Sexual experience and self-reported depression across the adolescent years

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Purpose: Adolescents engaging in early sexual intercourse are at elevated risk for depression, but it is not clear at what point of adolescent development this connection ceases to be significant. Depression is a highly prevalent mental health problem in adolescence compared to childhood, especially among girls. This study examines the association between self-reported depression and sexual intercourse across age cohorts throughout adolescence and separately in boys and girls. Methods: An analysis was conducted on the Finnish School Health Promotion Study data from the years 2010 and 2011 with 186,632 adolescents. Main outcomes were analyzed by χ² test and logistic regression. Results: In the whole sample, 44.5% of depressed adolescents had engaged in sexual intercourse, but only 34.6% of non-depressed adolescents (p ≤ 0.001). Self-reported depression in adolescents aged 14–16 was associated with having experienced intercourse. The association between self-reported depression and sexual experience was strongest in younger adolescents and diminished gradually toward late adolescence. In boys aged 19, self-reported depression was associated with not having experienced intercourse. Conclusions: Among early and middle adolescents, there is a significant connection between self-reported depression and experience of sexual intercourse. Such connection is not seen, or even the opposite is observed, among late adolescents.

Keywords: adolescence; depression; sexual intercourse; self-reported measures

Introduction

Adolescence is a meaningful time in terms of reaching sexual and mental maturity. The line between normative and risk-taking sexual behavior is blurred in adolescence. In Western countries up to one third of adolescents have had their first sexual intercourse by the age of 15
and the majority of young adults report having experienced sexual intercourse at some point during adolescence (Madkour, Farhat, Halpern, Godeau, & Gabhainn, 2010). Early sexual activity has, on the one hand, been seen as problem behavior, because those adolescents often face challenges in other areas (Madkour et al., 2010). Problems arise when adolescents engage in sexual behaviors prematurely in relation to their psychological maturity. Early sexual debut is connected to multiple sexual risk behaviors such as inconsistent use of condoms and greater number of sexual partners. This places early initiators at higher risk for sexually transmitted diseases and pregnancy (Edgardh, 2000, 2002; Kotchick, Shaffer, Forehand, & Miller, 2001; O’Donnell, O’Donnell, & Stueve, 2001). Having first intercourse before age 15 is connected, for example, with suicidal ideation (Heidmets et al., 2010), substance use (Madkour et al., 2010; Schofield, Bierman, Heinrichs, & Nix, 2008), and antisocial behavior (Boislard & Poulin, 2011; Schofield et al., 2008). On the other hand, in the late stages of adolescent development, it is deemed normative to have intimate sexual relationships (Cromer, 2011).

Rates of youthful depressive disorders are high worldwide (Costello, Erkanli, & Angold, 2006). Adolescent depression is a global health concern. Its prevalence is less than 3% among children (<13 years) (Costello et al., 2006; Egger & Angold, 2006; Wichstrom et al., 2012) but up to 12% in adolescents (13–18 years) (Costello et al., 2006; Sabaté, Cesar, & Chavoushi, 2013). What is more, depression is almost twice more likely among adolescent girls than boys. Females have also a greater risk for recurrent depressive episodes in young adulthood (Patton et al., 2014).

Sexuality is a wide concept including physical and emotional aspects such as sexual activity, capacity for sexual feelings, and sexual orientation. Nonetheless, sexual activity during adolescence, which is the aspect we focus on in this paper, is often plainly defined by whether an adolescent has experienced his or her first intercourse. Intercourse is clinically significant because it exposes one to pregnancies and sexually transmitted infections. Research has linked sexual debut (intercourse) in early adolescence to depression (Hallfors et al., 2004; Jamieson & Wade, 2011; Kaltiala-Heino, Kosunen, & Rimpelä, 2003; Oshri, Tubman, & Jaccard, 2011; Valle, Roysamb, Sundby, & Klepp, 2009) and there is also evidence that the association persists until middle adolescence (Hallfors, Waller, Bauer, Ford, & Halpern, 2005). There is currently no consensus as to whether depression predicts early sexual activity or is a consequence of it (Davila et al., 2009; Hallfors et al., 2005; Jamieson & Wade, 2011; Lehrer, Shrier, Gortmaker, & Buka, 2006).

Adolescents with depression may engage in intimate sexual relationships before actually being emotionally ready for it in an attempt to seek closeness and support. On the other hand, sexual activity before the young adolescent has developed the capacity to deal with the emotions related to the experience may expose her/him to depression, particularly if the young person has engaged in sexual activity due to external pressures (Kaltiala-Heino et al., 2003; Kosunen, Kaltiala-Heino, Rimpelä, & Laippala, 2003). However, as adolescence is a period of rapid physical, cognitive, emotional, and social development (Moshman, 2011; Steinberg, 2005), being sexually active in the later stages of adolescence could actually be a sign of successful adolescent passage, and lack of intimate experience when one is physically and mentally ready may even be problematic in terms of mental health. However, comparing between findings presented in the literature is difficult, because studies have usually focused on either early, middle, or late adolescents only, and not explored the associations between sexual activity and depression with similar methods among different age cohorts. To the best of our knowledge, no studies have been presented exploring the relationship between sexual activity and depression in samples comprising subjects from the early to the late phase of adolescent development, exploring whether the associations
between depression and sexual activity differ between younger and older adolescents, and what age might be the turning point before which depression and sexual activity are associated and after which they are not.

Pubertal timing is gradually lowering in the Western world (Sørensen et al., 2012). As puberty is essentially about developing sexual maturity, it could be expected that adolescents nowadays both start coital activity all the earlier, and also are ready for it emotionally. If this was the case, there would not necessarily be an association between sexual activity and depression in adolescence, if not among those youngest, those in early adolescence. On the other hand, early puberty increases the risk of emotional disorders (Kaltiala-Heino, Koivisto, Marttunen, & Fröjd, 2011), and this has been explained by adolescents reaching physical maturity before they are cognitively and emotionally ready for it (Ge et al., 2003). If this was the case, a positive association between sexual activity and depression could be expected not only among early but also among middle adolescents, may be even among those reaching late adolescence.

Traditionally Western cultures have been more rigorous in demanding chastity from females than males. Despite sexual liberation, a double standard attaching a different value to sexual activity in males and females may still prevail (Bordini & Sperb, 2013; Crawford & Popp, 2003), allowing boys social gains by being sexually experienced, while among girls being sexually active may meet with disapproval. Greater number of sexual partners is connected to boys’ acceptance among peers but the association is the reverse for girls (Kreager & Staff, 2009). Taking into account the possible sex differences in expectations regarding sexual morality and tendencies to depression, different associations among boys and girls between depression and sexual behavior in adolescence may be expected.

The data of the School Health Promotion Study, a classroom survey reaching almost 200,000 adolescents (aged 14–20) carried out in Finland in 2010–2011, is used in this paper. Covering almost entire age groups of 14–17-year-olds and large samples of 18–20-year-olds, the data offer a unique opportunity to examine the association between depression and sexual health in different age cohorts throughout adolescence.

The objective of this study is to elucidate the relation between sexual activity and self-reported depression throughout adolescence. This study addresses the following questions:

1. Is depression associated with experience of sexual intercourse among adolescents of different ages?
2. If there is an association between depression and having experienced intercourse, is it similar or different among early, middle, and late adolescents?
3. Are the possible associations in (1) and (2) similar among boys and girls?

In light of the research presented above, we expected that self-reported depression would be associated with having experienced sexual intercourse among early adolescents and probably also among middle adolescents. We expected that among late adolescents there would be no such relation between an experience of sexual intercourse and self-reported depression, or that there would even be an opposite finding indicating that self-reported depression is connected to not having experienced sexual intercourse. Because girls mature earlier than boys, the connection between self-reported depression and experiencing sexual intercourse may cease to be significant among girls at a younger age than among boys. On the other hand, because sexual activity is differently valued for girls and boys, seen as favorable more likely among boys, the association between depression and sexual activity may persist among older age cohorts among girls. Literature does not clearly allow a hypothesis on gender difference, and we leave this open for exploration.
Methods

Participants

The School Health Promotion Study is an anonymous classroom survey on adolescents’ health and health behaviors. The survey has been carried out annually since 1995, from 2008 among both secondary school students (aged 14–16) and upper secondary and vocational school students (16–20 years old). Until 2011 the study was carried out in alternate years in certain parts of Finland. Then the results of two consecutive years were combined to represent the whole country. In this paper, we use the School Health Promotion Study from 2010 and 2011 concerning young people aged 14 to 20. The School Health Promotion Study was granted approval by the ethics committee of the National Institute for Health and Welfare in Finland.

Secondary schools are attended by almost 99% of Finnish adolescents aged 14–16. Thereafter, the vast majority continues to either upper secondary or vocational school. However, compulsory education in Finland ends after secondary school. Thus, the upper secondary and vocational schools only include some 93% of the age cohort. In general, adolescents attending these schools are 16–18 years old. Hence, compared to other age groups, there are fewer pupils aged 19 and 20 in our data because the majority of adolescents have already left the schools at which the School Health Promotion Study is conducted. Pupils attending school on the study day complete the questionnaire. Those who are absent are not contacted. In addition, not all schools participated in the study. The final coverage was 80% for 14–16-year-old secondary school students, 73% for 16–18-year-old upper secondary school students, and 43% for vocational school students of the same age in this study. The total number of respondents was 186,632, of whom 92,478 (49.6%) were boys and 94,154 (50.4%) were girls. Adolescents were classified into seven age categories (14–20) according to their age calculated from the dates of birth supplied. For example, 14.00–14.99-year-old adolescents were in age group 14.

Measures

Sexual intercourse

Sexual activity was elicited by asking “Have you had sexual intercourse?” This was a dichotomized variable: response alternatives were “yes” and “no”.

Self-reported depression

The Finnish version of the 13-item Beck Depression Inventory (R-BDI) was used to measure self-reported depression (Kaltiala-Heino, Rimpela, Rantanen, & Laippala, 1999). The 13-item BDI has been shown to be valid in detecting depression (Beck, Rial, & Rickels, 1974; Bennett et al., 1997). The psychometric properties of the R-BDI have been shown to be good in the School Health Promotion Study. The Finnish modification corresponds to the original 13-item version, but an introductory question and one positive response option have been added to each item. The scoring is the same as in the original 13-item inventory (Kaltiala-Heino et al., 1999). Each item is scored 0–3 and the maximum score is 39. Adolescents scoring 0–4 were categorized as non-depressed, 5–7 as mildly depressed, 8–15 as moderately depressed, and 16+ as severely depressed. Scores indicating moderate or severe depression are referred to as self-reported depression and adolescents scoring 8 or more are classified in this study as depressed.

Covariates

Sociodemographic variables were controlled family structure (living with mother and father vs. in any other family constellation) and mother’s and father’s highest education (comprehensive
school only/upper secondary school or vocational school/upper secondary school or vocational school and further vocational studies/university or university of applied sciences).

**Data analysis**

Prevalences of self-reported depression and experience of sexual intercourse were calculated for both boys and girls. Bivariate associations between having experienced sexual intercourse and self-reported depression were examined by cross-tabulations and significance was tested by Fisher’s exact test. Odds ratios for having experienced sexual intercourse according to self-reported depression with exact age as continuous variable were calculated with logistic regression separately for both boys and girls. An additional model with gender and its interaction with self-reported depression was developed to measure the differences between boys and girls. All the analyses were stratified by age group (age in years: 14/15/16 …). Finally, sociodemographic variables were controlled for.

**Results**

In the whole sample, 36.9% of the girls and 32.7% of the boys had experienced sexual intercourse. Moderate or severe self-reported depression was found in 16.9% of the girls and 7.7% of the boys. In the whole sample, 44.5% of depressed adolescents had had sexual intercourse, while among non-depressed respondents the figure was only 34.6% ($p \leq 0.001$). The proportion of those who had experienced intercourse increased linearly from 14- to 20-year-olds both among girls and boys (Table 1).

The association between experience of sexual intercourse and self-reported depression can be seen in Table 2. Among both boys and girls, in the youngest age groups depressed adolescents were more likely than their peers to have experienced sexual intercourse. The association was highly significant in the age groups 14 to 16, although it remained significant ($p \leq 0.05$) among 17-year-old girls.

The relation between self-reported depression and experience of sexual intercourse ceased to be significant among girls 18 and over. Among 17-year-old boys, the association did not remain significant, but regained its significance among 19-year-old boys. However, this time the connection was reversed, suggesting that among 19-year-olds, depressed boys were less likely than their non-depressed peers to have experienced sexual intercourse. In the last group, boys aged 20, there was again no significant connection.

Odds ratios of having experienced intercourse according to self-reported depression and controlled for exact age are shown in Table 3. The strongest relation was found among the youngest boys among whom those who were depressed were almost five times more likely to have

| Age (years) | Girls     | Boys     |
|------------|-----------|----------|
| 14         | 12.9 (1965/15,178) | 13.3 (1902/14,262) |
| 15         | 23.8 (5714/24,034)  | 21.8 (5105/23,436)  |
| 16         | 39.9 (8956/22,429)  | 35.3 (7734/21,895)  |
| 17         | 54.9 (11,017/20,058) | 47.7 (9575/20,058)  |
| 18         | 64.9 (5228/8051)    | 58.0 (4894/8432)    |
| 19         | 79.7 (1333/1672)    | 71.2 (819/1151)     |
| 20         | 80.6 (572/710)      | 73.9 (249/337)      |
experienced intercourse than those who were not depressed (Table 3). Among the boys in the 19-year-old group, those who were depressed were less likely to have experienced intercourse than those who were not depressed, but the association was not seen among the 20-year-olds.

As seen in Table 3, the odds ratios by depression for having experienced sexual intercourse were greater among boys than among girls in the age groups 14 and 15. Interaction analyses were carried out to explore whether there were true differences in the strength of the association

Table 2. Proportions (% (n/N)) of those having experienced sexual intercourse among depressed and non-depressed adolescents by age.

| Age (years) | Girls | Boys | P-value | Girls | Boys | P-value |
|-------------|-------|------|---------|-------|------|---------|
| 14          | 23.8 (682/2864) | 10.4 (1283/12,311) | ≤0.001 | 37.8 (384/1017) | 11.4 (1515/13,241) | ≤0.001 |
| 15          | 35.2 (1565/4446) | 21.2 (4149/19,588) | ≤0.001 | 39.5 (749/1895) | 20.2 (4355/21,540) | ≤0.001 |
| 16          | 47.5 (1727/3633) | 38.5 (7228/18,795) | ≤0.001 | 45.6 (748/1895) | 34.5 (6985/20,255) | ≤0.001 |
| 17          | 57.7 (1707/2958) | 54.4 (9308/17,097) | 0.001  | 49.9 (719/1441) | 47.6 (8855/18,615) | 0.090  |
| 18          | 64.9 (800/1232)  | 64.9 (4428/6819)   | 1.000  | 60.2 (435/722)  | 72.4 (715/987)     | 0.020  |
| 19          | 77.0 (241/313)   | 80.4 (1092/1359)   | 0.186  | 63.4 (104/164)  | 72.4 (715/987)     | 0.020  |
| 20          | 81.1 (103/127)   | 80.4 (469/583)     | 1.000  | 79.0 (49/62)    | 72.7 (200/275)     | 0.341  |

Note: Fisher exact test was used, statistically significant differences are shown in bold.

Table 3. Odds ratios (OR, 95% CI) for having experienced sexual intercourse according to depression and exact age (continuous), stratified for age groups (Model 1).

|          | Model 1. Depression and age | Model 2. Depression and age, controlled for sociodemographic variables |
|----------|-----------------------------|-----------------------------------------------------------------------|
|          | Girls                       | Boys                                                                  | Girls                       | Boys                                                                  |
| 14       | Depression                  | 2.7 (2.4–3.0)             | 4.7 (4.1–5.4)              | 2.5 (2.2–2.8)             | 4.4 (3.8–5.1)             |
|          | Age (continuous)            | 2.1 (1.6–2.7)             | 1.8 (1.4–2.3)              | 2.0 (1.5–2.6)             | 1.8 (1.3–2.3)             |
| 15       | Depression                  | 2.0 (1.9–2.2)             | 2.6 (2.3–2.8)              | 1.8 (1.7–2.0)             | 2.3 (2.1–2.6)             |
|          | Age (continuous)            | 2.6 (2.4–2.9)             | 2.4 (2.1–2.6)              | 2.7 (2.4–3.0)             | 2.4 (2.1–2.6)             |
| 16       | Depression                  | 1.5 (1.4–1.6)             | 1.6 (1.5–1.8)              | 1.4 (1.3–1.5)             | 1.5 (1.4–1.7)             |
|          | Age (continuous)            | 2.3 (2.1–2.5)             | 1.9 (1.8–2.1)              | 2.3 (2.1–2.6)             | 2.0 (1.8–2.2)             |
| 17       | Depression                  | 1.1 (1.1–1.2)             | 1.1 (1.0–1.2)              | 1.1 (1.0–1.2)             | 1.0 (0.9–1.1)             |
|          | Age (continuous)            | 1.9 (1.7–2.1)             | 1.7 (1.6–1.9)              | 1.9 (1.7–2.1)             | 1.7 (1.6–1.9)             |
| 18       | Depression                  | 1.0 (0.9–1.1)             | 1.1 (0.9–1.3)              | 0.9 (0.8–1.1)             | 1.0 (0.9–1.2)             |
|          | Age (continuous)            | 1.9 (1.6–2.4)             | 2.0 (1.6–2.4)              | 1.6 (1.3–2.0)             | 1.9 (1.5–2.3)             |
| 19       | Depression                  | 0.8 (0.6–1.1)             | 0.7 (0.5–0.9)              | 0.7 (0.5–1.0)             | 0.7 (0.4–1.0)             |
|          | Age (continuous)            | 1.4 (0.9–2.1)             | 0.8 (0.5–1.3)              | 1.6 (1.0–2.6)             | 0.8 (0.5–1.3)             |
| 20       | Depression                  | 1.1 (0.6–1.7)             | 1.4 (0.7–2.7)              | 1.0 (0.6–1.7)             | 1.3 (0.6–2.7)             |
|          | Age (continuous)            | 1.9 (0.5–7.3)             | 0.5 (0.1–2.8)              | 1.7 (0.4–7.3)             | 0.6 (0.1–4.7)             |

Note: In Model 2, sociodemographic variables are controlled for. Significant values are shown in bold.
between depression and being sexually experienced by gender. Interaction term gender*depression was statistically significant in the age groups 14 and 15 (among 14-year-olds OR = 1.8, 95% CI 1.5–2.1, \( p < 0.001 \), and among 15-year-olds OR = 1.3, 95% CI 1.1–1.4, \( p < 0.001 \)), confirming the gender difference in these age groups. In age groups 16–20, there were no significant interactions. In each age group, experience of intercourse was, predictably, more likely as age increased.

Adding to the models family structure, mother’s education and father’s education did not change the associations detected between depression and having experienced sexual intercourse otherwise, but the association did not remain statistically significant among 17-year-old girls anymore. The odds ratios for having experienced intercourse by depression were slightly modified, but all the other reported statistically significant associations persisted as significant when sociodemographic variables were controlled for. These odds ratios are shown in the Model 2 of Table 3.

**Discussion**

Our main, novel finding was that sexual activity is associated with self-reported depression in early and middle adolescents, but this association gradually disappears, and is actually reversed in late adolescence. Even if young adolescents are physically developed enough to engage safely in sexual activity, and from middle adolescence even in reproduction, their cognitive, not to mention emotional, maturity develops more slowly than their physical maturity (Moshman, 2011; Steinberg, 2005). Our findings concur with these developmental theories. The ability to engage positively in intimate sexual contact likely requires a certain emotional maturity that is not yet developed in the majority of early and middle adolescents, thus sexual activity across the early and middle adolescent years is associated with self-reported depression and more likely indicates developmental difficulties than rapid and successful adolescent passage. In late adolescence, emotional maturity has most often been reached, and being sexually active is no longer associated with self-reported depression; on the contrary, it was found that in 19-year-old boys it was not being sexually active that was associated with self-reported depression. To the best of our knowledge, there are no previous studies analyzing the association between depression and sexual activity year by year across adolescence, exploring how the associations change as adolescent development progresses.

Our findings corroborate those of existing research establishing a link between early sexual activity and depression (Hallfors et al., 2004; Jamieson & Wade, 2011; Kaltiala-Heino et al., 2003; Oshri et al., 2011; Valle et al., 2009). Our data further demonstrated, along with the developmental theories described above, that the relation between having experienced sexual intercourse and self-reported depression is the stronger the younger the adolescent is. The association between self-reported depression and having experienced sexual intercourse diminished until, among adolescents aged 17, the association ceased to be significant. Among 19-year-old boys, the association became significant again, but in the opposite direction: depressed boys were less likely than their non-depressed peers to have experienced sexual intercourse. Being sexually inexperienced in an age when the vast majority has already engaged in intimate sexual relationships may trigger feelings of loneliness, social isolation, or sadness that may predispose to depression; but it is also possible that being depressed results in such difficulties in social relationships that sexual development is delayed. Among girls, the same observation was not statistically significant, even if the share of those who had experienced intercourse according to self-reported depression turned to the opposite from what was seen in early to middle adolescence. These findings support the theory of adolescent development suggesting that emotional maturity is reached later than physical and cognitive.
According to developmental theory, self-reported depression should of course be negatively associated with experiencing sexual intercourse also among 20-year-olds. However, such was not the case in our data. This is probably due to a quite small sample of 20-year-olds, 0.6% of the whole study population. What is more, it is uncommon for 20-year-old adolescents to be attending schools of the type at which the study was conducted. They are, for example, adolescents who have experienced severe illnesses or come from an immigrant background. Their adolescent development and mental health may deviate from the mainstream. Dating and engaging in sexual behaviors for them may be similarly delayed. On the other hand, the group of 20-year-olds was also likely to include adolescents continuing to another secondary education after completing one. Thus, the group of 20-year-olds is likely more heterogeneous than the other age groups in our data.

Contrary to expectations, given gender differences in the epidemiology of depression (Patton et al., 2014) and the prevailing double standard for sexual behavior (Bordini & Sperb, 2013; Crawford & Popp, 2003; Kreager & Staff, 2009), the findings of this study are parallel for boys and girls. Yet as expected, there are slight differences. Among 14- and 15-year-olds, self-reported depression was a more significant factor to boys for experiencing sexual intercourse compared to girls. Because girls mature earlier than boys, they may also be emotionally more ready for sexual intercourses at a younger age. Consequently, the data show that especially in the most immature cohort in this study, among the youngest boys, it is certainly pathological to engage in sexual activity. Moreover, sexual health services for adolescents tend to be directed primarily toward girls (Avery & Lazdane, 2010). Hence, the sexual health of depressed boys warrants special attention in health education and school health services, which may be the only ways to reach these adolescents.

The very large population-based sample is a strength of this study. Because the School Health Promotion Study is a classroom survey, it reaches the vast majority of adolescents at least in comprehensive school. There is always a small fraction, 10–15%, of pupils absent on any given day, including the survey day. It is possible that these are also the ones suffering more not only from physical illnesses, but also from mental disorders. Therefore, the rates of self-reported depression in our study may be underestimated. In health surveys even high levels of non-response may not necessarily have an effect on the associations studied (Van Loon, Tijhuis, Picavet, Surtees, & Ormel, 2003). Our findings may not be generalizable to all adolescents, but is likely to represent quite well western adolescents, because the Finnish adolescents in this study come from widely different living conditions and socioeconomic backgrounds.

The sample size diminished toward the older age groups in our study. Respondents were 14–20 years old and the most of the study sample were in age groups 14–18. There were considerably fewer adolescents in aged 19–20, accounting together for slightly more than 4% of the whole study population. This is because 19–20-year-old adolescents have usually already left the schools in which the School Health Promotion Study is conducted. They may not be as representative of their age group as are the younger subjects of this study in their respective age groups, but as the size of the 19–20 year age group sample is still considerable, about 4000, the data size sufficed to conduct the analyses in these groups as well.

Adding into the models sociodemographic background did not change the main findings of the present study. However, there may be other potential confounders that deserve further study. Biopsychosocial factors beyond the scope of present study, for example, may modify the relation between an experience of sexual intercourse and depression (Jamieson & Wade, 2011). Such factors may be those related to depression, for example self-esteem and social support, peer relationships and academic factors or other factors relevant for adolescent development. To examine potential confounders more specifically is a subject for further research.
Our study was based on self-reported measures, which can be considered a limitation. Diagnostic interviews to detect depression would have been more reliable, but with such a large sample this was not feasible. Self-reported depression was a state measure and the duration of the symptoms cannot be seen in the data. Therefore, the cut-point for being depressed was set at 8 points on the instrument (moderate/severe depression) and adolescents scoring only mild depression (5–7) were not considered to be depressed in this study. In this way, we avoided overestimating the rates of depression. Moderate-to-severe self-reported depression is likely to require clinical attention, because depressive symptoms are already valid predictors of depression (Lewinsohn, Clarke, Seeley, & Rohde, 1994).

Due to the cross-sectional nature of our study, we cannot draw conclusions about causality – which came first in the studied adolescents, depression, or sexual activity. This remains a topic for future research. Third factors associated both with depression and sexual activity in adolescence, such as substance use, conduct disorder, and psychosocial problems in the family (Boislard & Poulin, 2011; Davila et al., 2009; Hallfors et al., 2005), could also play a role in mediating or moderating the associations between sexual activity and depression in adolescence and they are an important topic for further study.

Conclusions
Becoming sexually active is part of adolescent development. However, embarking on sexual activity very early in adolescent development is associated with self-reported depression. It is only at age 17 that depression loses its role as a correlate of sexual activity. In adolescent health services, attention should be paid to the sexual health of depressed adolescents. They may require more intensive sex education and special support to be able to protect themselves from engaging in sexual activity too early, before being emotionally ready for it. On the other hand, the mental health needs of sexually active adolescents require attention. However, toward early adulthood, lack of sexual experience may indicate special needs in adolescent development and mental health.

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Notes
1. Statistics Finland, http://www.stat.fi/tup/julkaisut/tiedostot/julkaisuluvut/ykou_opla_201200_2013_10094_net.pdf.
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