Socioeconomic Status, the Age of Sexual Debut and the Influence of Parenting.

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Abstract

In the present study the association between an adolescent's socioeconomic status (SES) and the age of sexual debut is examined and possible moderation- and mediation effects of parental monitoring and parent-adolescent communication are tested for. Cross-sectional data from the Dutch Health Behaviour in School-aged Children (HBSC) study in 2013 were used. Participants were 532 secondary school students aged 12 to 18, who had had sexual intercourse. Results of a linear regression analysis showed that low level SES adolescents had a lower age of sexual debut than middle level SES adolescents ($b = .12$, $p = .015$), while no significant difference was found between low and high level SES adolescents. A moderation effect of parent-adolescent communication was found for boys ($b = -.20$, $p = .038$). It is concluded that SES is positively associated with the age of sexual debut, however, the association is complex. In addition, good parent-adolescent communication seems to buffer the association between SES and age of sexual debut for boys. Interventions to increase the age of sexual debut may be most helpful for adolescents with a low level of SES, and especially boys in this group might benefit from efforts to improve parent-adolescent communication.

Key words: SES, sexual debut, parental monitoring, parent-adolescent communication, HBSC

Samenvatting

In deze studie wordt de associatie tussen de sociaaleconomische status (SES) van een adolescent en de leeftijd van de eerste keer seks onderzocht. Ook wordt getest voor mediatie- en moderatie effecten van ouderlijk toezicht en ouder-adolescent communicatie. Cross-sectionele data van het Nederlandse Health Behaviour in School-aged Children (HBSC) onderzoek uit 2013 zijn gebruikt. De participanten waren 532 middelbare scholieren (12-18 jaar) die reeds seks hadden gehad. Resultaten van een lineaire regressie analyse laten zien dat adolescenten met een lage SES op jongere leeftijd voor het eerst seks hadden vergeleken met adolescenten met een gemiddelde SES ($b = .12$, $p = .015$), terwijl er geen significant verschil gevonden werd tussen adolescenten met een lage en hoge SES. Een moderatie effect van ouder-adolescent communicatie werd gevonden bij jongens ($b = -.20$, $p = .038$). Er wordt geconcludeerd dat SES positief geassocieerd is met de leeftijd van de eerste keer seks, hoewel de associatie complex is. Daarnaast lijkt voor jongens een goede ouder-adolescent communicatie de associatie te verzwakken. Interventies gericht op verhoging van de leeftijd van de eerste keer seks werken waarschijnlijk het best voor jongeren met een lage SES en vooral de jongens zullen profiteren van een verbetering in ouder-adolescent communicatie.

Kernwoorden: SES, eerste keer seks, ouderlijk toezicht, ouder-adolescent communicatie, HBSC

During adolescence, sexual development is marked by many new experiences, and the sexual debut is often one of them. At what age will an adolescent have sex for the first time? With whom? And what precautions are taken to ensure health and safety? These are all important questions with consequences for the adolescent. The age of sexual debut plays an important role in many sexuality related health issues. An early sexual debut, often defined as having had sexual intercourse before the age of 15, is for example associated with increased rates of (sexual) risk behaviors, such as unprotected sex and sex under influence of alcohol and drugs, and is also associated with an increased chance of sexually transmitted diseases and unwanted pregnancy (Sandfort, Orr, Hirsch, & Santelli, 2008; Wellings et al., 2001; Madkour et al., 2010). These consequences can even be felt over a prolonged period of time (Sandfort et al., 2008). It is important to investigate the variables associated with the sexual debut, to be able to fully understand the determinants and to create effective interventions to increase the age of sexual debut.

A variable serving as a potential predictor for the age of sexual debut is an adolescent's socioeconomic status (SES) (Madkour et al., 2014; Cubbin, Santelli, Brindis, & Braveman, 2005). SES can be defined as a measure of an individual's social standing, derived from social and economic factors. In the Netherlands and other western countries, where differences in wealth are hard to measure, educational level is commonly used to estimate an adolescent's SES. Multiple studies find academic achievement to be correlated with SES (i.e. Sirin, 2005; Schoon et al., 2002) and it is found that the achievement gap between children from high and low income families has widened in the last decades, indicating that there are indeed differences in socio-economic backgrounds between children from different educational levels (Reardon, 2011).

There is an existing body of research indicating that lower levels of SES are associated with a lower age of sexual debut and higher levels of SES with a higher age of sexual debut

(e.g. Madkour et al., 2014; Santelli, Lowry, Brener, & Robin, 2000). However, it is unlikely to be a simple and unidirectional relationship. In fact, the effects of SES on different outcomes among adolescents have been found to be based on an interplay between SES, relationships, and individual differences among adolescents (Conger, Conger, & Martin, 2010). One of the variables influencing early sexual debut, possibly related to SES, is parenting.

Different aspects of parenting are found to be protective factors for early sexual debut. Two of these aspects are parental monitoring and parent-adolescent communication (Lohman & Billings, 2008). Parental monitoring is defined as the extent to which parents are tracking and have knowledge of their children's activities and whereabouts. Much research has been done on the relationship between parental monitoring and adolescents' sexual behaviors and it is found to be effective in delaying the sexual debut of adolescents (e.g. Sieverding, Adler, Witt, & Ellen, 2005; Ethier, Harper, Hoo, & Dittus, 2016).

Research on the effects of parent-adolescent communication on the age of sexual debut shows inconsistent results (de Looze et al., 2015; Deptula, Henry, & Schoeny, 2010; Romer et al., 1999; Longmore, Eng, Giordano, & Manning, 2009). This inconsistency illustrates that the influence of parent-adolescent communication is not straight-forward and needs to be investigated further. The present study aims to shed more light on the association between an adolescent's SES and the age of sexual debut, and how this association is affected by parent-adolescent communication and parental monitoring.

SES and parenting

SES and parenting seem to be associated: higher levels of SES seem to be positively associated with more successful parenting practices, and lower levels of SES with less successful ones (Conger & Donellan, 2007). Three possible explanations are found for this association. First of all, Conger and Conger (2002) found that economic hardship might result

in a change in behavioral and emotional functioning of parents, foremost causing problems in the relationship between the parents, as well as changes in the childrearing, such as disproportionally harsh and inconsistent parenting. Conger and Conger (2002) called this mechanism the Family Stress Model, and the effects have been reproduced by multiple studies (e.g. Hoffman, 2003; Neppl, Senia, & Donnellan, 2016; Newland, Crnic, Cox, & Mills-Koonce, 2013).

A second way in which SES might influence parenting is through a difference in the access to resources. Higher level SES families are better able to contribute to adolescents' higher order development through material and immaterial purchases, whereas parents from a low SES level are often more occupied with providing the basic needs (Conger & Donnellan, 2007). Also, a higher income may lead to more ways for parents to supervise their children, for example through paid day-care services (Lammers et al., 2000).

Thirdly, it is suggested that parents from higher levels of SES, as they often have a higher education and income, are exposed to and able to acquire more information relevant to parenting practices than parents from lower levels of SES (Garrison & Rodgers, 2016; Bornstein et al., 2010). This difference in knowledge may have a direct effect on the way parents go about the development of their adolescent children. For instance, Rowe (2008) found a difference in the way parents from different SES levels communicate with their (pre) adolescent children, mediated by a difference in parental knowledge of child development.

In short, SES might be of influence on the ways parents are able to parent, the knowledge about parenting and child development they hold, and on the time and resources available. These may all contribute to explaining the association between SES and parenting, since they can go side by side. Parental monitoring then might be affected by the difference in access to resources, whereas parent-adolescent communication is most likely to be affected by the difference in parental knowledge.

Parenting and sexual debut

The effects of parenting on the age of sexual debut differ between parenting variables (e.g. Wight, Williamson, & Henderson, 2006; Longmore et al., 2009). Parental monitoring is generally found to have a delaying effect (e.g. Borawski et al., 2003), mainly through a combination of parental control mechanisms such as rules on time spent with peers and romantic relationships, and by acquiring knowledge about adolescents' whereabouts and activities (Ethier et al., 2016). Especially the extent to which the adolescents perceive the parental monitoring might be important in delaying sexual debut (Borawski et al., 2003).

The literature on parent-adolescent communication is less clear. Most studies on communication and the age of sexual debut focus specifically on communication about topics surrounding sex. The existing research on the association between (sexual) communication and the age of sexual debut is inconsistent. When parent-adolescent communication is better, lower rates of early sexual debut are found in some studies (Romer et al., 1999; Jerman & Constantine, 2010). This might be explained by a more healthy sexual development, through increased awareness and self-confidence in adolescents on topics surrounding sex, caused by parent-adolescent communication. However, several studies show opposite results (de Looze et al., 2015; Deptula et al., 2010), which might be explained by the triggering of sexual thoughts and behaviors by parent-adolescent communication about sex. Another explanation for the inconsistent effects of parent-adolescent communication may be reverse causality, as sexually active adolescents are more likely to communicate about sex with their parents, and parents who suspect their children are getting ready for sex might be more inclined to communicate with them about the topic. This would make parent-adolescent communication about sex to be adolescent driven, which has also shown to be true for other parenting practices (Willoughby & Hamza, 2011).

It is clear that both parenting practices are among the variables that play a role in the association between SES and the age of sexual debut, although it is not yet clear exactly what this role may be.

Parenting: a mediation or moderation effect?

Having a higher SES may enable parents to monitor their adolescents in different ways (e.g. Lammers et al., 2000) and change parent-adolescent communication by increasing knowledge of child development (e.g. Garrison & Rodgers, 2016). These parenting styles in turn have shown to directly influence the age of sexual debut. This could indicate a mediation effect of parenting; i.e. the effects of SES on the age of sexual debut could be (partly) explained by parenting practices. However, not all low level SES parents use less successful parenting practices; good parenting practices could also have a protective effect on adolescent risk behavior in less affluent families (Abar, Clark, & Koban, 2017). Therefore parenting practices could, next to having a mediating effect, also moderate the association between SES and the age of sexual debut.

Present study

Although the theoretical findings as described above show that there is an association between SES and the age of sexual debut, the effects of parental monitoring and parent-adolescent communication on this association remain unclear. The main research question in this study therefore is: What is the association between an adolescent's socioeconomic status (SES) and the age of sexual debut, and how is this association affected by parent-adolescent communication and parental monitoring? To answer this question, three sub questions and five hypotheses are derived from the literature.

1. Are SES and the age of sexual debut associated?

H1: A positive association is expected, where lower levels of SES will be associated with a lower age of sexual debut and higher levels of SES will be associated with a higher age of sexual debut.

2. What is the influence of parent-adolescent communication on the association between SES and the age of sexual debut?

H2: The association between SES and the age of sexual debut is moderated by parent-adolescent communication, where better parent-adolescent communication decreases the strength of the association.

H3: The association between SES and the age of sexual debut is mediated by parent-adolescent communication, where higher levels of SES are associated with better parent-adolescent communication, which in turn is associated with a higher age of sexual debut.

3. What is the influence of parental monitoring on the association between SES and the age of sexual debut?

H4: The association between SES and the age of sexual debut is moderated by parental monitoring, where higher rates of parental monitoring decrease the strength of the association.

H5: The association between SES and the age of sexual debut is mediated by parental monitoring, where higher levels of SES are associated with a higher level of parental monitoring, which in turn is associated with a higher age of sexual debut.

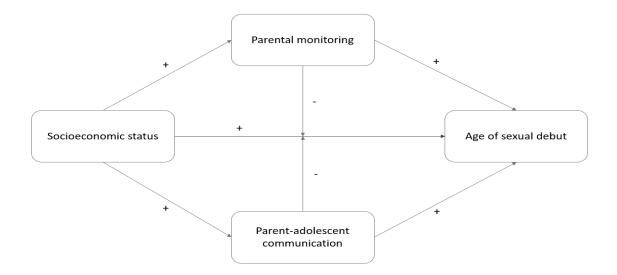These five hypotheses are illustrated in the model shown in Figure 1.

Figure 1: Model of the association between socioeconomic status and the age of sexual debut, including the mediation and moderation effects of parental monitoring and parent-adolescent communication.

In the present study, potential confounding variables are taken into account by controlling for them. There will be controlled for gender, as research has shown a difference in both parenting styles and the age of sexual debut between boys and girls (Cavazos-Rehg et al., 2009; Borawski et al., 2003). There will also be controlled for ethnicity, as ethnicity has shown to be associated with parenting and SES (Hill, 2006), as well as with the age of sexual debut (Cavazos-Rehg et al., 2009). Lastly, there will be controlled for family structure, as differences have been found in adolescents' age of sexual debut and parenting between single parent families and families with both parents living together (Lammers et al., 2000).

Methods

Procedure and research design

For the present study data were derived from the Dutch Health Behaviour in School-aged Children (HBSC) study in 2013. The HBSC study is a cross-national study on health, health-related behaviors, and social context of young people's health. From October to November 2013, data from Dutch students in the first through fourth year of secondary education were collected through self-report questionnaires administered in classrooms at

secondary schools. Participation was anonymous and only the students whose parents gave passive consent, and who participated voluntarily, were included in the study.

Schools were selected at random from a governmental list of all secondary schools in the Netherlands after stratification based on urbanicity. In total, 67 schools participated in the study. At each school, three to five classes were randomly selected from a list of all classes in the first through fourth year to participate in the study. Within classes the response rate was 94%. The main reason for nonparticipation was illness of the students (de Looze et al., 2014).

Study sample

In total, 5718 students from 257 classes completed the questionnaire. After the removal of empty and unreliably filled in questionnaires, the sample consisted of 5682 students. For the present study, only the students who had had sexual intercourse and who had indicated the age of their first sexual intercourse were taken into account. This led to a subsample of 532 students. Gender was almost equally divided (49.1% boys) and the age ranged from 12 to 18 years (M=15.17, SD=1.10).

Measures

Age of sexual debut. The age of sexual debut was the dependent variable in this study. Adolescents were asked to indicate the age at which they first had sexual intercourse. Response options were 11 years or younger, 12, 13, 14, 15, 16 and 17 years or older. For the present study, a scale was constructed ranging from 11 to 17. Only 4.9% of the respondents indicated that they were either 11 years or younger or 17 years or older.

Socioeconomic status. Socioeconomic status (SES) was the independent variable in this study. School level was used as proxy measure for SES, since this is a common way to estimate SES for adolescents in the Netherlands. Students were asked to indicate their school level and four categories were created: VMBO-basic/VMBO-theoretical, VMBO-theoretical/HAVO, HAVO/VWO, and VWO. For the present study, a student in a

combination class (e.g. VMBO-basic/VMBO-theoretical) was classified as having the lowest school level (VMBO-basic). Subsequently, 3 levels of SES were created: low (VMBO-basic), middle (VMBO-theoretical), and high (HAVO and VWO) (low = 1, middle = 2, high = 3).

Parent-adolescent communication. Parent-adolescent communication was determined by the following items: "How easy is it for you to talk to (1) your father and (2) your mother about things that really bother you?" The response options were 1 (really easy), 2 (easy), 3 (difficult) and 4 (really difficult). For the present study, the responses were reverse scored to ease the interpretation of the results (1= really difficult, 2= difficult, 3 = easy, 4 = really easy). Subsequently, the answers for the father and the mother were combined into one measure. A scale was constructed based on the mean of the responses to the two items (Cronbach's alpha = .63). A higher score on this scale indicates a better parent-adolescent communication. A fifth answer category included the response "I don't have a father/mother or I do not see him/her". If an adolescent only has or sees one parent, the variable parent-adolescent communication was based on their answer to the question on that parent. If an adolescent did not have or see both parents, they received a missing value on this variable.

Parental monitoring. Parental monitoring was determined by three items: (1) "Before you leave the house, do your parents want to know with whom or where you are going?", (2) "Do you need your parents' permission to go out at night?", and (3) "If you go out at night, do your parents want to know afterwards with whom or where you were?" The response options were 1 (never), 2 (once in a while), 3 (sometimes), 4 (often), 5 (always). A scale was constructed based on the mean of the responses to the three items (Cronbach's alpha = .79). A higher score on this scale indicated higher levels of parental monitoring.

Control variables

Gender. Adolescents were asked to indicate if they were a girl or a boy (boy = 1, girl =2).

Ethnicity. Ethnicity of the adolescents was based on the country of birth of the adolescents and their parents. The methodology of Statistics Netherlands was followed: an adolescent was identified as having a non-Dutch ethnic background if at least one of his/her parents was born outside the Netherlands. Because in the present study the majority of the respondents had a native Dutch background, a dichotomous variable was created (native Dutch background =1, ethnic minority background =2).

Family structure. Adolescents' family structure was determined by a question about the people who lived with them in their (primary) home (e.g. mother, father, step-parents, siblings, grandparents). For the present study, following de Looze (2013), a dichotomous variable was created (living with both biological parents =1, other =2).

Data analysis

All analyses were performed using SPSS 23.0 and statistical significance was set at $p<.05$. Scales were constructed and reliability analyses were performed. To show the characteristics of the study sample, descriptive analyses were performed. Relations between all variables were investigated using Spearman and Pearson correlations. The control variables were included in all analyses and prior to conducting the regression analyses the assumptions of linear regression were checked.

To study the association between SES and the age of sexual debut, a multiple linear regression analysis was conducted with age of sexual debut as the dependent variable and SES as the independent variable. For SES, two dummy variables were created with low SES as the reference category.

To test for possible moderation effects of parental monitoring and parent-adolescent communication, two multiple linear regression analyses were conducted. The independent variables of the regression analyses were the independent variable (SES; 2 dummy variables), the moderator (parental monitoring or parent-adolescent communication), and the interaction

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between the independent variable and moderator. The interaction term was computed by

separately multiplying the dummy variables of SES with the moderator after the moderator

was mean-centered. The dependent variable was age of sexual debut in both analyses.

To test for possible mediation effects of parent-adolescent communication and

parental monitoring, the Baron and Kenny method for mediation testing was used (Baron &

Kenny, 1986). This method uses multiple regression analyses and consists of three steps in

which the different pathways of the mediation model were tested (Figure 2). In step 1 it is

tested whether SES predicts the age of sexual debut (path c). In step 2 it is tested whether SES

predicts parental monitoring/parent-adolescent communication (path a). In step 3 it is tested

whether parental monitoring/parent-adolescent communication predicts the age of sexual

debut (path b) and what the effect size is of the association between SES and the age of sexual

debut when controlled for parental monitoring/parent-adolescent communication (path c'). For

mediation to occur, path a, b and c must show significant effects. Partial mediation holds

when the effect size of path c' is smaller than the effect size of path c and perfect mediation

holds when the effect size of path c' is zero. When partial mediation is found, the Sobel test is

used to test whether the mediation-effect is significant (Sobel, 1982).
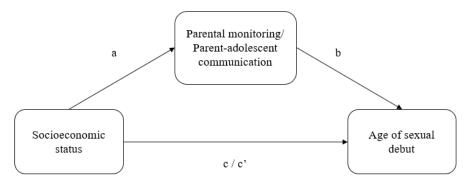

Figure 2. Model of the mediation of the association between SES and the age of sexual debut by parental monitoring and parent-adolescent communication.

Results

Descriptive statistics and correlations

Descriptive statistics of the study sample are presented in Table 1. The overall mean

age of sexual debut was 14.19 (SD = 1.26). The overall mean of parental monitoring was 3.68

(SD = 1.03) and the overall mean of parent-adolescent communication was 2.90 (SD = .83).

Table 1

Descriptive Statistics of Age of Sexual Debut, Parental Monitoring and Parent-adolescent
Communication by SES, Gender, Family Structure and Ethnicity

		Age of sexual debut	Parental monitoring	Parent-adolescent communication
	N (%)	M (SD)	M (SD)	M (SD)
Overall	532	14.19 (1.26)	3.68 (1.03)	2.90 (.83)
SES				
Low	173 (32.5)	13.98 (1.21)	3.61 (1.07)	2.86 (.87)
Middle	232 (43.6)	14.32 (1.22)	3.70 (1.02)	2.85 (.83)
High	127 (23.9)	14.24 (1.38)	3.73 (1.00)	3.02 (.75)
Gender				
Boy	261 (49.1)	14.07 (1.39)	3.39 (1.01)	3.01 (.85)
Girl	271 (50.9)	14.31 (1.12)	3.95 (.97)	2.79 (.79)
Family structure				
Living with both parents	327 (61.5)	14.20 (1.33)	3.71 (1.00)	2.94 (.80)
Other	205 (38.5)	14.17 (1.16)	3.61 (1.07)	2.83 (.86)
Ethnicity				
Native Dutch	416 (78.2)	14.25 (1.24)	3.64 (1.03)	2.91 (.81)
Ethnic minority	116 (21.8)	13.98 (1.34)	3.82 (1.00)	2.85 (.88)

Note. N=number of respondents, M=mean, SD=standard deviation.
Values of parental monitoring were based on a N that deviated max. 1 from the total N.
Values of parent-adolescent communication were based on a N that deviated max. 6 from the total N.

Table 2 shows the Pearson and Spearman correlations coefficients between all

variables. Gender was positively correlated with parental monitoring ($r = .27$, $p < .001$) and

negatively correlated with parent-adolescent communication ($r = -.13$, $p = .002$). This

indicated that parental monitoring might be higher for girls and that parent-adolescent

communication might be better between parents and boys. Gender was also positively correlated with age of sexual debut ($r = .10$, $p = .028$), indicating that the age of sexual debut might be higher for girls. Furthermore, family structure was positively correlated with ethnicity ($r = .12$, $p = .004$), indicating that adolescents with an ethnic minority background might be less likely to live with both biological parents. Between family structure and SES a negative correlation was found ($r = -.12$, $p = .008$), indicating that adolescents who were not living with both biological parents possibly had a lower level of SES. Additionally, age of sexual debut was negatively correlated with ethnicity ($r = -.09$, $p = .044$), indicating that the age of sexual debut might be lower for adolescents with an ethnic minority background. Age of sexual debut was positively correlated with SES ($r = .10$, $p = .017$), indicating that adolescents with a higher level of SES possibly had a higher age of sexual debut. Lastly, parental monitoring was negatively correlated with parent-adolescent communication ($r = -.09$, $p = .033$). This indicated that adolescents who experienced more parental monitoring, experienced slightly worse communication with their parents. However, all correlations could be considered weak because their coefficients were lower than .30 (Field, 2009).

Table 2

Pearson and Spearman Correlations between all Variables

	1	2	3	4	5	6	7
1. Gender[a]	1.00						
2. Family structure[b]	.07	1.00					
3. Ethnicity[c]	-.03	.12**	1.00				
4. Parental monitoring	.27***	-.05	.07	1.00			
5. Parent-adolescent communication	-.13**	-.07	-.03	-.09*	1.00		
6. SES	.00	-.12**	-.05	.04	.06	1.00	
7. Age of sexual debut	.10*	-.01	-.09*	.05	-.04	.10*	1.00

Note. [a] Gender: 1 = boy, 2 = girl. [b] Family structure: 1 = living with both biological parents, 2 = other.

[c] Ethnicity: 1 = native Dutch background, 2 = ethnic minority background.

Underscored values are Pearson correlations, others are Spearman correlations.

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

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Association between SES and age of sexual debut

Table 3 (model 1) shows the results of the multiple linear regression analysis used to investigate the association between SES and the age of sexual debut. The results showed that the age of sexual debut was significantly higher for adolescents with a middle level of SES in comparison to adolescents with a low level of SES when controlled for gender, family structure and ethnicity ($b = .12$, $t(526) = -2.44$, $p = .015$).There was no significant difference in the age of sexual debut between adolescents with a high level of SES in comparison to adolescents with a low level of SES ($b = .09$, $t(526) = 1.77$, $p = .078$). The overall model fit was $R^2 = .03$, $F(5, 526) = 3.05$, $p = 0.01$.

Moderation of parental monitoring and parent-adolescent communication

To test for moderation of parental monitoring, interaction terms were computed with SES and parental monitoring and included in the regression analysis (Table 3, model 2). The interaction between SES and parental monitoring was not significant, which indicated that parental monitoring did not significantly moderate the association between SES and the age of sexual debut when controlled for gender, family structure and ethnicity (middle vs. low SES: $b = .01$, $t(522)= .21$, $p = .831$, high vs. low SES: $b = -.01$, $t(522) = -.12$, $p = .908$). The overall model fit was $R^2 = .03$, $F(8, 522) = 2.15$, $p = .03$. A similar analysis was conducted to test for moderation of parent-adolescent communication. Interaction terms were computed with SES and parent-adolescent communication and included in the regression analysis of model 1. The results are shown in Table 3 (model 3). The interaction between SES and parent-adolescent communication was not significant, which indicated that parent-adolescent communication did not significantly moderate the association between SES and the age of sexual debut when controlled for gender, family structure and ethnicity (middle vs. low SES: $b = -.10$, $t(517) = -1.51$, $p = .133$, high vs. low SES: $b = -.02$, $t(517) = -.33$, $p = .745$). The overall model fit was $R^2 = .04$, $F(8, 517) = 2.36$, $p = .017$.

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Mediation of parental monitoring and parent-adolescent communication

To test for mediation of parental monitoring and parent-adolescent communication, the steps from Baron and Kenny's mediation testing were followed (Baron & Kenny, 1986). For the first step, a regression analysis was performed as described above to investigate the association between SES and the age of sexual debut (Table 3, model 1). As there was a significant association found between SES and the age of sexual debut, the mediation analysis continued. For step 2, two regression analyses were conducted to investigate whether SES predicted parental monitoring and parent-adolescent communication when controlled for gender, family structure and ethnicity. Tables 4 and 5 show the results of these analyses. The association between SES and parental monitoring was not significant (middle vs. low SES: b =.03, $t(525)$ =.63, p = .532, high vs. low SES: b = .05, $t(525)$ = 1.03, p = .304). The association between SES and parent-adolescent communication was also not significant (middle vs. low SES: b = -.01, $t(520)$ = -.18, p = .854, high vs. low SES: b = .07, $t(520)$ = 1.40, p = .161). As step 2 showed no significant results, there is no mediating effect possible of parental monitoring and parent-adolescent communication on the association between SES and the age of sexual debut. Therefore no further analyses were conducted.

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Table 3

Results of the Regression Analyses of the Association between SES and the Age of Sexual Debut moderated by Parental Monitoring and Parent-Adolescent Communication

		B	SD	β	R^2
Model 1	Gender	.22	.11	.09*	.03
	Family structure	-.00	.11	.00	
	Ethnicity	-.23	.13	-.07	
	SES: middle[a]	.31	.13	.12*	
	SES: high[a]	.26	.15	.09	
Model 2	Gender	.20	.11	.08	.03
	Family structure	.00	.11	.00	
	Ethnicity	-.26	.13	-.08	
	Parental monitoring	.06	.09	.05	
	SES: middle[a]	.30	.13	.12*	
	SES: high[a]	.25	.15	.09	
	SES middle * parental monitoring	.03	.12	.01	
	SES high * parental monitoring	-.02	.14	-.01	
Model 3	Gender	.24	.11	.10*	.04
	Family structure	-.04	.11	-.01	
	Ethnicity	-.27	.14	-.09*	
	Parent-adolescent communication	.19	.11	.13	
	SES: middle[a]	.27	.13	.10*	
	SES: high[a]	.21	.15	.07	
	SES middle * parent-adolescent communication	-.22	.15	-.10	
	SES high * parent-adolescent communication	-.06	.19	-.02	

Note. [a]Low SES is the reference category.

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

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Table 4

Results of the Regression Analysis of the Association between SES and Parental Monitoring

	B	**SD**	**β**	**R²**
Gender	.57	.09	.28***	.09
Family structure	-.16	.09	-.08	
Ethnicity	.23	.11	.09*	
SES: middle[a]	.06	.10	.03	
SES: high[a]	.12	.12	.05	

Note. [a]Low SES is the reference category.

* *p* <.05, ** *p* <.01, *** *p* <.001.

Table 5

Results of the Regression Analysis of the Association between SES and Parent-Adolescent Communication

	B	**SD**	**β**	**R²**
Gender	-.21	.07	-.13**	.03
Family structure	-.08	.08	-.05	
Ethnicity	-.05	.09	-.03	
SES: middle[a]	-.02	.08	-.01	
SES: high[a]	.14	.10	.07	

Note. [a]Low SES is the reference category.

* *p* <.05, ** *p* <.01, *** *p* <.001.

Additional analyses

Since few significant results were found, additional analyses were conducted. First, all analyses were repeated with SES as a dichotomous variable: low SES (VMBO-basic) and high SES (VMBO-theoretical, HAVO and VWO). The results of these analyses were comparable to the results found when SES was used as a categorical variable.

Since gender was a significant predictor, all analyses were stratified for gender to see whether results differed between boys and girls. Results of the multiple linear regression analysis (Table 6) showed that the age of sexual debut was significantly higher for boys with a middle level of SES in comparison to boys with a low level of SES when controlled for family structure and ethnicity (b = .16, t(256) = 2.30, p = .022). No significant results were

found for girls. When testing for mediation of parental monitoring and parent-adolescent communication, no significant results were found. Also, no significant results were found when testing for moderation of parental monitoring. However, as can be seen in Table 7, it was found that for boys the association between SES and the age of sexual debut was moderated by parent-adolescent communication (middle vs. low SES: $b = -.20$, $t(247) = 2.09$, $p = .038$). No moderation effect of parent-adolescent communication was found for girls.

Table 6

Results of the Regression Analysis of the Association between SES and the Age of Sexual Debut for Boys

	B	**SD**	**β**	**R²**
Family structure	.17	.18	.06	.03
Ethnicity	-.29	.21	-.09	
SES: middle[a]	.46	.20	.16*	
SES: high[a]	.25	.23	.08	

Note. [a]Low SES is the reference category.

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

Table 7

Results of the Regression Analysis of the Association between SES and the Age of Sexual Debut for Boys Moderated by Parent-Adolescent Communication

	B	**SD**	**β**	**R²**
Family structure	.08	.18	.03	.05
Ethnicity	-.37	.21	-.11	
Parent-adolescent communication	.26	.18	.16	
SES: middle[a]	.43	.20	.15*	
SES: high[a]	.18	.23	.06	
SES middle * parent-adolescent communication	-.49	.24	-.20*	
SES high * parent-adolescent communication	-.09	.27	-.03	

Note. [a]Low SES is the reference category.

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

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Discussion

The aim of the present study is to examine the association between an adolescent's SES and the age of sexual debut, and to find out what the roles of parental monitoring and parent-adolescent communication are in this association. Findings indicate a lower age of sexual debut for low level SES adolescents compared to adolescents from a middle level of SES. There however seems to be no difference in the age of sexual debut between low and high level SES adolescents, indicating that the relationship might be more complex than hypothesized. In general, parental monitoring and parent-adolescent communication do not affect the association between SES and the age of sexual debut. However, when only boys are examined the effects of SES on the age of sexual debut are buffered by parent-adolescent communication.

A difference in age of sexual debut is found between adolescents from low and middle levels of SES. This is in line with the hypothesized positive association between SES and the age of sexual debut. It is however notable that the positive association does not continue up to the high level of SES; it even seems that high level adolescents have a lower age of sexual debut in comparison to middle level SES adolescents.

This divergence from the hypothesized association may be caused by the characteristics of the high level SES group in the present study. The group size is the smallest of the three SES groups and it has the highest standard deviation in the age of sexual debut. The group also contains a relatively high amount of boys, who generally have a lower mean age of sexual debut compared to girls, which in combination with the small group size could have a relatively large downwards effect on the mean age of sexual debut in the high level SES group.

Another possible explanation could be that the absolute differences between adolescents from middle level SES and high level SES are rather small. In The Netherlands

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almost every adolescent is able to attend secondary school at the educational level that best suits his or her capabilities. The effects of school level are then relatively limited and foremost based on inherited traits of intelligence and stimulation by parents (Strenze, 2007).

Parent-adolescent communication did not seem to influence the association between SES and the age of sexual debut for adolescents in general. This is in line with the inconsistent effects of parent-adolescent communication found by some studies (de Looze et al., 2015; Deptula et al., 2010), although being contradictory to what was hypothesized.

One of the possible explanations for the results is the relatively confined way parent-adolescent communication is measured in the present study. It is only asked whether the adolescents feel they can discuss sensitive matters with their parents, but no questions are asked concerning the amount or content of the communication. Many studies that find effects of parent-adolescent communication on the age of sexual debut focus specifically on communication about topics surrounding sex (Romer et al., 1999; Jerman & Constantine, 2010).

In additional analysis, however, a buffering effect of parent-adolescent communication is found when only boys are examined. It could therefore be that for boys the communication with their parents is a protective factor in the association between a low level of SES and the age of sexual debut. This might be explained by a more healthy sexual development triggered by parent-adolescent communication, increasing awareness and self-confidence in adolescents on topics surrounding sex (Conger & Donnellan, 2007). As for the apparent difference between adolescent boys and girls in the effects of parent-adolescent communication, girls generally tend to communicate more with their parents than boys do (DiIorio, Pluhar, & Belcher, 2003), which holds for different levels of SES. This gap between boys and girls in communication becomes smaller at higher levels of SES (Park, 2008), which may indicate a ceiling effect in communication for girls. The effect may then be that, compared to girls, low

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level SES boys will benefit relatively more from good communication than high level SES

boys. Also, adolescent boys, especially from a low SES level , are generally more influenced

by peers and media than girls, while media and peers are generally more positive towards sex

(Epstein & Ward, 2008). It might be possible that better communication between adolescent

boys and their parents weakens the peer and media influence and buffers the association

between SES and the age of sexual debut in this way.

Contrary to what was hypothesized, no mediation and moderation effects of parental

monitoring on the association between SES and the age of sexual debut are found. Although

effects of parental monitoring on the age of sexual debut have been observed by many studies

(e.g. Borawski et al., 2003), the findings from the present study are consistent with some

others (e.g. Sieverding et al., 2005).

One explanation for the observed ineffectiveness of parental monitoring may be the

way parental monitoring is measured in the present study. Parental monitoring is measured by

asking the adolescents whether their parents ask about their activities (e.g. where and with

whom they spend their time). However, research has shown that more effect on behavior is

observed when adolescents tell their parents about their activities themselves (Kerr, Stattin, &

Burk, 2010). This implies that for parental monitoring to be successful, a strong parent-

adolescent relationship and good communication between parents and adolescents may be just

as important. In many studies that do find significant effects of parental monitoring, the

variable indeed not only reflects the soliciting of the parents about an adolescent's

whereabouts, but also the quality of the parent-adolescent relationship and communication

(e.g. Rosenthal et al., 2008).

Another explanation may be the fact that older adolescents are less likely to be

monitored (Longmore et al., 2009). This over time decrease of parental monitoring may affect

the reliability of the cross-sectional data used, since at the moment of their sexual debut

adolescents may have had a different level of monitoring compared to the moment of completing the questionnaire. Controlling for age is, however, not a valid option in this study, since the survey was taken during the period that the sexual debut took place and only the adolescents who had had their sexual debut were included. For example, a 14-year-old adolescent is only able to have had a sexual debut at or before the age of 14, but not later than that. Controlling for age would therefore negatively affect the results of the associations.

Finally, parental monitoring might have a stronger effect on the age of sexual debut when parents are more strict and non-permissive of sexual behavior. In the Netherlands parents tend to normalize (adolescent) sexual behavior more often compared to for example the United States, where much literature on the subject is from. Therefore the effects of parental monitoring may be smaller in a Dutch population then would be expected from literature (Schalet, 2010).

Strengths and limitations

The present study has several strengths. First of all, this study is, to my knowledge, the first to specifically investigate the influence of parental monitoring and parent-adolescent communication on the association between an adolescent's SES and the age of sexual debut. Secondly, data from the HBSC study are used, which uses reliable and validated instruments and variables. The use of HBSC data also provides the present study with a nationally representative sample of adolescents; conclusions could therefore be generalized to the entire Dutch youth population.

There are, however, also some limitations that must be taken into consideration while interpreting the results. To start with, this study is based on cross-sectional data, which means that no causal inferences can be made. The demonstrated association between SES and the age of sexual debut can therefore not be interpreted as a causal association. However, as earlier longitudinal research already showed that an adolescent's SES affected the age of

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sexual debut (Cubbin et al., 2005; Garrison & Rodgers, 2016) and SES measured as school

level is relatively stable over time, it is likely that SES predicts the age of sexual debut and

not vice versa.

Secondly, the used data are based on self-report of the adolescents. This way of data

collection increases the risk of adolescents giving socially desirable answers. Especially

concerning personal topics such as sex this could pose a risk to the reliability of the data

(DiFranceisco, McAuliffe, & Sikkema, 1998). However, by emphasizing in advance that

participation in the study is anonymous, the risk of bias caused by self-reporting was limited.

Finally, as mentioned above, the parenting variables are perhaps more complex and

interconnected than is accounted for in the present study. The variable parent-adolescent

communication is measured only in a single way, where it could be measured in many

different ways, all possibly providing different results. The same goes for parental monitoring.

It is therefore hard to draw conclusions for parent-adolescent communication and parental

monitoring in general.

Future research and implications

Further research into the interplay between an adolescent's SES, the age of sexual

debut and parenting practices is necessary. As mentioned, parental monitoring and parent-

adolescent communication could be measured in different ways, for example by including the

contents, quantity and quality of the parenting practices. This may provide deeper

understanding of the mechanisms behind the effects of parenting. It is also necessary to

investigate the interdependence between parental monitoring and parent-adolescent

communication, as good communication might be important for successful monitoring.

Including the point of view of the parents on the parenting variables into the research may

also provide new insights, as the interpretation of the parents may show different results than

the interpretation of the adolescents. Lastly, more longitudinal research into the variables used

in the present study could provide over time information and causational context on the measured relationships.

Also some practical implications can be derived from the present study. As expected, low level SES adolescents proved to be the group that is most prone to risk behavior, in this case having an early sexual debut. Prevention efforts could therefore best be directed at adolescents and parents at the lowest SES levels.

The found distinction between boys and girls in the effect of parent-adolescent communication could also be important for practical implications. Good communication between parents and adolescents in less affluent families could be especially beneficial for boys in reducing the age of sexual debut and perhaps also in reducing other sexual risk behaviors. This makes low level SES boys an important target group for intervention- and prevention efforts against sexual risk behaviors through improving communication.

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