

Title: Virgins at age 26: who are they?

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Abstract

Background: Studies on virgins remain scarce. This study aims to explore the characteristics of virgin young adults, the reasons for remaining virgin, and its potential social and health implications as a young adult. **Methods:** Data were drawn from the 2017 Swiss study on sexual health and behavior among young adults. A total of 5175 participants (mean age 26 ± 0.01) were divided into virgins and non-virgins. Virginity was defined as never having had sexual partner. A sexual partner was defined as a person with whom the participant has had sexual contact with or without penetration. **Results:** A total of 275 (5.3% (95% CI: 4.7%-6.0%), 58% males) were virgins. Virgins had higher odds of being male (2.27 (1.62-3.17)) and reporting poorer health (1.43 (1.07-1.92)). They had lower odds of living on their own (0.24 (0.18-0.32)), being satisfied with their social life (0.78 (0.72-0.85)), having experimented with substances (e.g. drunkenness 0.27 (0.19-0.67)) and having used online dating (0.52 (0.26-1.12)) or pornography (0.67 (0.42-0.94)). The main reason for remaining virgin was *I have not found the right person* for females, and *I have not had the occasion* for males. **Conclusions:** One young adult in 20 is a virgin. Virgins do not seem to have gone through the usual experimentations of adolescence, seem to be less socially driven and reported more health challenges. The main reason for remaining a virgin reveals gender-stereotyped responses. Sexual inactivity among young adults should be considered by health professionals to ensure the absence of distress and open discussion for potential questions.

Keywords: Virgins; Virginity; Young adults; Youth.

Introduction

In Western countries, including Switzerland, first intercourse occurs for most adolescents around age 17 (1, 2). When approaching sexual topics among youth, focus is mainly on issues related to becoming or being sexually active and studies on virgins remain scarce (3, 4). In addition, certainly due to public health objectives, research on adolescent's sexual activities mainly report on contraception use and the risks of sexually transmitted infections (STI) or unwanted pregnancies. Even though virginity might be considered as a protection against these negative outcomes, the first sexual experience often initiates a transition to adulthood, both personally and socially (5-7), and sexuality is an important part of the physical, emotional, mental and social well-being and development of youth (8).

Besides the developmental and transitory process through which most adolescents go through their sexual initiation, some young people could suffer from stigma when virginity is not a wanted choice and they are out of the norms (3). Fuller et al. (3) presented the risk of a concealable and stigmatized identity when it comes to off-time (out of the norms) sexual transitions and adult virginity. Not being sexually active at the same time than other youths could therefore build a gap between virgins and their peers or complicate their romantic relationships (9).

While research focuses on early sexual debut as a risk factor, some studies (9, 10) reported that late sexual timing or sexual inexperience was associated with poorer social relations, lower well-being and lower perceived attractiveness. Late sexual initiation or sexual inexperience is associated with health issues, especially mental health, because of the involuntary and unwanted nature of abstinence for some young people (10-12). An association was also found between sexual inexperience and body mass index that was

sometimes used as a proxy for perceived attractiveness (4, 7, 13). Leaving the parental home is a great step into adulthood resulting in a gain of independency and freedom. Having an independent home may also facilitate sexual activity, as bringing someone home may be easier than when living with the parents. Living on their own would therefore be associated with being sexually active (14), probably because the restrictive norms that can be imposed by parents disappear (15, 16). Virgins may substitute their lack of physical sexual activity with online activity or use the Internet to learn more about sexual intercourse (16, 17). Finally, substance use may represent rites of passage for some youths and be associated with sexual initiation or activity (18, 19).

Remaining a virgin may be due to different reasons, and most of them can be classified into active or passive ones (20). For the active category, an individual may decide to remain a virgin because of religious or moral beliefs (21), the will to wait for the “right” person, not being ready, or fear of pregnancy or STIs (20, 22). The passive category encompasses all the reasons individuals endure, involuntarily, like not finding a willing partner or not getting the opportunity to have sexual intercourse (20).

This study aimed to explore this understudied topic and bring this population of non-sexually active youth to light in order to enhance their consideration and remind health professionals of the potential implications. The objectives of this study were to characterize this specific population, to explore the wanted or unwanted reasons for remaining a virgin, and to assess the potential social and health implications of remaining a virgin as a young adult. Studying persons who are “out of the norms” regarding sexuality transition or path contributes to the knowledge on adolescents and young adults sexual development (13). Finally, this study will also give information on this population using a

broader definition of sexual inactivity or inexperience and not focusing only on the absence of penile-vaginal intercourse (4, 13). Indeed, in this study, virginity was defined as having had zero sexual partners. A sexual partner was defined as a person with whom the participant has had sexual contact with or without penetration. The term “virgin” is not neutral and other terms such as “sexually inexperienced” would be more appropriate. However, we decided to use the “virgin”, a widespread and understood term.

Material and methods

Sample and data collection

Data were drawn from the 2017 Swiss national study on sexual health and behavior (2), which provided self-reported information about sexual and reproductive health among a nationally representative sample of young adults aged 24-26 years on the 30th of September 2016. This age range was selected in order to ensure that the majority of participants would be sexually active and, at the same time, sufficiently young to be able to recall accurately the beginning of their sexual life. In addition, data were collected using a life history calendar (LHC) approach, a method which facilitates recall of past life events (23, 24). In the LHC, participants were asked to identify the occurrence of different key events in their life such as moving to a new residence or finishing school. Therefore, other personal events could be placed in time by referencing it to milestones in their life. The Federal Statistical Office provided the initial sample that was representative of the Swiss resident population aged 24-26 years in terms of gender, language (French, Italian or German) and canton of residence. We obtained their postal addresses, and an invitation letter was sent with the link to access the website and a random anonymous code to enter the online survey. The final sample included 5175 participants (response rate 15.1%; mean

age 26.3 years when completing the survey; 51% males). To correct a slight overrepresentation of females from the French speaking part of Switzerland, analyses were weighted by gender and canton of residence. A detailed description of the methodology can be found elsewhere (2).

Measures

According to their answer to the question on the number of lifetime sexual partners, participants were divided into two groups: virgin and non-virgin. Virginity was defined as having had zero sexual partners in their life. In the survey, we indicated that a sexual partner was a person with whom the participant had had sexual contact with or without penetration (any sexual contact). All other participants were included in the non-virgin group, except those who answered that they did not want to answer that question (n=69, 1.3%). Among the virgin group, we assessed the main reason for remaining a virgin through a question with 10 possible answers such as “I have not had the occasion” or “For moral or religious beliefs”.

The two groups (virgin and non-virgin) were compared on socio-demographic characteristics including gender (male / female) and the fact of living on their own, defined as living apart from parents. The participants’ self-assessment of their social life and financial situation was measured on a scale ranging from 1 (not satisfied) to 10 (very satisfied).

Groups were also compared on ever having experimented with tobacco, alcohol misuse (drunkenness episodes), cannabis and other illegal drugs before or at the same age than their first sexual intercourse. We also looked at online sexual behaviors, such as having used a dating application or website or having ever surfed on a porn website (several times

versus no or only once). We used three items to get an overall picture of the individual's health. First, we asked participants to assess their general health dichotomized into poor versus good. Second, self-reported weight and height were used to calculate the body mass index (BMI), and nutritional status was defined according to the World Health Organization classification (25). Third, we assessed mental health through the Five-Item Mental Health Screening test (26). This test consists in rating the frequency of five particular feelings (such as "being nervous" or "feeling downhearted and blue") ranging from none of the time to all of the time during the past month. The score of the answers combined ranged between 0 and 100, with a higher the score indicating a better mental health.

Analytical approach

We ran a bivariate analysis comparing the two groups. We used chi-square test for categorical variables and student's t test for continuous ones. We calculated univariate odds ratios (OR) with 95% confidence intervals (CI) for each significant variable at the bivariate level. Then, statistically significant variables ($p < 0.05$) at the bivariate level were also entered in a logistic regression analysis using the non-virgin group as the reference category. Results are given as adjusted odds ratios (aOR) with 95% (CI). We used STATA 14.0 (StataCorp, College Station, TX, USA) for all the analyses.

Results

Overall, 275 (5.3% (95% CI: 4.7%-6.0%), 58% males) individuals were virgins at age 26. At the bivariate level, all studied variables were associated with virginity status. Virgins were more likely to be males and overweight, to report a poor general and mental health status, and less social life satisfaction but more financial situation satisfaction. They were

also less likely to live on their own, to have experimented with substances and to report online romantic or sexual activities. Virgins were slightly younger than non-virgins. (Table 1). All univariate ORs were significant (Table 2).

At the multivariate level (Table 2), virgins had higher odds of being male (aOR: 2.27; 95% CI 1.62-3.17), reporting a poor general health status (1.43; 1.07-1.92) and being overweight (1.29; 1.13-1.47). They were also more satisfied with their financial situation (1.16; 1.08-1.25). They had lower odds of living on their own (0.24; 0.18-0.32), experimenting with tobacco (0.36; 0.20-0.67), alcohol misuse (0.27; 0.19-0.37) and cannabis use (0.37; 0.25-0.54), using dating applications or websites (0.52; 0.37-0.72) and surfing on pornographic websites (0.67; 0.47-0.94). Virgins were also less satisfied with their social life (0.78; 0.72-0.85). No significant differences were found for age, other illegal drugs experimentation and mental health.

The main reasons reported by participants explaining their virginity are shown in Table 3. The main reason reported by women was “*Not having found the right person*” followed by “*Wanting to wait to be married*”. Men mainly reported “*Not having had the occasion*” followed by “*Not having found the right person*”. The rates of women and men reporting moral and religious beliefs as the reason for their virginity were similar. Fear of pregnancy or fear of a STI were rarely reported.

Discussion

By age 26, one young adult out of 20 was a virgin in Switzerland in 2017 and males were predominant in this group. In a recent systematic review on sexual abstinence among males (27), prevalence rates of primary abstainers (defined as a person who has never had sexual intercourse compared to secondary ones defined as a person who has had previous sexual

intercourse but is now refraining) ranged from 3.4% to 83.3% among young males (10-24 years old) and 5.5% to 32.8% among middle-aged males (25-59 years old). Furthermore, in 2015 (28), vaginal intercourse was never experienced by, respectively, 13% of males and 9% females, among those aged 25-29. Our study seems to be in the lower part of the prevalence rates regarding virginity. However, this could also be explained by the different definitions used to measure virginity or sexual abstinence, mainly in a heterosexual context focusing on penile-vaginal intercourse (27). Thus, including other sexual behaviors in the definition might decrease the prevalence as some people would only restrain themselves from vaginal intercourse. A definition issue was already highlighted (29) regarding the use of abstinence and virginity terms, including temporal (ever versus currently) or sexual behavior (vaginal versus anal) questionings.

The main reason reported by participants to explain virginity reflected gender-stereotyped responses, since women's virginity is generally praised and men's sexuality encouraged. As others (20), we found that women take on more active and wanted reasons to remain virgins, mainly willing to wait for the right person or waiting to be married, while men reported a more passive and involuntary reason with the fact that they did not find any sexual partner willing to engage in intercourse with them. By definition, remaining a virgin protects individuals against STI and unwanted pregnancies, but none or very few participants did report the fear of sexually transmitted diseases or pregnancy as the main reason for being a virgin.

A US national study conducted in 2017 (30) among adolescents aged 13-19 years found an increase of sexually inactive adolescents when compared to 1991. Various hypotheses to explain this decrease in adult activities, including having sex, were suggested (31). For

example, the fact that adolescents take longer to grow into adulthood and are less independent from their parents than previously. In this line, in our study, we observed that virgin participants were more likely to still live with their parents, which could have lent to less independence and freedom (14). Additionally, virgins seemed to be less socially driven. However, we cannot assume whether having a poorer social circle is a reason or a consequence of being a virgin. Moreover, their poorer health and greater tendency towards overweight may have lead them to feel less attractive and confident, a fact that has also been highlighted by others (4, 7, 13). Although no differences were found in the multivariate analysis, virgins reported poorer mental health than non-virgins at the bivariate level. Such a difference has also been reported in other studies (10-12). Being less independent from their parents, feeling less appreciated by peers and having lower self-esteem can therefore make more difficult the opportunity to meet a partner, to engage in a romantic relationship or to have sexual intercourse (9).

Virgins were less likely to have used substances. As youth are often influenced by peers to consume substances (32), the fact that virgins seem to have a poorer social life may explain, for example, why they did not go through the usual adolescence experimentation of tobacco and alcohol. Alternatively, a poorer social life can also be the result of a refusal to experiment. Thus, the fact of not engaging in substance use could have reduced their social network. In this line, abstainers were often found to be less engaged in social activities with their peers and less socially driven (33, 34).

Participants who remained a virgin were less likely to turn towards online dating in order to find a partner. Additionally, they did not seem to compensate their lack of sexual activity with pornography viewing. Even though a part of our participants did not engage

in sex because they did not have had the occasion or found the right partner, their under-representation in online sexual activities may imply that those young adults may not be interested in sex at all, and part of them being asexual cannot be excluded. Asexual persons are generally defined as individuals who encounter absent or lowered levels of sexual desire and/or attraction (35). Their prevalence in the UK has been estimated between 0.3-0.5% (36). However, it is only a hypothesis, as we did not collect specific data on this issue.

The first strength of this study is the sample size. Even though the response rate (15.1%) was lower than expected for the overall study, it was still a large sample of young adults in Switzerland. In addition, this rate is similar to other studies on sexual behavior (37, 38). The fact that sexuality is a sensitive issue and that potential participants had to go through several stages (having to connect to the website by entering the address printed on the written letter, introducing the code, etc.) before accessing the online survey might have reduced the likelihood to answer compared to having received the invitation electronically. We also used a large variety of sexual and health related variables that allowed us to obtain a large overview of the characteristics and associations with virginity among young adults, including online sexual behaviors. However, some limitations need to be put forward. It is possible that we have faced a recall bias for some outcomes, although asking the question at the age of 26 gives them an important temporal perspective. As explained in the methods, we tried to minimize recall bias by using the LHC method approach. Although the definition of virginity used in this study was broad (zero sexual partners with whom they had any sexual contact, with or without penetration), we cannot ensure that participants did not have their own definition as previously demonstrated (39, 40). Finally, our study focused on sexual behavior and was therefore presented as such in the

information letter. Although we specified in the letter that we were also interested in people who were sexually inactive, some potential participants, especially virgins, may not have responded because they did not feel concerned by the study, thus underestimating this population. However, we were still able to work with a significant number of virgins in this research paving the way for further specific studies on this topic.

Health and prevention professionals should be aware of this specific population that concerns one in 20 young adults among 26-year-olds in Switzerland. In this study, young adults who are virgins do not seem to have gone through the usual experimentations of adolescence and seem to be overall less socially driven. Interestingly, the main reason reported to explain virginity reveals gender-stereotyped responses with more active and wanted reasons to remain a virgin for females than for males, who seem to endure this situation and reported not finding a sexual partner willing to engage in intercourse with them. Virgin participants tended to report more health challenges, but the direction of this association remains to be determined.

The present study sheds the light on this understudied population. Particular attention should be brought to integrate these individuals in awareness messages in order to avoid the stigma associated to virginity. Although virginity can be considered and lived as positive, especially if it is wanted, this category of population remains poorly understood and, as other sexual minorities, might face negative experiences. It is therefore important that health professionals do not focus on sexual inactivity as a protection against STIs or unwanted pregnancies, they rather must explore whether this situation causes distress, suffering and concern.

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Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the local research committee (Ethics Committee Vaud) and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Consent to participate was obtained indirectly by the positive answer to the first question of the survey. An information document has also been sent to the potential participants. Participants could decline to participate at any time.

Conflict of interest

The authors declare no conflict of interest.

ACCEPTED

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Table 1

Bivariate analysis of sociodemographic and personal characteristics among virgins and non-virgins

Variables	Non-virgin % or mean (N=4900, 94.7%)	Virgin % or mean (N=275, 5.3%)
Mean age at study (\pm SD)	26.35 (\pm .01)*	26.23 (\pm .05)*
Gender (male)	50.7*	57.7*
Living on their own (Yes)	78.1**	43.0**
Ever had smoked cigarettes (Yes)	43.2**	13.6**
Ever had any drunkenness episode (Yes)	90.6**	51.7**
Ever used cannabis(Yes)	65.9**	21.1**
Ever used other illegal drugs (Yes)	17.7**	3.4**
Used several times an online dating site/app (Yes)	53.6**	35.5**
Surfed several times on porn websites (Yes)	80.4**	64.3**
Health status (poor)	5.3**	12.2**
Suffering of obesity (Yes)	4.6**	10.0**
Financial situation satisfaction (1 – not satisfied – 10 satisfied), mean (\pm SD)	6.35 \pm (.04)*	6.79 \pm (.17)*
Social life satisfaction (1 – not satisfied – 10 satisfied), mean (\pm SD)	7.73 \pm (.03)**	6.70 \pm (.14)**
Mental health, mean (\pm SD)	69.95 \pm (.22)**	66.15 \pm (1.06)**

Note. *p <.05 **p<.01

Table 2*Multivariate analysis with non-virgin as the reference category*

Variables	Virgin	
	Univariate OR (95% CI) ^a	Multivariate aOR (95% CI) ^b
Mean age at study	0.85 (0.73-0.98)*	0.93 (0.78-1.11)
Gender(male)	1.33 (1.03-1.70)**	2.27 (1.62-3.17)**
Living on their own (Yes)	0.21 (0.16-0.27)**	0.24 (0.18-0.32)**
Ever had smoked cigarettes (Yes)	0.17 (0.10-0.28)**	0.36 (0.20-0.67)**
Ever had any drunkenness episode (Yes)	0.11 (0.08-0.14)**	0.27 (0.19-0.37)**
Ever used cannabis (Yes)	0.14 (0.10-0.19)**	0.37 (0.25-0.54)**
Ever used other illegal drugs (Yes)	0.16 (0.08-0.34)**	0.54 (0.26-1.12)
Used several times an online dating site/app (Yes)	0.48 (0.37-0.62)**	0.52 (0.37-0.72)**
Surfed several times on porn websites (Yes)	0.44 (0.34-0.57)**	0.67 (0.47-0.94)*
Health status (poor)	1.58 (1.29-1.94)**	1.43 (1.07-1.92)*
Suffering of overweight / obesity (Yes)	1.23 (1.11-1.38)**	1.29 (1.13-1.47)**
Financial situation satisfaction (1 – not satisfied – 10 satisfied), mean	1.08 (1.01-1.15)*	1.16 (1.08-1.25)**
Social life satisfaction (1 – not satisfied – 10 satisfied), mean	0.80 (0.76-0.85)**	0.78 (0.72-0.85)**
Mental health, mean	1.02 (1.01-1.02)**	1.01 (0.99-1.02)

Note. ^a Odds ratio with 95% confidence interval^b Adjusted odds ratio with 95% confidence interval

*p <.05 **p<.01

Table 3

Main reason reported for remaining virgins among women and men

Main reason (unique choice)	Women (%)	Men (%)
	N=116	N=159
I have not had the occasion	15.5	47.2
I have not found the right person	45.9	18.6
For moral or religious beliefs	10.3	10.9
I want to wait to be married	19.0	12.8
I am not emotionally ready	5.9	3.2
I want to wait until I am older	0.6	0.0
Fear of pregnancy	0.0	0.7
Fear of a sexually transmitted infection	0.0	0.0
I don't feel comfortable with my gender	0.0	0.7
Other ^b	2.9	5.9

Note. ^b Answers in the free-text option “other” category were too disparate to be assessed separately.