

1 **DOES REGRETTING FIRST VAGINAL INTERCOURSE HAVE AN IMPACT ON YOUNG**
2 **ADULTS' SEXUAL BEHAVIOR?**

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27

28 **ABSTRACT**

29 **Background.** The aims of this research were to determine personal differences depending on
30 the reason for regretting or not first vaginal intercourse and its effects on sexual behavior
31 later on among a representative sample of young adults, and to assess the association between
32 reasons for engaging in first vaginal intercourse and regretting it.

33 **Methods.** Data were drawn from the Swiss national survey on youth sexual behaviors
34 conducted in 2017 among young adults (mean age 26 years) living in Switzerland. Out of the
35 7142 participants, 4793 (51% females) answered the question *Looking back now to the first*
36 *time you had vaginal intercourse, do you think that...* with five possible answers: Should not
37 have done it(6.7%); Should have waited (7.7%); Should not have waited (7.4%); Right time
38 (67.9%); and I don't know (10.3%). The five groups were compared on sociodemographic
39 and sex behavior-related variables, analyzed separately by gender.

40 **Results.** One third of participants regretted their first experience. In the multivariate analysis,
41 compared to the RightTime group, all other groups were more likely to find their first
42 experience unpleasant and to have done it with a casual partner. Those in the *I should not*
43 *have done it* and *I should have waited* groups were also more likely to have done it because
44 of external pressure, especially among females.

45 **Conclusions.** Our results underline the significance to choose the right time and the right
46 partner for first vaginal intercourse and the importance of including partner respect and
47 avoiding external pressure as part of sexual education.

48

49 **Key words:** Young adults; Sexual behavior; First intercourse; Regrets

50

51 **Introduction**

52 Reasons for engaging in first vaginal intercourse include being in love(1), being curious(1, 2),
53 wanting to lose virginity(2), and external pressure(1). However, literature on how the first
54 time was experienced is scarce, in particular the literature examining the first time leading to
55 subsequent regrets.

56 A study in New Zealand(2) among a birth cohort at age 21 years found that 16% of men and
57 54% of women indicated that they should have waited longer while 11% and 1% of them,
58 respectively, thought that they should not have waited that long. In a study carried out in
59 Scotland(3) among close to eight thousand schoolchildren with a mean age of 14 years, 32%
60 of girls and 27% of boys having experienced sexual intercourse reported that it happened too
61 early and 15% and 5%, respectively, that it should not have happened at all. A slightly
62 different approach using a convenience sample (N=248) of college students(4) found that
63 three quarters of them had regretted their decision to engage in sexual activity. Longitudinal
64 data of British youth aged 13-16 years indicated that 20% of males and 38% of females
65 regretted their first time(5). A school sample of 14-18 year-olds in three developing
66 countries(1) found regret rates ranging from 25% to 32% for females and from 13% to 21%
67 among males. The most recently published study(6) concluded that, among those having had
68 sexual intercourse, one 15 year-old in five had negative feelings about the timing of their first
69 intercourse, with a clear female predominance.

70 Regretting first sexual intercourse has been associated with female gender(5, 6), not doing it
71 with a steady partner(2, 3, 5), being intoxicated(1, 3-5), being pressured(1, 3-5) or forced(2)
72 by partner, having an older partner(7), not using a condom(4, 7), and early age at first
73 intercourse(5, 8).

74 However, research on regrets about first vaginal intercourse is scarce regarding its impact on
75 future sexual behavior and limited by the methodology used. Most of the studies are school-
76 based(1, 3, 5, 6) and, although they include large samples, only a minority of respondents are
77 sexually experienced. Additionally, most of them, due to the samples' age ranges, have also
78 had an early sexual debut, which is associated to regrets later on(5). Moreover, the paper
79 including college students(4) is based on a convenience sample and not generalizable.
80 Finally, the birth cohort study from New Zealand(2) is the one that gives a better temporal
81 perspective as respondents have been sexually active, on average, for four years, but data
82 were collected 25 years ago.

83 To our knowledge, there is no recent investigation looking at regretting first vaginal
84 intercourse with enough temporal perspective based on a large sample of young adults. The
85 primary aim of this research was to determine personal differences depending on the reason
86 for regretting or not first vaginal intercourse and its effects on sexual behavior in the long run
87 among a nationally representative sample of young adults. Secondly, we aimed to assess
88 the association between different reasons for engaging in first vaginal intercourse and
89 regretting it.

90 **METHODS**

91 Data were drawn from the Swiss national survey on youth sexual behaviors, a cross-sectional
92 study conducted in 2017 among a representative sample of young adults (mean age 26 years)
93 living in Switzerland. A complete description of the study can be found elsewhere(9). Briefly,
94 data were obtained from a self-administrated questionnaire on sexual behaviors among young
95 adults. The initial sample was provided by the Swiss Federal Office of Statistics and was
96 representative of the 24-28 years old population living in Switzerland in terms of gender,
97 language (French, Italian or German) and canton of residence. All those included in the initial
98 sample were contacted by postal mail to participate in the study and received an information

99 letter together with a unique login code to participate in an online survey. The final sample
100 included 7142 participants (response rate 15.1%, mean age 26.3 years). To correct a slightly
101 over-representation of females from the French part of Switzerland, analyses were weighted
102 by gender and canton of residence. The survey collected sociodemographic and sexual health
103 and behavior data using a life history calendar (LHC) approach. The LHC is a highly
104 structured but flexible approach to data collection that facilitates recall of past events by
105 using the individual's own past experiences as cues for remembering. These cues provide
106 context for retrieval of autobiographical memory and increment the precision of reports(10,
107 11). The Ethics committee in research of the canton of Vaud gave ethic clearance in
108 agreement with the Swiss law.

109 Out of the 7142 participants, 4793 (51% females) answered the question *Looking back now to*
110 *the first time you had vaginal intercourse, do you think that...* with five possible answers: I
111 should not have done it (N=320, 6.7%); I should have waited longer (N=369, 7.7%); I should
112 have done it earlier (N=353, 7.4%); It was about the right time (RightTime; N=3255, 67,9%);
113 and I don't know (N=496, 10.3%).

114 The five groups were compared on age, family socioeconomic status (SES) and perceived
115 pubertal timing. SES was measured though the question *Compared to other families in*
116 *Switzerland, your family financial situation when you were 15 was....* with 7 possible answers
117 ranging from well-below to well-above average and dichotomized into below average and
118 average or above(12). Perceived pubertal timing was assessed through *If you think of the age*
119 *you started puberty, compared to your peers would you say that you were ...* with 3 possible
120 answers: early, on time, late (13).

121 The context of their first vaginal intercourse was analyzed through their debut age (under 16
122 years / 16 and over)(14, 15), whether the experience had been pleasant (yes/no), the type of
123 partner (casual or steady), the partner's age (younger, about the same age, older), condom use

124 (yes/no), whether it was also the first time for their partner (yes/no) and the reason for first
125 intercourse.

126 Nine reasons for first vaginal intercourse were proposed: I was in love, I was curious, I
127 wanted to do like my peers, I was forced, I was intoxicated, I wanted to lose my virginity, I
128 did it without wanting, Other, I can't remember. Due to small group numbers, doing like my
129 peers (N=66), being forced (N=35) and doing it without wanting (N=57) were combined into
130 External pressure. In the same line, I cannot remember (N=82) and Other (N=85) were
131 combined into Other. All other options remained as described.

132 Looking for a possible impact of their first sexual intercourse on their future sexual behavior,
133 we also analyzed aspects of their current sexual life. Studied variables included: number of
134 lifetime sexual partner(s) (one/two-three/four or more), having had a sexual partner in the last
135 12 months (yes/no), whether they had only had heterosexual relationships (yes/no), being
136 currently with a steady partner (yes/no), satisfaction with their current steady partner
137 relationship (yes/no) and, if they did not have a steady partner at the moment, satisfaction
138 with their last steady partner relationship (yes/no).

139 In a first step, we completed a bivariate analysis to compare the five groups using chi-square
140 tests for categorical variables and ANOVA for continuous ones. Subsequently we performed
141 a multinomial logistic regression analysis including all significant variables at the bivariate
142 level ($p < .05$) (except reason for first intercourse) using the RightTime group as the reference
143 category. Finally, we carried out a second multinomial logistic regression analysis separately
144 for each reason for first sexual intercourse controlling for variables significant at the bivariate
145 level, using the same reference category.

146 All analyses were done using Stata 14 (StataCorp, College Station, Texas) and performed
147 separately by gender as males and females do not report the same experiences of their first
148 vaginal intercourse(1, 5, 6).

149 **RESULTS**

150 Overall, about two-thirds of youths indicated that their first vaginal intercourse happened at
151 the right time, with similar rates for both genders (females: 67.2%, Males: 68.7%). Among
152 females, *I should have waited* was the second most often cited reaction (10.9%) followed by *I*
153 *don't know* (9.6%), *I should not have done it* (9.3%), and *I should have done it earlier*
154 (3.0%). Among males, *I should have done it earlier* (11.9%) ranked second followed by *I*
155 *don't know* (11.1%), *I should have waited* (4.3%) and *I should not have done it* (4.0%).

156 The main reason for first vaginal intercourse was being in love for both females (56.1%) and
157 males (42.9%), followed by *I was curious* (27.7% and 38.8%, respectively) and *I wanted to*
158 *lose my virginity* (5.5% and 9.6%, respectively). For females, *external pressure* (4.9%)
159 ranked fourth, followed by *other* (3.4%) and *being intoxicated* (2.4%), while among males, it
160 was *other* (3.6%) followed by *being intoxicated* (3.5%) and *external pressure* (1.6%).

161 FEMALES

162 At the bivariate level, all variables were significant except not having a sexual partner in the
163 last 12 months, currently being with a steady partner, and satisfaction with current or last
164 steady partner (Table 1).

165 In the multivariate analysis (Table 2), compared to the RightTime group, all other groups
166 were significantly more likely to report that their first experience had been unpleasant and
167 with a casual partner and less likely to have had only one sexual partner in their lifetime.
168 Those in the *I should not have done it* group were more likely to have had their first
169 experience before the age of 16, to report a lower SES and to not having used a condom.

170 Those in the *I should have waited* group were also more likely to be under 16 at their first
171 experience, not to be the first time for their partner and to report a perceived advanced
172 puberty compared to their peers. Those in the *I should have done it earlier* group were less
173 likely to have engaged only in heterosexual relationships, to have had their first experience
174 before the age of 16, and to have had four or more lifetime sexual partners. Finally, those in
175 the *I don't know* group were more likely to be in no relationship currently.

176 Compared to those in the RightTime group, all other groups reported a lower likelihood of
177 being in love as a reason for their first intercourse. The *I should not have done it, I should*
178 *have waited*, and *I don't know* groups were more likely to report external pressure and other
179 reasons, while those in the *I should have done it earlier* group reported wanting to lose their
180 virginity. The *I should not have done it* group was less likely and the *I should have waited*
181 group more likely to report curiosity. Finally, both the *I should not have done it* and *I don't*
182 *know* groups were more likely to indicate that they were intoxicated as the reason for their
183 first vaginal intercourse (Table 2).

184 MALES

185 At the bivariate level all variables but age, SES, currently being with a steady partner and
186 satisfaction with current or last steady partner were significant (Table 3).

187 Similar to females, the multivariate analysis (Table 4) showed that, compared to the
188 RightTime group, all other groups were significantly more likely to have found their first
189 experience unpleasant and to have had it with a casual partner. The *I should not have done it*
190 group reported higher odds that their first intercourse was before age 16, that it was not the
191 first time for their partner, and that they had not used a condom. Additionally, they were
192 significantly less likely to have had four or more lifetime sexual partners. The *I should have*
193 *done it earlier* group reported being older and less likely to have initiated intercourse before

194 age 16. They reported higher odds of their first partner being older, of not being the first time
195 for their partner and of not being currently in a relationship. The *I don't know* group was less
196 likely to state only one lifetime sexual partner.

197 All groups but *I should have done it earlier* were less likely to report being in love and more
198 likely to state external pressure as the reason for their first experience compared to the
199 RightTime one. Those in the *I should have done it earlier* group were twice as likely to report
200 wanting to lose their virginity as the reason. Finally, those in the *I don't know* group also
201 reported being intoxicated and other as the reasons for their first vaginal intercourse (Table
202 4).

203 **DISCUSSION**

204 The majority of participants indicated that they had their first vaginal intercourse at the right
205 time, as described in the literature(5, 6), although results in other school-aged samples
206 showed lower rates(3), probably due to the younger age of the sample's participants.
207 However, gender differences appear for regret reasons: while about ten percent of females
208 report that they should have waited or that they should not have done it, 12% of males
209 indicate that they should have done it earlier. These results are similar to those found in New
210 Zealand(2). Other studies among samples of adolescents indicated that only one fifth
211 regretted their first experience, but the vast majority in that sample were not sexually
212 initiated(1, 6).

213 The most cited reason for first vaginal intercourse by both genders is being in love, as
214 described by other authors(1), even though others indicate curiosity(2). It is significant to
215 mention that even if those who report external pressure are a small minority, they are more
216 frequent among females. Although the external pressure rates found in our study are much
217 lower than those described among school-aged adolescents(1, 3, 5), it is worth noting the

218 important association for both genders (but much more marked among females) among those
219 regretting having had their first experience too early or thinking that they should not have had
220 their sexual debut at that moment. The lower rate of external pressure found in our study
221 compared to school-based studies can be explained by their young debut age that is linked to
222 regretting later(5). This finding highlights the importance of prevention among young people
223 with a special emphasis on teaching respect for partners together with how to avoid pressure.
224 Although these topics are part of school-based sexual education, this is limited to mandatory
225 education in Switzerland (at ages 13-15). It would be important to add sexual education to
226 review these issues in post-mandatory education as this is when most youths have their sexual
227 debut.

228 Compared to those indicating that they had their first vaginal intercourse at the right time, all
229 other groups had higher odds of reporting this first experience as unpleasant independently of
230 gender. The fact that their first time was more likely to have happened with a casual partner
231 could explain it, as it has been described that being in a committed relationship increased
232 psychological satisfaction, especially among women(16). Moreover, the often high
233 expectations put on this event may not be reached and be a cause for subsequent regret.
234 Finally, the unpleasantness of this first experience may be linked to their subsequent regret(8)
235 while a more positive first experience has been associated with greater feelings of sexual
236 satisfaction in their current interactions(17).

237 Among both genders, reporting that they should not have done it is linked to having had
238 vaginal intercourse before age 16, and to not having used a condom, even though, in line with
239 other studies (5), the vast majority of young adults in our sample had used a condom in their
240 first intercourse and even showed higher rates than others(3). A Scandinavian study reported
241 that the risk of contraceptive non use increased with earlier age at sexual debut among
242 women(18).With the exception of the *I should have done it earlier* group among males, and

243 contrary to other studies(5, 6, 8), we found no age difference with their first partner. In a
244 similar way, only females in the *I should have done it earlier* group and males in the *I should*
245 *not have done it* one were less likely to have had four or more lifetime partners, while other
246 studies found no difference(5).

247 Our results show that females in the *I should not have done it* group reported a lower SES.
248 Moreau et al. (6) described that girls from less affluent families were more likely to report
249 negative feelings regarding their first experience. This finding could also be explained by the
250 fact that a lower SES is often associated to low parental education, which has been correlated
251 to early sexual debut in the literature(19, 20).

252 Females in the *I should have done it earlier* group were the only ones to show a lower
253 likelihood to have had only heterosexual relationships. Dewaele et al.(21) found similar
254 results among men having sex with men, but we could not find comparable results for women
255 in the literature. Whether this result may be explained by the time needed to assume their
256 sexual preferences remains to be studied among young women. Both females and males in
257 the *I should have done it earlier* group also were less likely to have had their first experience
258 before age 16. Moreover, females had lower odds of having had four or more lifetime sexual
259 partners, and males to be currently in a relationship. These results are in concordance with the
260 literature indicating that late age at first sex was associated with lower odds of cohabitation
261 and fewer romantic partners in young adulthood(22).

262 Finally, in our sample, regretting their first vaginal intercourse seems to have little effect on
263 sexual behavior in young adulthood, with the vast majority of participants being currently
264 with a steady partner and satisfied with the relationship they have with her/him even though
265 the initial context was unfavorable. Our findings are in disagreement with the literature. To
266 date, most research on the effects of sexual debut on early adulthood sexual behavior seems
267 to be limited to early sexual intercourse (23) and to be associated to negative consequences

268 such as increased number of partners(24-27), sexual intercourse while intoxicated(25), and
269 sexually transmitted infections(24, 26). However, there is also evidence indicating that it is
270 rather the context of sexual debut and not necessarily the age which is important, and that
271 experiences happening in negative contexts yield adverse consequences later on (28). Our
272 data do not allow analyzing whether regret was limited to a single first episode or continued
273 over time and we do not know either the sexual trajectories of participants from adolescence
274 into young adulthood. Future research should look at other potential factors influencing
275 young adulthood sexual satisfaction that may buffer a negative initial encounter.

276 The strengths of this research are that it is based on a nationally representative sample,
277 participants have a sufficient temporal perspective and uses the life history calendar as a
278 method to help participants situate different events in their life. Nonetheless, some limitations
279 need to be discussed. First, we had a low response rate. We were conscious that a sensitive
280 subject such as sexuality and the way we had to contact potential participants (postal instead
281 of electronic mail) could have an important impact on the response rate. For this reason, we
282 decided to start with a very large sample (over 40'000) so that the final sample would be
283 large enough. Second, participants had to answer about events that happened about ten years
284 earlier and a memory bias cannot be excluded. However, using the LHC should minimize it.
285 In the same line, a social desirability bias cannot be disregarded either. However, there is
286 evidence indicating that the LHC method is more prone to open and honest responses(29).
287 Third, participants could only choose one reason for engaging in first vaginal intercourse and
288 motivations could be more complex than that. Fourth, the category external pressure is
289 relatively large and could have different meanings depending on the respondent. Finally, our
290 survey being cross-sectional, causality cannot be determined.

291 About one third of young adults regret the way they experienced their first vaginal
292 intercourse. Among them, it was much more frequent to experience this event as unpleasant,

293 probably because it was more often with a non-steady partner. Although the overall
294 percentage of those regretting does not differ by gender, females seem to have worse
295 experiences than males, especially regarding external pressure. Nevertheless, although this
296 first regretful experience does not seem to have a clear negative impact on their sexual life as
297 young adults, further research needs to be carried out to better define its potential impact. Our
298 results underline the significance to choose the right time and the right partner for the first
299 vaginal intercourse and the importance of including partner respect and teaching skills to
300 avoid external pressure (especially non-consensual sex) as part of school-based sexual
301 education.

302

303 **Compliance with Ethical Standards**

304 Conflict of interest. None to declare.

305 Ethical Approval. All procedures performed in studies involving human participants were in
306 accordance with the ethical standards of the institutional and/or national research committee
307 and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical
308 standards.

309 Informed Consent. Informed consent was obtained from all individual participants included
310 in the study.

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