone has sexual intercourse at some point in his or her life. There are, however, some indications that having sex at a very young age (age 14 or before) is unfavorable. Sexual intercourse at this age is more often the result of persuasion or coercion and more often unprotected than among older adolescents (de Graaf et al., 2005). Furthermore, a young age at ýrst sex is often associated with more negative consequences (Hawes, Wellings & Stephenson, 2010).

Higher levels of parental support correlate with a delay of first sexual intercourse. This association is indeed particularly evident for younger adolescents. Furthermore, parental support correlates with higher levels of contraceptive and condom use among sexually active adolescents, more positive feelings regarding sexuality, and higher levels of competence in sexual interactions.

Control refers to the rules parents set for their children, their level of supervision and the involvement of the children in making decisions (authoritative versus authoritarian). Control is a more complicated parenting dimension than support. Both too much control and a lack of control can be disadvantageous. Some researchers make a distinction between authoritative control (clear and fair demands) and authoritarian control (an arbitrary insistence on obedience) (Maccoby & Martin, 1983; Skinner et al., 2005). Clear and fair demands seem to correlate with a delay of first sexual intercourse and less unwanted sexual experiences. Which demands are perceived as reasonable varies among life domains and age groups. Having a curfew can be reasonable for a 14 year old, whereas not being allowed to spend any time with friends may not.

There are a number of possible explanations for these associations with parental support and control. One explanation could be that adolescents who are close to their parents and who perceive their rules as fair are more inclined to live up to their parentsô wishes. This does not explain, however, why adolescents who grow up in a loving and supportive family are also more competent in sexual interactions and subsequently report higher levels of sexual satisfaction. Possibly, higher levels of support and authoritative control create psychologically healthy young people. The positive relation between parental support and self-esteem and adequate social skills has been demonstrated in

earlier research (Barber, 1997). As a result, young people who grow up in loving and supportive families could be more aware of their own needs and more able to express them adequately in social relationships.

For both parental support and control, associations with condom use are less straightforward than associations with age of first intercourse, contraceptive use and the quality of sexual interactions. Condom use may not be as much a comprehensive indication of sexual health as the other outcome measures. Other sensible decisions can also be made in STI prevention, such as having a monogamous relationship with someone who did not have sexual intercourse before.

Having knowledge of the childôs whereabouts is said to be a parenting strategy that bridges the gap between the parental desire for control and the childôs increasing desire for autonomy. Children are allowed to spend unsupervised time with peers, but tell their parents what they do and with whom. Young adolescents who claim their parents know more about them tend to be less sexually experienced and when they do become sexually active, those adolescents report more often that the timing was `just right´, they protect themselves better against STIôs and unwanted pregnancy and they are more satisfied, assertive and self-confident in sexual interactions. Parental knowledge enables parents to steer and correct the childôs experiences and decisions, possibly resulting in improving the childôs decision making.

All of these explanations are, however, unilateral, just like the majority of the studies reviewed. It is unlikely that parental behavior is not at least partly a response to the childôs behavior. Although barely investigated, the relationship between parents and children could also deteriorate as a result of children becoming sexually active. Researchers who did look for reciprocal explanations indeed found evidence for this hypothesis (Karofsky, Zeng & Kosorok, 2000; Ream, 2006). Possibly, parents unconsciously blame their children for not living up to their expectations, or perhaps it is just a natural reaction to a sign that the child is approaching adulthood. An explanation for the decline in parental knowledge could be that children who do things that their parents might not like (like having sexual intercourse), have a lower tendency to self-disclose (Darling, Cumsille, Caldwell & Dowdy, 2006).

It is also possible that changes in parental support, control, and knowledge and adolescentsô sexual experience are all part of the same developmental process and that there is no causal relation. Growing up means taking more distance from oneôs parents, gaining more autonomy, and telling less to your parents and

more to your friends and possible partners. Sexual development runs parallel to these changes in the parent-child relationship. Some studies have found evidence for this hypothesis. Ream & Savin-Williams (2005) showed that decreases in the quality of the parent-child relationship and in the time spend together preceded as well as followed becoming sexual active. Wight, Williamson, & Henderson (2006) found comparable results for the amount of rules parents set before and after the first sexual intercourse.

3.6 Directions for Future Research

This review is limited to associations between parenting styles and the psychosexual development of adolescents. It thus produces no insight into the relative importance of parenting. Numerous other factors, such as violence, stigma, poverty, and relationships with peers could influence sexual health decision making. Furthermore, this review does not give any information on mediating processes. A review of the literature on antecedents of sexual health and subsequently on the role of parenting within these antecedents would be helpful in explaining the associations described in the present study.

In addition, a meta-analysis would be desirable in order to gain insight into the effect-sizes of the associations described in this study. However, a meta-analysis is only properly applicable if the data summarised are homogeneous: samples and measures must be similar or at least comparable. This is not the case with regard to adolescentsô sexual health. More homogeneity in methodologies is advisable, in order to be able to perform a meta-analysis in the future.

None of the studies included in this review gave insight into which of the three parenting dimensions is most important or proximal. Furthermore, studies of parental knowledge do not give us direct information about which parenting strategies are most effective in gaining this knowledge, for example, how parents could enhance the childôs self-disclosure. It is likely that parental knowledge itself is related to support and control. Parental trust in their children making the right decisions and not acting secretly, is found to be related to greater parental knowledge of the childôs whereabouts (Kerr, Stattin & Trost, 1999). In addition, children of authoritative parents are more likely to disclose on issues they disagree with than children of non-authoritative parents (Darling et al., 2006).

In line with these findings, we hypothesize that support and authoritative control are prerequisites for knowledge. This results in two alternative explanations for the relation between knowledge and sexual behavior that have yet to be tested.

The first explanation is that support and control set the basis for parental knowledge, which in turn has its effect on sexual behavior. The second is that knowledge and sexual behavior are both responses to the right amounts of support and control, but not interrelated. In this case, the correlation between knowledge and sexual behavior and sexual health is spurious.

The studies summarized in this review have several methodological limitations. The majority of these studies use cross-sectional designs, thus gathering data at one point in time. This makes the hypotheses on reciprocity we generated largely speculative. The longitudinal studies in this review also gave no insight into possible reactions of parents to children, since they almost exclusively use non-recursive designs (investigating only the effect of parents on children, not the other way around). Even in the longitudinal studies that controlled for sexual behavior at first measurement, other behavioral and psychological variables that usually precede sexual initiation (such as sexual interest, dating or non-coital behaviors) were not taken into account. In addition, most studies focus on one or two dimensions of parenting, making conclusions about interactions or mediation between these variables impossible. In short, there is a need for more dynamic, dialectical studies of parenting and children's sexual development.

Despite these limitations, the present study shows parenting styles, which are described to have beneficial effects on a large variety of life domains, also hold positive associations with healthy sexual development. Parental support, age-appropriate levels of control, and knowledge of the childôs whereabouts correlate with adolescentsô healthy decision making, also with regard to sexuality.

CHAPTER 4

PARENTAL SUPPORT AND KNOWLEDGE AND ADOLESCENTSô SEXUAL HEALTH: TESTING TWO MEDIATIONAL MODELS[4]

This study investigated age- and gender-specific associations between parental support and parental knowledge of the childôs whereabouts, on the one hand, and sexual experience and sexual health (the ability to have safe and pleasurable sexual experiences) on the other hand. A representative Dutch sample of 1,263 males and 1,353 females (aged 12ï25 years), who had previously engaged in sexual intercourse, completed a questionnaire that included measures of these constructs. Both parental support and knowledge were positively associated with contraceptive use, social skills in sexual interactions, sexual satisfaction, and delay of sexual debut. Findings also revealed that the majority of correlations between parental support and sexual experience and sexual health are attributable to the relationship between a supportive family environment and parental knowledge of the childôs whereabouts. Parental knowledge thus appeared to be more important for healthy sexual development than parental support.

4.1 Introduction

Adolescence can be characterized as a period of growth and development, particularly in the area of sexuality. Although sexual development is a lifelong process, there is no other life stage where it is more striking. In the Netherlands, most individuals have their first relational and sexual experiences during this life stage (de Graaf et al., 2005). Ideally, these experiences are safe and pleasurable for both partners. Positive sexual experiences are associated with general well-being, and thereby contribute to public health more generally (Whipple 2007). However, sex also entails risks of unintended pregnancy, sexually transmitted infection (STIs), and sexual coercion. The emotional, medical, and financial costs of these risks highlight the importance of studying sexual development.

[4] De Graaf, H., Vanwesenbeeck, I., Woertman, L., Keijsers, L., Meijer, S., & Meeus, W. (2010). Parental support and knowledge and adolescentsô sexual health: Testing two mediational models in a national Dutch sample. *Journal of Youth and Adolescence, 39,* 189-198.

Parents are considered to play a major role in sexual development. A large number of studies report associations between aspects of parenting and sexual (health) behaviour during adolescence. The vast majority of these studies focus on one of two aspects of parenting, namely support or monitoring. Support is one of the two dimensions in the theoretical model on parenting styles proposed by Maccoby and Martin (1983). It encompasses aspects such as warmth, responsiveness, and child-centeredness. Monitoring is usually measured as the parentsô knowledge of their childôs whereabouts. Active supervision, however, is neither a prerequisite nor a guarantee for this knowledge. According to Stattin and Kerr (2000), parental knowledge is more often the result of spontaneous disclosure of the child than of active parental supervision. ñMonitoringò thus seems to be a misleading term to describe this concept. We will, therefore, use the term ñparental knowledgeò instead. Parental knowledge becomes more and more important during adolescence, when children spend increasing amounts of time without direct parental supervision and leave parents to rely on what their children tell them (Kerr et al., 1999; Soenens, Vansteenkiste, Luyckx & Goossens, 2006).

It is evident that parental support and knowledge are not independent constructs. Children growing up in a loving and supportive family have more positive feelings about their parents, and are therefore more inclined toward self-disclosure (Kerr, Stattin, Biesecker & Ferrer-Wreder, 2003; Soenens et al., 2006). In turn, parents who know more about their childrenôs whereabouts are more trusting towards their children and react positively to the information that children share (Kerr et al., 1999, 2003). Until now, no study has tried to disentangle the relative contribution of parental support and knowledge in predicting sexual development. In order to guide parental behavior, it is important to know which parenting variable is most strongly related to sexual behavior and sexual health. If support is most important, the recommendations for parents are straightforward: they should focus on providing warmth and support in their families. If knowledge of the childôs whereabouts is most important, parents should be informed about which parenting strategies result in the highest levels of parental knowledge. Presumably, a warm family climate that enhances self-disclosure is an important part of this, but other means to gain this knowledge are also conceivable (Soenens et al., 2006).

Parenting and Sexual (Health) Behavior

Empirical research shows that both parental support and knowledge, in general, are linked to a delay of sexual debut and to having safe and pleasurable sexual experiences. Both parenting dimensions correlate with a later age of first intercourse (Bates et al., 2003; Bersamin et al., 2008; Hope and Chapple 2005;

Johnson and Tyler 2007; Pedersen et al., 2003). Furthermore, high levels of parental support and knowledge are associated with more consistent contraceptive use (Coley, Medeiros, & Schindler, 2008; de Graaf et al., 2005; Dittus & Jaccard 2000), condom use (Borawski et al., 2003; Crosby et al., 2002a; Huebner and Howell 2003), a lower risk for STIs (Crosby et al., 2002b), the ability to refuse unwanted sex (Sionéan et al., 2002), communication skills with regard to contraception (Stone & Ingham 2002), and higher levels of sexual satisfaction (de Graaf et al., 2005; Ojanlatva, Helenius, Tautava, Ahvenainen & Koskenvuo, 2003). These findings suggest that parents play an important role in healthy sexual development.

Although there is abundant research on associations between parental support and knowledge, on the one hand, and sexual experiences of adolescents, on the other hand, important information is still missing. In particular, the large majority of research focuses on the age of first sexual intercourse, and measures of sexual health are usually restricted to protection against STIs or unwanted pregnancy. No studies have investigated associations between parental support and knowledge and the childôs sexual satisfaction and/or social skills in sexual interactions (for example, the ability to communicate sexual likes and dislikes, the ability to steer sexual interactions, or feeling self-confident in sexual interactions) in a large representative sample. While it is preferable that adolescents postpone sexual debut, in terms of social norms and outcomes for sexual health, it is also important that youths have safe and pleasurable sexual experiences when they eventually do become sexually active. Positive sexual experiences contribute to general personal well-being (Hull 2008; Whipple 2007), while experiences with pregnancy, STIs, or sexual coercion can have long-lasting negative consequences. Adequate social skills in sexual interactions are essential for arranging sexual encounters in a mutually rewarding way (Vanwesenbeeck et al., 1999). Earlier research has demonstrated the positive relationship between parental support and social skills (Barber 1997; Engels, Dekovic & Meeus, 2002). The association between parental knowledge and adolescentsô self-disclosure also suggests an association with communication skills (Kerr et al., 2003). It is possible that the positive relationship between parental support/knowledge and social skills extends to social skills in sexual interactions.

Associations between parental support and adolescentsô age at first sexual intercourse appear to be stronger for girls, compared to boys (Davis and Friel 2001; McNeely et al., 2002; Rose et al., 2005). In addition, as children get older, links between parental support and adolescentsô experience with sexual intercourse seem to weaken (Lammers et al., 2000). In previous studies, stronger

associations with parenting were also found for girls on other areas of adjustment, such as emotional problems (Helsen, Vollebergh & Meeus, 2000) or drinking (Rose, Dick, Viken, Pulkkinen & Kaprio, 2001). Previous research found decreasing links with age regarding parental support and emotional adjustment (Meeus, Iedema, Maassen & Engels, 2005) and delinquency as well (Meeus, Branje & Overbeek, 2004). Parental support and knowledge are, in general, higher for girls (Soenens et al., 2006; Stattin and Kerr, 2000) and early adolescents (Meeus et al., 2005). As children age, however, friends and romantic partners become more important, in lieu of parents as sources of support (Furman, Ho and Low, 2007). It is possible that the effect of parenting is more salient for girls and younger adolescents, because low levels of support and knowledge go more strongly against the norm for these groups.

Goals and Hypotheses of the Present Study

As described above, having safe and pleasurable sexual experiences is closely related to well-being, and social competence in sexual interactions is important for healthy psychosexual development. In spite of this, empirical tests of associations between parenting and youthsô sexual self-efficacy and satisfaction from representative national samples are very scarce. Our first goal is, therefore, to describe associations between parental support and knowledge of the childôs whereabouts and a broad range of sexual health aspects, including age of first sexual intercourse, number of sex partners, protection against STIs and unwanted pregnancy, social skills in sexual interactions, and sexual satisfaction. Following the evidence described above, we expect to find associations between higher levels of support and knowledge and a delay of first sexual intercourse, less sexual partners, consistent protective behavior and better social skills in sexual interactions.

In addition, our second goal is to explore whether the associations between parental support and knowledge, on the one hand, and sexual debut, safe sex behavior, social skills in sexual interactions, and sexual satisfaction, on the other hand, are age- and gender-specific. We expect the associations between parental support and sexual behavior and sexual health to be stronger for girls, compared to boys, in line with what was found in earlier research on parental support and experience with sexual intercourse (Davis and Friel 2001; McNeely et al., 2002; Rose et al. 2005). With regard to age specificity, results could be expected in one of two different directions. On the one hand, we could expect decreasing links with age, as is generally found in studies on relationships between parenting and sexual experience or other developmental areas. The exclusion of sexually abstinent adolescents from our sample, however, could also lead us to expect an absence of any age-specific links.

Sexually experienced adolescents report less parental support and knowledge than their inexperienced peers (de Graaf et al., 2005). Their sexual status is probably accompanied by a certain degree of independence from parents. Associations with parental support and knowledge could, therefore, be approximately equal across age groups in this specific sample.

Our third goal is to investigate the relative contributions of parental support and knowledge in predicting sexual development. As described above, parental support and knowledge are correlated, and both of these concepts associate with sexual behavior and sexual health. These associations suggest that two alternative models are possible. The first model hypothesizes that knowledge of the childôs whereabouts increases with higher levels of parental support, and that this parental knowledge subsequently holds the most proximal links with sexual development. The second model hypothesizes that it is parental support, which is higher when children self-disclose more often, that holds the most important associations with sexual behavior and sexual health. We will examine both of these hypothetical models.

4.2 Method

Participants

Participants initially took part in ñSex under the age of 25ò, a representative study of sexual behavior and sexual health of 12ï25 year-olds in the Netherlands (N = 4,820). This study was reviewed and approved by the review board of the Netherlands Organization for Health Research and Development (ZonMW). Sexual (health) variables were only measured among participants who had experienced sexual intercourse. Because the purpose of the present study was to investigate associations with these measures, participants who had not yet had intercourse were excluded from the analyses (N = 2,235).

This selection resulted in the inclusion of 1,273 males and 1,360 females, ranging in age from 12 to 25 years (M = 20.45 years, SD = 2.79). Limiting the sample to participants who had experienced intercourse resulted in an uneven distribution of participants among age groups. Specifically, the sample was composed of 295 (11.2%) 12ï16 year-olds, 1,124 (42.7%) 17ï20 year-olds, and 1,214 (46.1%) 21ï24 year-olds. The sample was comprised of 81.1% native Dutch participants, 7.1% Western immigrants, and 11.8% non-Western immigrants.

Measures

The questionnaire began with questions about demographics, followed by measures of parental support, knowledge, sexual behavior, protection against pregnancy and STIs, social skills in sexual interactions, and sexual satisfaction. We calculated mean scores for each multi-item scale.

Parental Support and Knowledge. Measures of parental support and knowledge were selected from a questionnaire used in a large study on parenting in the Netherlands (Rispens, Hermanns & Meeus, 1996). Participantsô perceptions of parental support were assessed by measuring parental affection (viz., ñMy parent lets me know that she/ he loves meò) and responsiveness (viz., ñMy parent helps me well when Iôm having a difficult timeò). Participants were requested to indicate how much they agreed with these items on a four-point scale (1 = totally disagree, 4 = totally agree). To assess knowledge, participants indicated on a three-point scale (1 = knows nothing, 3 = knows a lot) the level of their parentsô knowledge regarding friends, location, and activities during free time. Both support and knowledge related to the period prior to age 16. Each question was answered separately for mother and father, resulting in four items for support (Ŭ= .82) and six items for knowledge (Ŭ= .84).

Sexual Behavior. Sexual behavior encompassed two single-item measures. Age of first sexual intercourse was reported in years and could range from before age 8 through age 24. Number of sexual partners was assessed by an open-ended question (viz., ñWith how many persons did you have vaginal and/or anal intercourse?ò). This measure was corrected for outliers (defined as two standard deviations above the mean).

Protection Against Unwanted Pregnancy and STIs. This measure encompassed contraceptive and condom use, both with regard to the last partner with whom the participant engaged in sexual intercourse. Participants were asked whether or not they used contraception and condoms. Contraception encompassed hormonal contraception methods, intra-uterine devices, and barrier methods. Responses were never, sometimes, or always.

Social Skills in Sexual Interactions. To assess this concept, we constructed a measure based on the Sexual Interactional Behavior Scale (Vanwesenbeeck et al., 1998). Scores were analyzed using principle components factor analysis and revealed four subscales: communicative skills (6 items regarding the perceived ability to talk to the partner about sexual likes and dislikes, contraception and condoms, and previous sexual experiences, Ŭ= .90), sexual control (3 items, e.g. ñI have little influence on what happens during sex (reversed)ò, Ŭ= .68), sexual

assertiveness (3 items, e.g. ñI make it very clear what I want in sexò, Ŭ = .78), and sexual esteem (2 items, e.g. ñI feel uncertain about my body while having sexò (reversed), Ŭ = .78). Participants indicated how much they agreed with these items on a five-point scale (1 = totally disagree, 5 = totally agree).

Sexual Satisfaction. Participants responded to four items regarding their satisfaction with the frequency of their sexual interactions, contact with sexual partners, pleasantness of sexual interactions, and their sex life in general (Ŭ = .86). Participants indicated their level of satisfaction on a five-point scale (1 = very unsatisfied, 5 = very satisfied).

Procedure

Participants were recruited in two ways. Middle and high school students came from 29 randomly selected schools, geographically spread over the Netherlands. Furthermore, in the municipalities where these high schools were located, individuals 17ï25 years of age were randomly selected from the Municipal Basic Administration (MBA). The MBA is a database containing demographic information about the residents of a municipality, available at every city hall in the Netherlands, which can be consulted for scientific purposes.

Prior to the study, high school students received a letter at school to take home to their parents, in which parents were informed about the study and the possibility to refuse their childôs participation. Five percent of the selected students did not participate because of their own refusal, their parentsô refusal, or their absence during data collection. Participants who were selected from the municipal database received a letter in which they were invited to participate. Seventy-six percent of these youth did not respond to our invitation. The total sample was compared to the general population (using figures of Statistics Netherlands) on a number of demographic measures: sex, age, ethnic background, educational level, and religion. None of these comparisons showed significant differences.

Participants recruited in high schools completed the questionnaire during a regular class period, while participants who responded positively to a letter of invitation completed the questionnaire at home. All participants completed the questionnaire online.

Statistical Analyses

Preliminary analyses were conducted to investigate gender differences and differences between early, middle, and late adolescents in the study variables, using univariate analyses of variance (ANOVA). We controlled for age (in the

analyses on gender), gender (in the analyses on age group), educational level, and ethnic background in these analyses.

According to Baron and Kenny (1986), for parental knowledge or support to function as a mediator between the other parenting variable and the dependent measures, the following associations have to be significant: (1) between support and knowledge (2) between knowledge and the dependent variables and (3) between support and the dependent variables. This was tested using Pearsonôs correlations, separately for males and females and different age groups. Age and gender differences on the associations were tested by comparing correlation coefficients.

Subsequently, we followed the recommendations of Baron and Kenny (1986), and conducted a series of two-step hierarchical regression analyses, one for each dependent variable for which the previously mentioned associations were significant. We controlled for age, gender, educational level, and ethnic background in these analyses. The first hypothetical model (mediation of support by knowledge) included parental support in the first step and added knowledge in the second step. The second model (mediation of knowledge by support) included parental knowledge in the first step and added support in the second step. Both regression analyses tested whether the effect of either support or knowledge on the dependent measures was decreased (partial mediation) or absent (full mediation) after controlling for the other measure. We used Sobelôs test (Baron and Kenny 1986) to test for significance.

4.3 Results

Table 4.1 contains the means and standard deviations for males and females, and early, middle and late adolescents on the predictive and dependent measures. Gender and age group differences varied by the measure in question. Parental support showed neither differences by gender, nor by age group. Age of first intercourse showed no gender differences, while contraceptive use and sexual satisfaction showed no age group differences. Females had a slightly higher score on parental knowledge than males. As could be expected (Baumeister 2000), femalesô mean number of sexual partners was lower. Females also used condoms less often with their last partner compared to males, they had higher scores on sexual communication, sexual control, and sexual satisfaction, were less sexually assertive and had lower sexual esteem.

Table 4.1. Univariate analyses of variance for support, knowledge and sexual health variables

	Mean (SD)			Mean (SD)				
	Males	Females	*F*	Age 12-16 (A)	Age 17-20 (B)	Age 21-24 (C)	*F*	Post-hoc
Parental support	3.19 (0.64)	3.18 (0.71)	0.352	3.18 (0.67)	3.20 (0.67)	3.17 (0.69)	1.348	
Parental knowledge	2.35 (0.50)	2.41 (0.49)	5.970 *	2.17 (0.50)	2.38 (0.50)	2.43 (0.48)	18.499 ***	A < B, C
Age of first sexual intercourse	16.79 (2.27)	16.73 (1.94)	1.785	14.40 (1.43)	16.52 (1.55)	17.53 (2.22)	305.684 ***	A < B < C
Number of sexual partners	4.86 (7.02)	3.25 (3.81)	42.871 ***	3.78 (6.54)	3.38 (4.28)	4.68 (6.41)	21.717 ***	A, B < C
Contraceptive use with last partner	2.70 (0.60)	2.70 (0.58)	0.438	2.62 (0.72)	2.72 (0.57)	2.70 (0.58)	2.299	
Condom use with last partner	2.11 (0.74)	1.95 (0.68)	31.551 ***	2.52 (0.69)	2.06 (0.72)	1.89 (0.66)	78.207 ***	A > B > C
Communicative skills	4.49 (0.73)	4.60 (0.63)	13.258 ***	4.17 (1.04)	4.54 (0.65)	4.63 (0.57)	40.740 ***	A < B < C
Sexual control	4.46 (0.62)	4.64 (0.47)	57.466 ***	4.35 (0.85)	4.57 (0.53)	4.58 (0.48)	12.703 ***	A < B, C
Sexual assertiveness	4.03 (0.87)	3.93 (0.91)	9.377 **	3.71 (1.09)	3.97 (0.89)	4.04 (0.84)	12.400 ***	A < B < C
Sexual esteem	4.36 (0.83)	4.05 (0.94)	75.658 ***	4.03 (1.17)	4.14 (0.91)	4.29 (0.80)	13.475 ***	A, B < C
Sexual satisfaction	4.13 (0.78)	4.21 (0.74)	7.246 **	4.24 (0.77)	4.20 (0.74)	4.13 (0.77)	2.251	

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$

Table 4.2. Bivariate correlations between support, knowledge and sexual health variables

	Correlations with Support					Correlations with Knowledge				
	Gender		Age			Gender		Age		
Measure	Males	Females	12-16	17-20	21-24	Males	Females	12-16	17-20	21-24
Parental knowledge [a]	.44***	.56***	.52***	.54***	.48***	-	-	-	-	
Age of first sexual intercourse [a]	.01	.10***	.03	.04	.10**	.24***	.21***	.13*	.16***	.20***
Number of sexual partners	-.08**	-.14***	.01	-.11***	-.10**	-.20***	-.17***	-.20**	-.20***	-.20***
Contraceptive use with last partner	.07*	.09**	.04	.09**	.08**	.17***	.14***	.11	.13***	.20***
Condom use with last partner	.10**	.03	.09	.04	.08**	.01	.03	.04	.05	.06*
Communicative skills [b]	.07*	.08**	.02	.09**	.09**	.14***	.15***	.03	.13***	.16***
Sexual control [a]	.02	.11***	.00	.06*	.07*	.09**	.16***	.04	.11***	.15***
Sexual assertiveness	.13***	.11***	.08	.12***	.13***	.13***	.11***	.10	.13***	.07*
Sexual esteem	.04	.08**	.06	.04	.09**	.06*	.11***	.00	.07*	.08**
Sexual satisfaction	.10**	.15***	.15*	.12***	.13***	.12***	.11***	.22**	.11***	.11***

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$

[a] Correlations with support significantly stronger for females ($p < .05$)

[b] Correlation with knowledge significantly weaker for youth aged 12-16 ($p < .05$)

Middle- and late-adolescents reported that their parents know more about them than early adolescents. Logically, the age of first intercourse (due to our restriction to sexual experienced youth) and the number of sex partners increased with age. The same was true for scores on communicative skills and sexual assertiveness, whereas condom use decreased with age. The largest increase in sexual control occurred between early (age 12ï 16) and middle (age 17ï 20) adolescence. Late (age 21ï 24) adolescents had higher sexual esteem than younger adolescents.

Table 4.2 shows age- and gender-specific correlations between support and knowledge, and between both of these parenting dimensions and measures of sexual behavior and sexual health. We found a strong association between parental support and knowledge for both males and females and all three age groups, satisfying the first condition for mediation. For both males and females, higher levels of parental support and knowledge were related to fewer sexual partners, more consistent contraceptive use, better communicative skills, and higher levels of assertiveness and satisfaction. For females, additional associations were found with a later sexual debut, and higher levels of sexual control and esteem. Correlations between support and parental knowledge, age of first sexual intercourse, and sexual control were stronger for females than for males. No gender-specific correlations existed for parental knowledge in relation to sexual behavior and sexual health.

In the youngest age group (age 12ï 16), both parental support and knowledge related positively to sexual satisfaction. Higher levels of parental knowledge was additionally correlated with an older age of first intercourse and fewer sex partners. In the other age groups, more associations were found, possibly (partly) because of a larger sample size. In middle adolescents (age 17ï 20), many correlations were significant at the $p < .05$ level, except for associations of parental support with knowledge, condom use, age of first intercourse, and sexual esteem. Among late adolescents (age 21ï 24), parental knowledge and support showed modest but significant correlations with all sexuality measures. Only one correlation, between parental knowledge and communicative skills, appeared to vary with age.

Table 4.3 shows the results of the two-step regression analyses testing for mediation. Because we found only a few age- and gender-specific bivariate correlations, we had no reason to expect the mediating effects to be different for males versus females, or between early, middle and late adolescents. We executed these analyses, therefore, for the whole sample, herewith controlling

Table 4.3. Multivariate regressions of sexual (health) variables on support and knowledge

	Model 1: Support Mediated by Knowledge			Model 2: Knowledge Mediated by Support		
	direct effect of support	effect of support whilst controlling for knowledge	Sobel's test	direct effect of knowledge	effect of knowledge whilst controlling for support	Sobel's test
	ß	ß	*Z*	ß	ß	*Z*
Age of first intercourse	.06 **	-.02	7.43 ***	.15 ***	.16 ***	-0.76
Number of sexual partners	-.09 ***	.01	-8.18 ***	-.19 ***	-.19 ***	0.52
Contraceptive use with last partner	.07 ***	.01	5.61 ***	.14 ***	.14 ***	0.24
Communicative skills	.08 ***	.03	4.60 ***	.12 ***	.11 ***	1.09
Sexual control	.06 **	.00	4.38 ***	.10 ***	.10 ***	.016
Sexual assertiveness	.12 ***	.09 ***	3.10 **	.12 ***	.07 **	3.77 ***
Sexual esteem	.07 **	.04	2.14 *	.07 ***	.05 *	1.80
Sexual satisfaction	.13 ***	.08 **	3.94 ***	.14 ***	.10 **	3.42 ***

Note. * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

for age, gender, educational level, and ethnic background. These analyses were restricted to those dependent measures that correlated significantly with both parental support and knowledge (i.e., all measures except condom use).

The majority of the results supported the first hypothetical model, which proposed that support is mediated by knowledge. We found full mediation by knowledge for the associations between parental support and age of first intercourse, number of sexual partners, contraceptive use with the last partner, communicative skills, sexual control, and sexual esteem. For only two associations, the results suited the first model (mediation by knowledge) as well as the second model (mediation by support). The zero-order correlations with parental knowledge and support decreased (partial mediation) for sexual assertiveness and sexual satisfaction, after controlling for the other parenting measure.

4.4 Discussion

Parenting and Sexual Health

The first purpose of this study was to describe associations between parenting and a broad range of sexual health aspects: age of first sexual intercourse, number of sex partners, protection against STIs and unwanted pregnancy, social skills in sexual interactions, and sexual satisfaction. For most of these sexual health measures, associations existed with both parental support and knowledge of the childôs whereabouts, though these relationships sometimes differed by gender and age group. Parental support and knowledge apparently correlate not only with a later age of first intercourse, as is frequently documented (Bates et al., 2003; Bersamin et al., 2008; Hope and Chapple 2005; Johnson and Tyler 2007; Pedersen et al., 2003), but also with having safe and pleasurable experiences.

There are a number of possible explanations for the positive associations between parental support and knowledge and sexual health. Earlier research has demonstrated the positive relationship between parental support and adequate social skills (Barber 1997; Engels et al., 2002). The link between higher levels of parental knowledge and the tendency of adolescents to self-disclose also suggests a positive association between parental knowledge and adequate communication skills (Kerr et al., 2003). In addition, positive exchanges between parents and children could set an example for other social interactions, including sexual relations (Collins and Steinberg 2006). Consequently, young people who grow up in well- informed and supportive families could be more capable of realizing their own sexual needs.

Another explanation could be that adolescents who are close to their parents are more inclined to live up to their parentsô expectations. According to sexual socialization theory, parental influence on childrenôs sexual attitudes is larger when the parent-child relationship is closer (Fingerson 2005). Because many parents would like to see their children postponing intercourse and behaving responsibly, higher levels of support could result in their children actually behaving in such a way. A common explanation for the favorable associations with parental knowledge is that, by means of being informed, parents are capable of steering and correcting the behavior of their children when necessary (Kerr et al., 2003). Numerous, indirect associations are also conceivable. Associations have been found between parental knowledge and the selection of peers, for example, and presumably also the romantic partner (Kerr et al., 2003). Subsequently, the choice of romantic partners could have an effect on the quality of sexual interactions.

Parental support and knowledge did not relate to all sexual measures in this study. The use of condoms, for example, did correlate with parental support in males, but not in females. Furthermore, both knowledge and support only correlated with condom use among late adolescents. Condom use, however, may not be a comprehensive indication of sensible decision making considered apart from the other measures of sexual health. Other ñwiseò decisions can also be made in STI prevention, such as having a monogamous relationship with someone who is tested for STIs.

Age and Gender Specific Associations

The second purpose of this study was to explore whether the associations described above were specific to gender and age. The results showed that parental support seems to hold more systematic associations with daughtersô sexual development, as compared to sonsô. Associations of parental support with both age of first sexual intercourse and sexual control were stronger for females. This corresponds to findings in earlier studies that have reported stronger links between parental support and experience with sexual intercourse in females, as compared to males (Davis and Friel 2001; McNeely et al., 2002; Rose et al., 2005). This finding is in accordance with the theory of female erotic plasticity (Baumeister 2000), which states that female sexuality is, in general, more changeable according to circumstances and more susceptible to social influences than is male sexuality. Male sexuality, in turn, is more directly tied to biological factors than is female sexuality. The stronger links with parental support for females, however, probably extend beyond sexual behavior and sexual health. Previous research on parental support and emotional well-being found similar gender differences (Helsen et al., 2000). This gender difference could possibly

be ascribed to the fact that low levels of parental support are more unusual for girls than for boys (Soenens et al., 2006).

Age-specific associations appeared to be almost absent, likely because of sample composition and the measurement of parental knowledge and support. The sample was limited to sexually experienced individuals, who generally report that their parents know less about them than their inexperienced contemporaries do, possibly because sexual status associates with a certain degree of independence from parents. This restriction of our sample resulted in lower scores on parental knowledge among the younger age groups, in contrast to what is generally found in research on knowledge of the childôs whereabouts. In addition, parental support and knowledge were measured retrospectively for participants older than 16. This could explain why the associations with both measures of parenting were almost equal for middle and late adolescents. Apparently, the associations between parental support and knowledge during early adolescence and subsequent sexual outcomes remain equally strong during middle and late adolescence.

Testing Two Mediational Models

The third purpose of the present study was to examine two different pathways for explaining these associations: mediation of support by knowledge, and mediation of knowledge by support. The results showed a mediational role of parental knowledge with regard to almost all dependent measures. Parental support correlated with higher scores on knowledge, which in turn correlated with a later age of first intercourse, less sexual partners, more consistent contraceptive use, and higher scores on social skills in sexual interactions.

Thus, although support and knowledge are related, parental knowledge is related more strongly to sexual behavior and sexual health. Knowledge of the childôs whereabouts is essential for parents to have some sort of influence during early and middle adolescence, because adolescents are gradually spending more and more time outside of direct parental supervision. This knowledge enables parents to give their children feedback on their experiences and decisions, possibly resulting in improving this decision making. Previous research revealed adolescentsô self-disclosure to be the major source of this parental knowledge (Keijsers, Branje, Van der Valk & Meeus, 2010; Stattin and Kerr, 2000). A potential underlying mechanism could be that higher levels of parental support enhance positive feelings about the parents, and therefore higher levels of self-disclosure in their children (Kerr et al., 2003; Soenens et al., 2006). Subsequently, these parents have more knowledge of their childôs whereabouts.

As stated before, the association between parental knowledge and support is presumably Therefore, the present study also investigated whether parental support mediates the association between parental knowledge and sexual behavior and sexual health. This pathway appeared to fit only a few associations. The correlations between knowledge and sexual assertiveness and satisfaction were partially mediated by parental supportbidirectional. Higher levels of knowledge also evoke higher levels of trust and more positive reactions in the parents (Kerr et al., 1999, 2003).

Suggestions for Future Research

The present study has a number of limitations. First, the reliance upon a cross-sectional design makes conclusions about causal relationships impossible. In the hypothetical models tested in this study, we assumed parental support and knowledge preceded sexual behavior and sexual health. As mentioned before, the reverse causal pathway could also exist. This should be investigated more carefully in the future, preferably by studies with a longitudinal design.

A second limitation is the small amount of variance in the dependent measures that could be accounted for by both support and knowledge. The complex nature of these behaviors, cognitions, and emotions did not lead us to expect otherwise, however. A multitude of factors would be necessary in order to provide an extensive explanation for developing certain sexual characteristics and skills. In addition to parents, peers and sexual partners are also important environmental factors, and numerous internal processes will explain why individuals respond to these influences in different ways. Investigating these complex processes provides a challenge for future studies. Furthermore, it would be interesting to test the moderating effect of support on parental knowledge. Possibly, parental knowledge has a stronger link to sexual outcomes at higher levels of parental support.

Despite these limitations, this research is the first to provide evidence that both parental support and knowledge have beneficial associations with the use of contraceptives, social skills in sexual interactions, and sexual satisfaction in a national representative sample. In addition, this study is the first to disentangle the relative contributions of parental support and knowledge in predicting sexual development. The majority of the correlations with support can be ascribed to the relationship between a supportive family environment and parental knowledge of their childôs whereabouts. Parental knowledge thus appeared to be more important for healthy sexual development than parental support. However, parental support is very important in gaining this knowledge. If it is true that parental knowledge is most often the result of spontaneous self-disclosure on

the childôs part (Stattin and Kerr, 2000), then parents should create a family climate that facilitates self-disclosure. Support could be an important characteristic of such a family climate.

CHAPTER 5

FAMILY COHESION AND ROMANTIC AND SEXUAL INITIATION: A THREE WAVE LONGITUDINAL STUDY[5]

This purpose of this study is threefold: (1) To investigate whether romantic initiation generally precedes sexual initiation; (2) To examine whether low levels of family cohesion result in an earlier onset of romantic and sexual experiences; (3) To investigate whether early romantic involvement mediates the link between family cohesion and an early sexual debut. A longitudinal sample of 314 adolescent girls and 222 boys, aged 12-17 at Wave 1, completed questionnaires at three measurement points with three year intervals. These questionnaires included measures of family cohesion and timing of romantic and sexual initiation. For 77% of the participants, first experiences with sexual intercourse followed romantic involvement. Cox proportional hazards regression analyses showed that high levels of family cohesion at Wave 1 resulted in a delay of romantic and sexual initiation only for early adolescent females (aged 12-14). Two-step regression analyses showed that within this group, the association between family cohesion and early sexual initiation was fully mediated by early romantic initiation. Early adolescent girls who have negative relationships with their parents turn to romantic relationships for intimacy and support, which subsequently provide the opportunity for an early sexual debut.

5.1 Introduction

Sexual experiences are a normative part of development, especially among older adolescents. In the Netherlands, about half of young people report experience with sexual intercourse by the age of 17 (de Graaf et al., 2005). Sexual experiences entail certain risks, however, such as unintended pregnancy, sexually transmitted infections (STIs), and sexual coercion. There are indications that early sexual experiences (before age 14) are potentially more harmful than sexual experiences at older ages. An early sexual debut is more often the result of persuasion or coercion, and also more often unprotected, than among older adolescents (De Graaf et al., 2005; Dickson et al., 1998).

[5] De Graaf, H., Van der Schoot, R., Hawk, S., Woertman, L., & Meeus, W. (in review). Family cohesion and romantic and sexual initiation: A three wave longitudinal study. Journal of Adolescent Health.

Furthermore, having sex at an early age is associated with certain long-term negative sexual health outcomes, including risk behaviors for STI infection, the use of alcohol or drugs during intercourse and (for males) problems in sexual functioning (Hawes et al., 2010; Sandfort et al., 2008). These immediate and long-term consequences highlight the importance of studying the timing of sexual debut.

Romantic involvement is also a normative part of adolescent development. In the United States, roughly 25% of 12-year-olds having had a romantic relationship in the past 18 months, whereas the same applies to 75% of 18-year-olds (Carver, Joyner & Udry, 2003). These relationships provide both benefits and risks. On the one hand, romantic relationships are an important source of social support, and having a romantic relationship is associated with higher levels of self-esteem and social-competence. On the other hand, romantic breakups can evoke strong negative emotions (Collins, 2003). Furthermore, romantic relationships provide a context for dating violence (Rennison, 2001). Similar to early sexual initiation, an early onset of dating predicts more negative outcomes, such as externalizing behavior and delinquency, than does later romantic initiation (Furman et al., 2007; Meeus et al., 2004; Neemann, Hubbard & Masten, 1995). Sexual and romantic development are closely related. Sexual experience is often preceded by dating experience and romantic relationships constitute the primary context for sexual interactions (Miller & Benson, 1999). About 75% of 15- to 19-year old girls in the United States report going steady with their first sexual partner. Having recently been in a romantic relationship is a strong predictor of having ever engaged in sexual intercourse (Blum, Beuhring & Rinehart, 2000; Van Oss Marín, Kirby, Hudes, Coyle, & Gómez, 2006). Furthermore, romantic involvement at a younger age correlates with an earlier sexual debut (Manlove, Terry-Humen, Ikramullah, & Moore, 2006).

There are large individual differences in the timing of romantic and sexual initiation. In the Netherlands, about 10% of 14-year-olds has already engaged in sexual intercourse, whereas 10% of 19-year-olds has not yet kissed (De Graaf et al., 2005). Parents appear to play a major role in these differential developmental patterns. Empirical research shows that a positive parent-child relationship is generally associated with a delay of first sexual intercourse (see De Graaf, Vanwesenbeeck, Woertman & Meeus (2010b) for a review). Although the relation between parenting and the timing of sexual debut has been the focus of many studies, research on mediating factors is scarce.

In the present research, we propose that romantic involvement may mediate effects of the parent-child relationship upon youthsô sexual behavior. We expect

to find a negative relationship between the quality of the parent-child relationship and early romantic involvement. As adolescents become more emotionally independent from their parents, they typically turn to romantic relationships with peers for intimacy and support (Roberts Gray & Steinberg, 1999). There is also evidence that emotional independence from parents at an early age is associated with negative family relationships (Parra & Oliva, 2009). As a consequence, poor relationships with parents could result in earlier romantic initiation. These romantic relationships compensate for what is missing in the relationship with parents, while simultaneously providing the opportunity for an earlier sexual debut.

The purpose of the present study is threefold. First, we investigate whether romantic initiation indeed precedes sexual initiation for most adolescents. As described above, most studies on this subject point in this direction. The second purpose is to examine whether poor relationships with parents result in an earlier onset of romantic and sexual experiences, as is expected given the evidence presented above. Although the association between the quality of the relationships with parents and romantic partners has been studied frequently (Collins, 2003; Conger, Cui, Bryant & Elder, 2000; Seiffge-Krenke, Overbeek & Vermulst, 2010), this does not apply to the link between parenting and the timing of romantic initiation. Furthermore, longitudinal research on this subject has produced contradictory results. Some studies have found a negative association between high levels of parental support or sensitivity and romantic involvement (Roisman, Booth-LaForce, Cauffman & Spieker, 2009; Seiffge-Krenke, 2003), whereas other research has found no such link (Longmore et al., 2001).

The third purpose is to investigate whether the link between parenting and an early sexual debut is mediated by early romantic involvement. There are, to our knowledge, no other studies that investigated this mediation using a longitudinal design. In a study of intraindividual and peer influences on sexual experience, all associations were mediated by romantic involvement (Zimmer-Gembeck, Siebenbruner & Collins, 2004). We expect to find the same for the relation between parenting and sexual behavior.

We will address potential gender and age differences in our study. Males and females differ on a number of sex-related attitudes. The difference in attitudes toward casual sex is especially large (Petersen & Hyde, 2010). The association between romantic and sexual development could, therefore, be stronger for females than for males (Van Oss Marín et al., 2006). Parental influences on sexual behavior also tend to be stronger for girls, compared to boys (Davis &

Friel, 2001; De Graaf et al., 2010a; McNeely et al., 2002; Rose et al., 2005). Furthermore, we expect decreasing links with age, as the initiation of romantic and sexual relationships becomes more typical and less problematic for older adolescents.

5.2 Method

Participants

Data for this study were collected as part of the "Utrecht Study of Adolescent Developmentò, a longitudinal study with 3 waves at 3-year intervals (Meeus & 't Hart, 1993). This study was approved by the review board of the Dutch Organization for Scientific Research (NWO). In 1991, a representative Dutch sample of 3,392 adolescents aged 12 to 24 was drawn from an existing panel of 10,000 households. Although the 3,392 subjects of the first wave gave informed consent to remain participants in the longitudinal study, 822 of them ultimately refused to take part in the second or third wave. So, the non-response rate between Wave 1 and 3 was 24%. For financial reasons, 1,302 participants were randomly selected from the 2,570 participants eligible for the longitudinal study. Attrition analyses revealed that more females and adolescents stayed in the study than did males and emerging adults (Meeus et al., 2004).

For the present research, we selected adolescents aged 12 to 18 at Wave 1 (n = 662) from the 1,302 participants that took part in the longitudinal study. More than one third of these adolescents had a sibling partaking in the study, however. To avoid violation of the assumption of independent observations, we randomly selected one adolescent per family. This resulted in a final sample of 314 girls (58.6%) and 222 boys (41.4%). The mean age was 14.5 years at Wave 1 (SD = 1.65).

Measurements

Trained assistants interviewed the adolescents in their homes, as well as one of the parents. Afterwards, respondents completed another questionnaire on their own. Our data are derived from the adolescentsô self-report questionnaires.

Family cohesion. We used the cohesion scale from the Family Dimensions Scale to assess participants' perceptions of family cohesion at Wave 1 (Buurmeijer & Hermans, 1988). This scale contains five statements about family interaction (e.g., ñIn our family, everybody minds their own businessò and ñIn our family, everybody decides for themselves what is bestò). Participants indicated how much these statements applied to their family on a four-point scale (1 = *totally not true*, 4 = *totally true*). Cronbachôs alpha was .63.

Timing of romantic involvement. At all measurements, participants reported whether they had had a romantic relationship. If they answered yes, they were asked at what age they had a romantic relationship for the first time. This age was reported in years. The participantsô age at first measurement was subtracted from this age, to calculate how quickly after Wave 1 the participant initiated romantic relationships. Participants who initiated romantic involvement before Wave 1 received a score of 0 on this measure.

Timing of sexual intercourse. At all measurements, respondents were asked whether they ñhad ever slept with somebodyò (translated into English). If they answered yes, they were asked at what age this happened for the first time. This age was also reported in years. The participantsô age at first measurement was subtracted from this age, to calculate how quickly after Wave 1 the participant initiated sexual activity. Participants who had their sexual debut before Wave 1 received a score of 0 on this measure.

Sequence of romantic and sexual initiation. We calculated the sequence of romantic and sexual initiation by subtracting the age of first romantic involvement from the age of first sexual intercourse. Score were recoded into 1 (sexual initiation before romantic initiation), 2 (romantic and sexual initiation within the same year) and 3 (romantic initiation before sexual initiation).

Statistical analyses

We first describe the sequence of romantic and sexual initiation for males and females at younger (age 12-14) and older (age 15-17) ages, separately. Group differences were tested using Chi^2 analyses.

The effects of family cohesion on romantic and sexual initiation were analyzed using Cox proportional hazards regression analyses (Singer & Willett, 2003). This is a form of survival analysis in which the time to an event (i.e., romantic or sexual initiation) can be modeled with covariates or predictors. This statistical technique provides the advantage that censoring has been taken into account. Some of the data were censored. Scores of youth who initiated romantic or sexual activity prior to Wave 1 were left censored, scores of youth who did not initiate romantic or sexual activity during the study were right censored.

To test whether early romantic involvement mediates the link between parenting and an early sexual debut, we followed the recommendations of Baron & Kenny (1986), and conducted a series of two-step hierarchical regression analyses. According to Baron & Kenny, for romantic initiation to function as a mediator between family cohesion and sexual initiation, the following associations have

to be significant: 1) between family cohesion and romantic initiation 2) between romantic initiation and sexual initiation 3) between family cohesion and sexual initiation. Furthermore, the effect of family cohesion on sexual initiation should be reduced (partial mediation) or eliminated (full mediation) after adding romantic initiation to the model. We used Sobel's test (Baron & Kenny, 1986) to test for significance.

We used a zero-inflated Poisson model for the regression analyses. A zero-inflated Poisson model estimates two regressions. The first regression tests whether participants who had or had not initiated romantic or sexual activity at Wave 1 differed on family cohesion. The second regression uses family cohesion at Wave 1 to predict the score on romantic and sexual initiation after Wave 1. Hence, at each step of the regression model we controlled for the effects of family cohesion on sexual and romantic experience prior to Wave 1. Standardized coefficients are not available for zero-inflated Poisson models. We therefore report non-standardized coefficients.

5.3 Results

Table 5.1 shows that romantic experience preceded experience with sexual intercourse for 77% of the participants. About one in six respondents had their first romantic and sexual partner within the same year. In these cases, the sequence of first romantic and sexual experiences is unknown. Only 6.5% of the participants reported experience with sexual intercourse before their first romantic involvement. More males than females reported this atypical sequence of romantic and sexual initiation ($G^2(2, N = 464) = 6.083$, $p = .048$). There were no differences between early and middle adolescents ($G^2(2, N = 464) = .566$, $p = .754$).

Table 5.1. Sequence of romantic and sexual initiation (%)

	boys	girls	age 12-14	age 15-17	total
first sexual intercourse before first romantic partner	9.6	4.3	7.4	5.7	6.5
first romantic partner and intercourse within one year	14.4	18.8	17.1	17.0	17.0
first romantic partner before first sexual intercourse	75.9	76.9	75.6	77.3	76.5
n	187	277	217	247	464

Table 5.2 shows the results of cox proportional hazards regression analyses for predicting the timing of romantic and sexual initiation from family cohesion. We expected high levels of family cohesion at wave 1 to predict a delay of romantic or sexual initiation (i.e., a risk ratio less than 1).

Table 5.2. Cox proportional hazard analysis of romantic and sexual initiation on family cohesion

		Romantic Initiation		Sexual Initiation	
	n	Hazard rate	95% CI	Hazard rate	95% CI
boys age 12-14	102	.89	.55-1.46	.64	.37-1.11
girls age 12-14	150	.71 *	.52-.99	.55 **	.38-.82
boys age 15-17	104	.96	.61-1.52	.72	.45-1.16
girls age 15-17	145	.81	.56-1.17	.78	.53-1.15

* = $p < .05$; ** = $p < .01$

The results only supported this expectation for females in the youngest age group (age 12-14). In this group, the timing of romantic or sexual initiation is multiplied by 0.71 and 0.55, respectively, if the level of family cohesion increases by one scale point. Family cohesion at wave 1 was not associated with onset of romantic and sexual experience for males or older females.

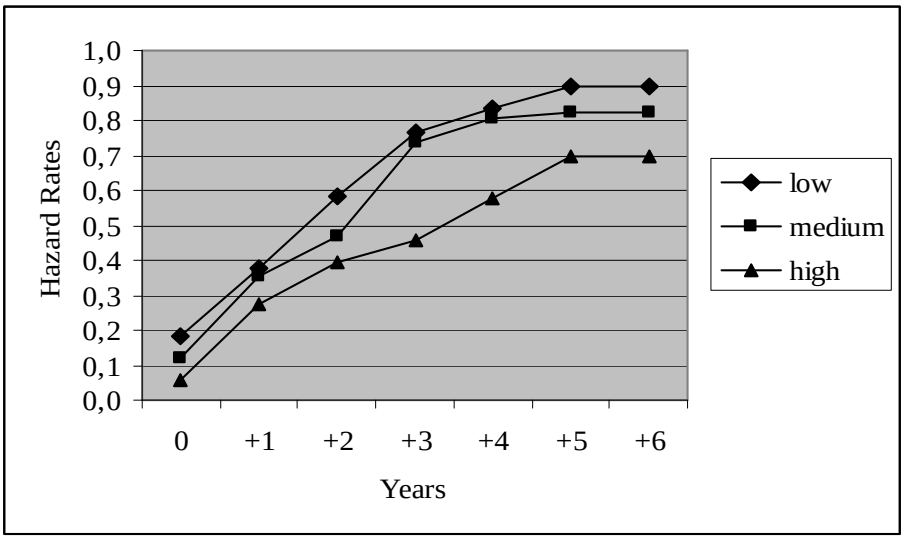

Figure 1. Hazard rates for early adolescent girlsô time to romantic initiation by parental cohesion.

To illustrate the effects of family cohesion on early adolescent girlsô timing of romantic and sexual initiation, we plotted the hazard rates of romantic and

sexual initiation to years since wave 1 (figure 1 and 2). These plots show that the chance of being romantically or sexually experienced is lower for young girls in highly cohesive families, compared to girls in medium or low cohesive families, at each successive year after wave 1.

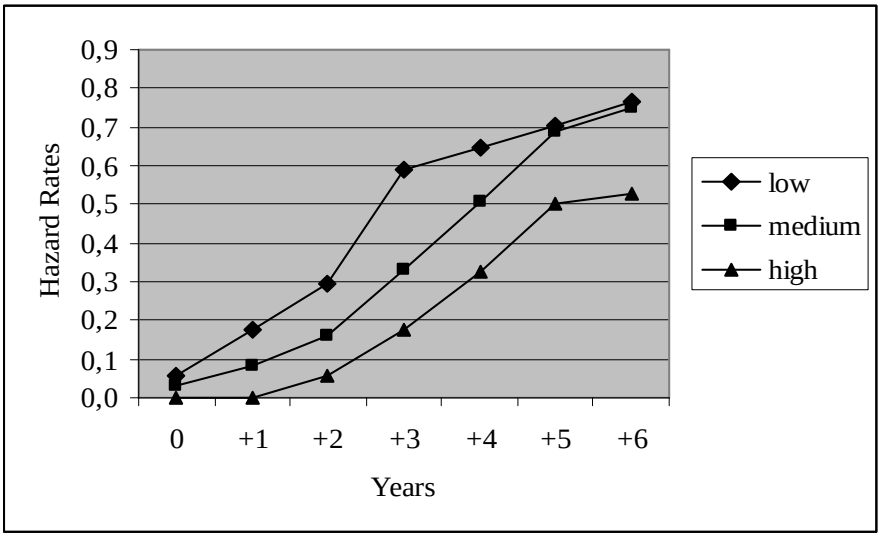

Figure 2. Hazard rates for early adolescent girlsô time to sexual initiation by parental cohesion.

Table 5.3 shows the results of the two-step regression analyses testing whether early romantic involvement mediates the link between parenting and an early sexual debut. Using a zero-inflated Poisson model, we controlled for differences on family cohesion between adolescents with and without romantic and sexual experience at Wave 1. The results of these analyses showed that early adolescent boys and girls (age 12-14) with romantic experience at Wave 1 had lower scores on family cohesion than boys and girls without romantic experience (respectively $t(29) = -.53$, $p < .05$ and $t(29) = -.81$, $p < .01$). In addition, sexually experienced early adolescent boys reported lower levels of family cohesion, compared to inexperienced boys ($t(29) = -1.28$, $p < .01$).

Table 5.3. Multivariate regressions of romantic and sexual initiation on family cohesion (B)

	boys 12-14	girls 12-14	boys 15-17	girls 15-17
Step 1				
Family Climate Ÿ Romantic Experience Wave 1[a]	-.53 *	-.81 **	-.13	-.08
Family Climate Ÿ Sexual Experience Wave 1[a]	-1.16 **	-1.28	-.16	-.37
Family Climate Ÿ Romantic Initiation	.01	.34 **	-.01	.14
Family Climate Ÿ Sexual Initiation	.18	.23 **	.40 **	.09
AIC	5491.03			
Step 2				
Family Climate Ÿ Romantic Experience Wave 1[a]	-.53 *	-.81 **	-.13	-.08
Family Climate Ÿ Sexual Experience Wave 1[a]	-1.18 *	-2.26	-.18	-.37
Family Climate Ÿ Romantic Initiation	.01	.34 **	-.01	.14
Family Climate Ÿ Sexual Initiation	.17	.13	.31 *	.03
Romantic Initiation Ÿ Sexual Initiation	.05 **	.10 *	.15 ***	.12 **
Sobel's Test	0.11	2.87 **	-.05	0.67
AIC	5372.31			
Change in AIC Step 1 versus Step 2	118.72			

NB. Step 1 refers to a direct model in which romantic and sexual experience were regressed on family climate. Step 2 refers to a full mediation model that allowed for an additional direct path from romantic to sexual initiation.

[a] A zero-inflated Poisson model controls for differences on family cohesion between adolescents with and without romantic and sexual experience at Wave 1. These are t-tests.

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

Step 1 of our model showed that the first condition for mediation, an association between family cohesion and romantic initiation, was only satisfied for early adolescent girls ($B(29)=.43$, $p < .01$). Family cohesion was also related to sexual initiation in this group ($B(29)=.23$, $p < .01$). The full model showed that the direct path from romantic to sexual initiation was also significant ($B(33)=.10$, $p < .001$). Additionally, the effect of family cohesion on sexual initiation was absent after adding the link between romantic and sexual initiation ($B(33)=.13$, $p = .096$). Sobelôs test [32] confirmed that the difference in path weights in the two regression equations was significant ($z = 2.87$, $p < .01$). This shows that the association between family cohesion and early sexual initiation was fully

mediated by early romantic initiation for early adolescent girls. Among boys and older girls, family cohesion was not related to timing of sexual initiation, which makes testing for mediation redundant

5.4 Discussion

The sequence of romantic and sexual initiation

The first purpose of this study was to describe the normative sequence of romantic and sexual initiation. As expected, romantic initiation preceded sexual debut for most adolescents. About three quarters of adolescents followed this pathway. This result is in accordance with prior findings that most adolescent girls report going steady with their first sexual partner (The National Center for Health Statistics, 2005) and that being in a relationship is a strong predictor of sexual intercourse (Blum et al., 2000; Van Oss Marín et al., 2006). College students have also been found to report that their sexual debut preceded their first ósériousô relationship (Regan, Durvasula, Howell, Ureño & Rea, 2004), however. This finding is probably due to retrospection. As adolescents grow older, their romantic relationships increase in duration, quality, and levels of support (Seiffge-Krenke, 2003). With hindsight, emerging adults possibly decide that their first romantic relationships were not that serious, compared to later romantic experiences. They thus attach a different meaning to these relationships than they did during early adolescence. The longitudinal design of our study enabled us to follow the adolescentsô labeling of their romantic relationships.

The lifetime sequence of romantic and sexual initiation resembles the sequence of romantic and sexual experiences within relationships. A prior study on the progression of romantic and sexual events found that, within adolescent relationships, almost no sexual interaction takes place before couples identified themselves as boyfriend and girlfriend (OôSullivan, Mantsun, Harris & Brooks-Gunn, 2007). Adolescents need to feel confident about their relationship before moving on to the intimacy of sexual interactions. As males and females differ on their attitudes about sexual intercourse without emotional commitment (Petersen & Hyde, 2010), it may be that romantic initiation is less often a prerequisite for sexual initiation for males than for females. The results do not support this expectation, however, as the sequence of romantic and sexual initiation was moderated neither by gender nor age. Apparently, being in a relationship before having sex is also important for boys. In a recent survey among a representative sample of American boys, two-thirds of the boys stated that they would rather have a girlfriend but no sex, compared to only one-third who preferred to have

sex but no girlfriend (National Campaign to Prevent Teen and Unplanned Pregnancy, 2010).

Family cohesion and the timing of romantic and sexual initiation

The second purpose of this study was to examine the relation between family cohesion and the timing of romantic and sexual initiation. We expected low levels of family cohesion to result in earlier romantic and sexual experiences. This expectation was only supported for early adolescent females. Early adolescent girls coming from disengaged family homes (i.e. where everybody minds their own business or decides for themselves what is best), had their first romantic and sexual experiences earlier than girls from highly cohesive families. For older adolescent males and females (age 15-17), family cohesion held no associations with romantic and sexual initiation. At this age, romantic involvement and sexual experiences are more typical and les problematic than at earlier ages.

The stronger link between parenting and age of first sexual intercourse in females, as compared to males, was also found in earlier studies (Davis and Friel 2001; De Graaf et al., 2010a; McNeely et al., 2002; Rose et al., 2005). This finding could be explained by the theory of female erotic plasticity (Baumeister 2000), which states that female sexuality is more susceptible to social influences than male sexuality, whereas male sexuality is more directly tied to biological factors. The stronger links with family cohesion for females, however, appear to extend beyond sexual behavior. Previous research on parental support and emotional well-being has found similar gender differences, for example (Helsen et al., 2000). Furthermore, the present study also shows that the association between parenting and romantic development is gender-specific. This gender difference could possibly be ascribed to the finding that men generally are more avoidant of interpersonal closeness and have a stronger desire for relational independence than women (Schmitt et al., 2003) Males could therefore be less inclined to compensate for low levels of family cohesion by seeking closeness in romantic relationships.

Mediation by romantic initiation

The third purpose of this study was to investigate whether early romantic involvement mediates the link between parenting and an early sexual debut. Because family cohesion was only related to timing of sexual initiation for early adolescent girls (age 12-14), mediation by romantic initiation was tested for this group. As expected, the association between family cohesion and early sexual initiation was fully mediated by early romantic initiation. Low levels of family

cohesion resulted in earlier involvement in romantic relationships, which in turn correlated with an earlier sexual debut.

An underlying mechanism of this finding could be that poor relationships with parents relates to emotional independence at an earlier age (Parra & Oliva, 2009) and that emotional independence from parents subsequently associates with an early initiation of romantic relationships (Roberts Gray & Steinberg, 1999). Thus, early adolescent girls who have negative relationships with their parents turn to romantic relationships for intimacy and support. In turn, these romantic relationships provide the opportunity for an early sexual debut.

5.5 Directions for Future Research

The present study has a number of limitations. We used an existing dataset, not primarily designed to investigate romantic and sexual development. This three-wave dataset enabled us to gain more insight into the sequence of romantic and sexual initiation, and the role of parenting in the timing of these events. The measures of sexual and romantic initiation in this dataset were restricted to the timing of these events, however, and do not give insight in the quality of these romantic or sexual interactions. Furthermore, the dataset did not contain measures of parental control (i.e. parenting behavior that is intended to regulate the childôs behavior). Fortunately, the operationalization of family cohesion did contain one item on monitoring (i.e. parental knowledge of the childôs whereabouts). This aspect of parenting seems to be particularly important for sexual development (De Graaf et al., 2010a; Longmore et al., 2001).

Investigating the multifaceted nature of both parenting and romantic and sexual development provides a challenge for future longitudinal studies. These studies should also examine whether youthsô first romantic and sexual relationships are mutually rewarding, and thus should include measures of the skills that are necessary for guiding sexual interaction in this direction. After all, while the timing of romantic and sexual debut is important, it is also important that youths have safe and pleasurable romantic and sexual experiences when they eventually occur. Furthermore, additional studies could expand the parenting measures, for example by including parental communication about sexual and relational issues.

Despite these limitations, this research is the first to investigate whether early romantic involvement mediates the link between parenting and an early sexual debut in a longitudinal sample. Although the relation between parenting and sexual debut has been the focus of many studies, research on mediating factors

and processes is scarce. By studying early romantic involvement as a mediator, our study provides insight in one of the potential mechanisms that underlies the well-established correlation between a negative parent-child relationship and an early sexual debut. This effect seems to be especially salient in early adolescent girls. The effects of parenting on these girls thus appear to be primarily associated with relational development. Growing up in highly cohesive families prevents girls from having to satisfy their needs for intimacy and closeness in romantic relationships at an early age, and consequently results in a later sexual debut.

CHAPTER 6

GENERAL DISCUSSION

We conducted four studies to investigate sexual trajectories and its correlates, associations between parenting and adolescentsô sexual behavior and sexual health, and possible mediation of the link between parental support and sexual behavior by parental knowledge of the childôs whereabouts or adolescentsô romantic involvement. The results of these four studies will be summarized and discussed in this final chapter. The limitations of our studies, recommendations for future research and theoretical and practical implications will be addressed. We will end this chapter with some general conclusions.

6.1 Summary

Sexual trajectories

The ñsexual trajectoryò is an age-graded set of various new sexual experiences. This study offers a comprehensive description of sexual trajectories, based on three key dimensions: (1) sequence, or the order of various new sexual experiences; (2) duration, or the time it takes to go through the various steps; and (3) timing, or the age at which the trajectory is completed. We investigated whether sexual trajectory types were related to demographic characteristics or to recent sexual risk behavior. A representative Dutch sample of 1,263 males and 1,353 females (M = 20.46 years; range, 12ï25) who had engaged in sexual intercourse completed a questionnaire about sexual behavior and contraceptive and condom use.

Two-step cluster analysis on sequence, duration, and timing revealed two sexual trajectory subtypes. About three quarters of participants followed a progressive sexual trajectory. They first gained experience with kissing, subsequently with petting while dressed and petting while undressed, and finally with sexual intercourse. About one quarter of the participants demonstrated the second, nonlinear trajectory, having either more sexually intimate experiences (e.g., sexual intercourse) before less sexually intimate experiences (e.g., kissing) or having all new sexual experiences within a single year. Immigrant groups and less educated youth were more likely to follow a nonlinear trajectory.

A progressive trajectory was associated with a higher likelihood of consistent contraceptive use with the most recent partner and, for girls, with a lower

likelihood of having unprotected anal intercourse with the last partner. To explain this finding, we suggested that adolescents require certain skills, such as being aware of their own wishes and needs, communicating these to a partner, and being able to refuse unwanted sexual experiences, to progress from less to more sexually intimate behaviors. We hypothesized that adolescents who did not follow this progressive trajectory possibly lacked some of these skills. To the extent that this interpretation is correct, it is plausible that these limited skills are fairly stable over time, thus resulting in a higher likelihood of some sexual risks for individuals following a nonlinear sexual trajectory.

Parenting styles and sexual health

Although almost all adolescents become sexually active at some point, there are large individual differences in sexual development and sexual health. In the Netherlands, about one in ten 14-year-olds has already engaged in sexual intercourse, whereas one in ten 19-year-olds has not yet kissed. About 90% percent of 12- to 24-year-olds has no trouble talking to their sexual partners about their sexual likes and dislikes, but one in ten still has little or no control over what happens during sexual interactions (De Graaf et al., 2005). And although teen pregnancy rates in the Netherlands are among the lowest in the world, 11 out of 1000 girls under age 20 are getting pregnant each year (Kruijer, Van Lee & Wijsen, 2008).

The role of parents in these individual differences has been the object of many studies. We conducted a literature review on 55 studies of associations between parental support, control and knowledge of the childôs whereabouts, on the one hand, and sexual experience, the use of protection and the quality of sexual experiences, on the other hand. The results of this review show that, in general, higher scores on support, control and knowledge relate to a delay of first sexual intercourse, safer sexual practices and higher social sexual competence. Despite the vast amount of literature on this subject, the large majority of research focuses on the age of first sexual intercourse or the use of contraceptives or condoms. Furthermore, none of the studies included in this review gave insight into which parenting dimension is most important or proximal.

To fill this gap in empirical knowledge, a representative Dutch sample of 1,263 males and 1,353 females (aged 12ï 25 years), who had previously engaged in sexual intercourse, completed a questionnaire that included measures of parental support, parental knowledge of the childôs whereabouts, sexual experience, and sexual health (the ability to have safe and pleasurable sexual experiences).

Both parental support and knowledge were positively associated with

contraceptive use, social skills in sexual interactions, sexual satisfaction, and a delay of sexual debut. The majority of correlations between parental support and sexual experience and sexual health appeared to be attributable to the relationship between a supportive family environment and parental knowledge of the childôs whereabouts. Parental knowledge thus appeared to be more important for healthy sexual development than parental support. Parental support, however, is an important factor in gaining this knowledge.

Mediation by romantic initiation

Romantic involvement and sexual experiences are normative parts of adolescent development. Both an early romantic and an early sexual debut, however, associate with more sexual risks. Girls and boys age 14 or younger generally lack the cognitive maturity and social sexual skills that are necessary to have safe and consensual sexual experiences (Dixon-Mueller, 2008). The link between parental support or a positive parent-child relationship and a delay of first sexual intercourse has been frequently demonstrated. Research on mediating factors and processes, however, is scarce. Because romantic relationships constitute the primary context for sexual interactions, early romantic involvement could be one of the mediating factors.

This study investigated whether romantic involvement generally precedes first sexual intercourse, whether family cohesion associates with a delay of first sexual intercourse and whether this association is mediated by the link between family cohesion and the timing of romantic involvement. A six-year longitudinal sample of 314 adolescent girls and 222 boys, aged 12-17 at wave 1, completed a questionnaire that included measures of family cohesion and timing of first romantic and sexual involvement.

For 77% of the participants, first experiences with sexual intercourse follow romantic involvement. Cox proportional hazards regression analyses showed that high levels of family cohesion at Wave 1 resulted in a delay of romantic and sexual initiation for females aged 12-14 at Wave 1. Within this group, the association between family cohesion and early sexual initiation was fully mediated by early romantic initiation. A possible explanation of this finding is that early adolescent girls who have a negative relationship with their parents turn to a romantic relationship for intimacy and support. These romantic relationships subsequently provide the opportunity for an early sexual debut.

Gender Specific Associations

In all four studies we conducted, we found stronger associations for girls, as compared to boys. The association between having a nonlinear sexual trajectory

and having vaginal intercourse without contraception was stronger for females than for males, indicating that pregnancy prevention may still be perceived as the responsibility of the female. In addition, for girls, not for boys, having a nonlinear sexual trajectory correlated with a higher likelihood of unprotected anal intercourse. There is evidence that, particularly for females, engaging in anal intercourse is more often a result of persuasion than engaging in vaginal intercourse is (de Graaf et al., 2005). Possibly, females in the nonlinear trajectory group were more easily persuaded to have anal intercourse than males following this trajectory.

The literature review described in chapter 4 showed that several earlier studies found exclusive or stronger associations between parental support and sexual experience for girls than for boys, whereas there are no studies that find the opposite. The empirical studies in this dissertation confirmed this finding. Associations of parental support with both age of first sexual intercourse and sexual control were stronger for girls, as compared to boys. Low levels of family cohesion resulted in earlier romantic and sexual experiences only for early adolescent girls, not for boys. This finding could be explained by the theory of female erotic plasticity (Baumeister 2000), which states that female sexuality is more susceptible to social influences, whereas male sexuality is more directly tied to biological factors.

The stronger link for girls between parenting and romantic development could possibly be ascribed to the finding that men generally are more avoidant of interpersonal closeness and have a stronger desire for relational independence (Schmitt et al., 2003). Males could therefore be less inclined to compensate for low levels of cohesion in the family of origin by seeking closeness in romantic relationships. The stronger links with family cohesion for females, however, appear to extend beyond romantic and sexual behavior. Previous research on parental support and emotional well-being found similar gender differences (Helsen et al., 2000).

6.2 Theoretical implications

In the slipstream of the HIV/AIDS epidemic, theories concerned with adolescentsô sexual health have a strong focus on the prevention of sexual risks, in particular sexual transmitted infections and unintended pregnancies. Health behavior models in this risk-focused tradition generally consist of a number of social and cognitive factors (e.g., attitudes, social norms and self efficacy), which predict the intention to perform particular health behavior, which subsequently predicts sexual risk behavior. An example of these theories is the

theory of planned behavior (Abraham, Sheeran & Johnston, 1998). This strong focus on sexual risks is also apparent in this dissertation.

Several scholars raised their concerns regarding this focus on risks and the strong focus on individual cognitions in explaining sexual health (Tucker Halpern, 2010; Van Campenhoudt, Cohen, Guizzardi & Hausser, 1997). Social-cognitive models presume a certain level of control over sexual interactions, whereas control is precisely what is missing when sexual interactions are not safe, pleasurable or wanted. Furthermore, the interaction between sexual partners plays an important role in determining the positive or negative outcomes of these interactions. To be able to arrange sexual encounters in a mutually rewarding way, both partners need a complex set of communicative and social skills, capacities, sensitivities and strategies, such as the ability to set oneôs limits, to articulate desires, to tune in to the needs of the partner or to control oneself (Vanwesenbeeck et al., 1999). We call this key factor in sexual health ósocial sexual competenceô, due to its strong resemblance to social competence.

Biological dispositions, prior relationships with parents and peers and the individualôs (sexual) learning history determine which social sexual competencies the adolescent eventually has to his or her disposal and which competencies are activated in sexual interactions. We hypothesize, therefore, that parents influence the quality of their offspringôs sexual interactions through the effect of parenting on the childôs social sexual competencies. Adolescentsô with higher levels of social sexual competence óchooseô sexual partners and situations that are more congruent to their own needs. Subsequently, the interplay of both partners interactional competencies results in outcomes in terms of pleasure and risk. Subsequently, the evaluation of these outcomes may affect someoneôs social sexual competencies in future sexual interactions.

Recently, there is a lively debate about the appropriate age for first sexual experiences (e.g., Dixon-Mueller, 2008). Sexual behavior of adolescents is not disadvantageous at every age, because parents probably desire a satisfying sex life for their children at some point in their life. Some scholars argue that it is very difficult to find an answer to this question in terms of age and that it is better to find other criteria for sexual readiness. Being sexually competent could be such a criteria. Social sexual competencies are strongly associated with age. Girls and boys age 14 or younger generally lack the social sexual skills that are necessary to have pleasurable, safe and consensual sexual experiences (Dixon-Mueller, 2008; Hawes, Wellings & Stephenson, 2010). Age and sexual readiness are, however, not interchangeable. Among those who have sex for the first time

at a later age, a substantial group is also not sexually competent (Hawes et al., 2010).

Social sexual competencies are not gender neutral. Boys and girls encounter different barriers in attaining sexual health. Assertive girls, for example, run the risk of being called ósluttô, whereas reluctant boys run the risk of being called ógayô. In addition, some key skills have different meanings for boys and girls. For example, ócontrolô is more closely related to sexual initiative for boys, whereas it is more related to sexual refusal for girls. Because of this gendered context, girls and boys generally develop different social sexual competencies. Girls are behind in their acknowledgement of sexual desires, in their sense of comfort with their own sexuality and their feelings of entitlement to pleasure and sexual experiences. Boys should learn to acknowledge emotional feelings associated with sexuality or to resist peer pressure to sexual activity (Tolman, Striepe & Harmon, 2003). Gender should, therefore, always be taken into account in theoretical models of adolescent sexual health.

6.3 Limitations and future research directions

The present study was not without limitations. The first limitation is that we used existing datasets, not primarily designed for the present studies. One of the consequences of this limitation is that the ages of first romantic or sexual experiences were measured in years, making it impossible to determine the exact sequence of two experiences if these happened within one year. Future studies should use more sensitive measurements of romantic or sexual trajectories, for example by asking respondents themselves to put their experiences in the order in which they first occurred.

The second limitation, another consequence of the use of existing datasets, is that not all of our measures covered the broad range of parenting and sexual health dimensions. In both the cross-sectional and the longitudinal study, measures of parenting were limited. In the longitudinal study, parenting was restricted to family cohesion. Both studies did not encompass measures of parental control (i.e. parenting behavior that is intended to direct the childôs behavior in the manner desired by the parents). Furthermore, in the longitudinal study, we only assessed whether or not the participant had ever engaged in romantic relationships or sexual intercourse, not whether these experiences were safe and pleasurable.

Thirdly, the present study is limited to associations between parenting styles and the psychosexual development of adolescents. It thus produces no insight into

the relative importance of parenting. Numerous other factors, such as violence, stigma, poverty, and relationships with peers and sexual partners could influence sexual health decision making. Various mediating processes will explain why individuals respond to these influences in different ways. Investigating these complex processes provides a challenge for future studies.

Finally, *Sex under the age of 25* and the majority of the studies summarized in our literature review used cross-sectional designs, making it hard to draw conclusions about causal relationships. Our longitudinal study also gave no insight into possible reactions of parents to the childôs romantic or sexual initiation, since this study used a non-recursive design. It is unlikely that parental behavior is not at least partly a response to the childôs behavior. Researchers who did look for reciprocal explanations indeed found evidence for this hypothesis (Karofsky et al., 2000; Ream, 2006). In short, there is a need for more dynamic, dialectical studies using multifaceted measures of parenting, romantic and sexual development, and sexual health.

6.4 General conclusion

Despite these limitations, this study is the first to provide evidence that about one quarter of Dutch adolescents do not follow the frequently documented progressive sequence of sexual behaviors, and that the abandonment of a progressive trajectory correlates with sexual risk behavior. We suggest that these adolescents possibly lack some skills that are required to gradually progress from less to more sexually intimate behavior. They could, for example, be persuaded into more sexually intimate behavior, because they were not aware of or able to protect their own boundaries.

The present study additionally shows that parents can increase the likelihood that adolescents gain the competencies that are essential for having safe and pleasurable sexual experiences. Parenting styles, which are described to have beneficial effects on a large variety of life domains, also hold positive associations with healthy sexual development. This research provides evidence that both parental support and knowledge have beneficial associations with the use of contraceptives, social skills in sexual interactions, and sexual satisfaction in a national representative sample.

Moreover, this study adds to the literature by investigating mediating factors that underlie the association between parental support and sexual development in adolescence. Our study disentangles the relative contribution of parental support and knowledge in predicting sexual health. This research also shows that the

link between parenting and an early sexual debut is mediated by early romantic involvement in a longitudinal sample.

Parental knowledge appeared to be more important for healthy sexual development than parental support, but support is an important tool in gaining this knowledge. In addition, low levels of family cohesion result in earlier romantic involvement for girls and consequently in an earlier sexual debut. Both an early romantic and an early sexual debut associate with more sexual risks. Parents should, therefore, invest in high levels of support. A supportive family climate facilitates self-disclosure on the childôs part, which increases parental knowledge of the childôs whereabouts (Kerr et al., 2003; Soenens et al., 2006). Moreover, growing up in highly cohesive families prevents girls from having to satisfy their needs for intimacy and closeness in romantic relationships at an early age. Subsequently, both higher levels of parental knowledge and a delay of first romantic involvement relate to healthier sexual outcomes.

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SAMENVATTING (SUMMARY IN DUTCH)

In dit proefschrift worden vier studies beschreven: één literatuuronderzoek en drie empirische studies. Deze studies geven inzicht in het verloop van seksuele carrières en de factoren die hiermee samenhangen, in de samenhang tussen opvoeding en de seksuele ontwikkeling en gezondheid van adolescenten, en in factoren die deze samenhang tussen opvoeding en seksuele gezondheid kunnen verklaren. Voor het beantwoorden van deze vragen is gebruik gemaakt van een representatief cross-sectioneel onderzoek (Seks onder je 25e; De Graaf et al., 2005) en een longitudinaal onderzoek met drie meetmomenten (Wendingen in de Levensloop; Meeus & 't Hart, 1993). De belangrijkste bevindingen van dit proefschrift worden hieronder samengevat.

De seksuele carrière

De seksuele carrière heeft betrekking op de leeftijd en manier waarop iemand voor het eerst verschillende seksuele ervaringen opdoet. Er zijn drie dimensies waarop een seksuele carrière kan variëren, namelijk: (1) de volgorde waarin verschillende nieuwe ervaringen worden opgedaan, (2) de duur, ofwel de snelheid waarmee verschillende stappen worden gezet en (3) de timing, ofwel de leeftijd waarop de stappen worden gezet. Op basis van deze drie dimensies werd in dit proefschrift studie een typologie geconstrueerd. Ook is onderzocht of er demografische verschillen zijn tussen carrièretypen en of carrièretype samenhangt met beschermingsgedrag bij recente seksuele contacten. Een representatieve steekproef, bestaande uit 1.263 meisjes en 1.353 jongens van 12 tot 25 jaar (M = 20,46 jaar), die ervaring hadden met geslachtsgemeenschap, vulde een digitale vragenlijst in met vragen over seksueel gedrag en beschermingsgedrag.

Uit een two step cluster analyse op volgorde, duur en timing van verschillende stappen op seksueel gebied kwamen twee carrièretypen naar voren. Ongeveer driekwart van de respondenten volgde een stapsgewijze seksuele carrière. Ze deden eerst ervaring op met tongzoenen, vervolgens met voelen en strelen onder de kleren en naakt vrijen, en ten slotte met geslachtsgemeenschap. Ongeveer een kwart van de respondenten volgde een andere carrière, door bijvoorbeeld eerst ervaring op te doen met verdergaande vormen van seks (geslachtsgemeenschap) en daarna pas voor het eerst te zoenen of te strelen, of door alle verschillende stappen binnen één jaar te zetten. Jongeren met een niet-westerse allochtone achtergrond en laag opgeleide jongeren wijken vaker af van de gangbare stapsgewijze carrière dan autochtoon Nederlandse en hoog opgeleide jongeren.

Een stapsgewijze seksuele carrière hangt samen met een grotere kans op consistent anticonceptiegebruik met de laatste partner en, voor meisjes, met een kleinere kans op onbeschermde anale seks met de laatste partner. Voor het volgen van een stapsgewijze carrière zijn bepaalde vaardigheden nodig, zoals het bewust zijn van de eigen behoeften op seksueel gebied, het kunnen communiceren over deze behoeften met een partner en het kunnen weigeren van vormen van seks waar je nog niet aan toe bent. Mogelijk beschikken jongeren die geen stapsgewijze carrière volgen in mindere mate over dergelijke sociaal seksuele vaardigheden. Indien deze interpretatie correct is, is het goed mogelijk dat deze beperkte vaardigheden relatief stabiel zijn, hetgeen (mede) resulteert in minder consistent beschermingsgedrag met de laatste partner.

Opvoeding en seksuele gezondheid

Hoewel vrijwel alle adolescenten vroeg of laat seksueel actief worden, bestaan er grote individuele verschillen wat seksuele ontwikkeling en gezondheid betreft. Ongeveer één op de tien Nederlandse jongeren heeft al ervaring met geslachtsgemeenschap, terwijl een even groot deel van de 19-jarigen nog nooit gezoend heeft (De Graaf et al., 2005). En ondanks dat het aantal tienerzwangerschappen in Nederland tot de laagste van de wereld behoort, worden er elk jaar toch nog elf op de 1000 meisjes voor hun 20^{e} jaar zwanger (Kruijer, Van Lee & Wijsen, 2008).

Om te onderzoeken wat de rol van ouders is in de ontwikkeling van deze individuele verschillen voerden we een literatuuronderzoek uit. Hiertoe bestudeerden we 55 studies naar verbanden tussen ouderlijke steun, controle en kennis van het gaan en staan van het kind aan de ene kant, en seksueel gedrag, beschermingsgedrag en de kwaliteit van seksuele interacties van adolescenten aan de andere kant. Dit literatuuronderzoek toonde aan dat kinderen van ouders die hen steun en regels bieden en die veel van hen weten, over het algemeen op latere leeftijd voor het eerst seks hebben en veiligere en prettigere contacten hebben als ze uiteindelijk seksueel actief worden. Het overgrote deel van het onderzoek naar de invloed van opvoeding op seksuele ontwikkeling richt zich op de leeftijd van de eerste geslachtsgemeenschap en in mindere mate beschermingsgedrag. Geen van deze studies liet zien welke dimensie van opvoeding de sterkste bijdrage levert aan seksuele gezondheid.

Om deze witte plek in de bestaande kennis op te vullen, vulden 1.263 seksueel ervaren jongens en 1.353 seksueel ervaren meisjes van 12 tot 25 jaar (M = 20,46) een vragenlijst in. Deze steekproef was representatief voor de Nederlandse bevolking wat betreft geslacht, leeftijd, etniciteit, opleidingsniveau en stedelijkheid. De vragenlijst bevatte vragen over ouderlijke steun en kennis

van het gaan en staan van het kind en seksuele ervaring en vaardigheden die nodig zijn om een seksueel contact veilig en prettig te maken.

Zowel ouderlijke steun als kennis bleken samen te hangen met beter anticonceptie gebruik, betere sociaal seksuele vaardigheden, een hogere mate van seksuele tevredenheid en een latere leeftijd van de eerste keer. Bijna alle verbanden tussen ouderlijke steun en seksuele ervaring en gezondheid konden worden toegeschreven aan de samenhang tussen ouderlijke steun en kennis. Kennis van het gaan en staan van het kind is dus belangrijker voor een gezonde seksuele ontwikkeling dan ouderlijke steun, maar ouderlijke steun is wel belangrijk voor het verkrijgen van deze kennis. Wanneer kinderen zich geliefd en begrepen voelen door hun ouders, zullen zij de ouders eerder op de hoogte stellen van hun wel en wee. Een veel gehoorde verklaring voor het gunstige effect van ouderlijke kennis is dat deze kennis ouders de mogelijkheid biedt om hun kinderen los te laten wanneer dit kan en in te grijpen wanneer dit nodig is.

Vaste relatie als mediërende factor

Relationele en seksuele ervaringen maken deel uit van een normale ontwikkeling tijdens de adolescentie. Het hebben van een vaste relatie of geslachtsgemeenschap op zeer jonge leeftijd brengt echter meer risico met zich mee dan wanneer dit iets later plaatsvindt. Jongeren van 14 en jonger missen vaak nog de sociaal seksuele vaardigheden die nodig zijn om een seksueel contact veilig, prettig en gewenst te laten zijn (Dixon-Mueller, 2008). De link tussen opvoeding en een vroege eerste geslachtsgemeenschap is veelvuldig aangetoond, maar onderzoek naar factoren en processen die dit verband kunnen verklaren is schaars. Het hebben van een vaste relatie op jonge leeftijd zou een mediërende rol kunnen spelen, omdat vaste relaties de primaire context vormen voor seksueel contact (Miller & Benson, 1999).

In de huidige studie onderzochten we of jongeren over het algemeen eerst ervaring opdoen met relaties, voordat ze ervaring met geslachtsgemeenschap opdoen. Ook toetsen we of een goede band met de ouders samengaat met het uitstellen van de eerste geslachtsgemeenschap en of dit verband verklaard kan worden doordat jongeren in warme gezinnen later beginnen aan vaste relaties. Een groep van 314 meisjes en 222 jongens, 12 tot 17 jaar bij de eerste meting, vulden in 1991, 1994 en 1997 een vragenlijst in. Deze vragenlijst bevatte maten van gezinscohesie en de timing van de eerste ervaringen met relaties en geslachtsgemeenschap.

Voor 77% van de respondenten volgde de eerste ervaring met geslachts-gemeenschap op de eerste ervaring met verkering. Cox proportional hazard

regressies toonden aan dat een hoge mate van gezinscohesie bij het eerste meetmoment voor meisjes van 12 tot 14 jaar samenhing met het uitstellen van de eerste ervaringen met relaties en seks. Voor deze jonge meisjes kon het verband tussen gezinscohesie en de timing van de eerste geslachtsgemeenschap volledig worden toegeschreven aan het verband tussen gezinscohesie en de timing van de eerste vaste relatie. Een mogelijke verklaring voor deze bevinding is dat meisjes de slechte relatie met de ouders proberen te compenseren door het aangaan van een vaste relatie op jonge leeftijd, die vervolgens de mogelijkheid biedt voor vroege ervaringen met seks.

Verschillen tussen jongens en meisjes

In alle vier de studies die deel uitmaken van dit proefschrift vonden we sterkere verbanden voor meisjes dan voor jongens. De samenhang tussen het volgen van een stapsgewijze carrière en consistent anticonceptiegebruik was sterker voor meisjes dan voor jongens, mogelijk omdat het nog steeds vooral de verantwoordelijkheid van meisjes is om voor anticonceptie te zorgen. Bovendien hing het volgen van een niet-stapsgewijze carrière alleen voor meisjes samen met het hebben van onbeschermde anale seks. Er zijn aanwijzingen dat het hebben van anale seks vooral voor meisjes vaak het gevolg is van overhalen of dwingen. Mogelijk worden meisjes die een niet-stapsgewijze carrière volgen makkelijker overgehaald dan jongens in deze groep.

Ons literatuuronderzoek liet zien dat verbanden tussen opvoeding en seksuele gezondheid in eerdere studies voor meisjes sterker waren dan voor jongens, of voor meisjes wel werden gevonden en voor jongens niet. Het omgekeerde werd niet gevonden. De empirische studies bevestigden deze uitkomst. Het verband tussen ouderlijke steun en leeftijd van de eerste geslachtsgemeenschap of seksuele controle was sterker voor meisjes dan voor jongens. Alleen voor jonge meisjes van 12 tot 14 jaar leidt een beperkte gezinscohesie tot vroege ervaringen met relaties en seks. Deze verschillen tussen jongens en meisjes kunnen mogelijk worden toegeschreven aan de theorie van vrouwelijke plasticiteit (Baumeister, 2000), die stelt dat de vrouwelijke seksualiteit over het algemeen sterker beïnvloed wordt door omgevingsinvloeden, terwijl de mannelijke seksualiteit daarentegen sterker onder invloed staat van hormonen.

De sterkere verbanden tussen het gezinsklimaat en relationele ontwikkeling voor meisjes kunnen wellicht worden toegeschreven aan het feit dat mannen, over het algemeen, meer vermijdend staan tegenover intimiteit en een sterker verlangen hebben om onafhankelijk te blijven in een relatie (Schmitt et al., 2003). Jongens hebben daardoor wellicht minder de neiging om een gebrek aan warmte in het gezin van herkomst te compenseren met de intimiteit van een partnerrelatie. De

sterkere verbanden met opvoeding voor meisjes lijken echter verder te gaan dan relationele en seksuele ontwikkeling. Eerder onderzoek naar verbanden tussen opvoeding en psychosociaal welzijn vond vergelijkbare resultaten (Helsen et al., 2000).

CURRICULUM VITAE

Hanneke de Graaf was born in Arnhem on September 12, 1970. She graduated from high school (Atheneum, Rijksscholengemeenschap in Arnhem) in 1988. In 1992, she graduated from the Dutch Academy of Natural Medicine as a Classical Homeopath. Hanneke studied Clinical and Health Psychology at Utrecht University and received her masters degree in 1999. Since her graduation, Hanneke works as a researcher at Rutgers Nisso Group, Utrecht. In the past ten years, she studied a diverse range of topics, among which the well-being of gay and lesbians, sexual development of children and media influences on sexual health. In 2005, Hanneke conducted a large population study on Dutch young peopleôs sexual health, called óSex under the age of 25ô. This study resulted in a number of national and international publications.

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