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# Youth Health

# Sex, drugs and chronic illness: health behaviours among chronically ill youth

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**Background:** A growing body of literature indicates that adolescents with chronic conditions are as likely, or more likely, to take risky behaviours than their healthy peers. The objective of this research was to assess whether adolescents with chronic illness in Catalonia differ from their healthy peers in risk-taking behaviour. **Methods:** Data were drawn from the Catalonia Adolescent Health database, a survey including a random school-based sample of 6952 young people, aged 14–19 years. The index group (IG) included 665 adolescents (450 females) reporting several chronic conditions. The comparison group (CG) comprised 6287 healthy adolescents (3306 females). Personal, family and school-related variables were analysed to ensure comparability between groups. Sexual behaviour, drug use (tobacco, alcohol, cannabis, cocaine and synthetic drugs) and perception of drug use among peers and in school were compared. Analysis was carried out separately by gender. chi-square, Fisher's and Student's tests were used to compare categorical and continuous variables. **Results:** The prevalence of chronic conditions was 9.6%, with females showing a higher prevalence than males. The IG showed similar or higher rates of sexual intercourse and risky sexual behaviour. For most studied drugs, IG males reported slightly lower rates of use than CG males, while IG females showed higher rates for every drug studied. No differences were found in the perceptions of drug use among peers or in their school. **Conclusions:** Similar to previous research, chronically ill adolescents in our sample are as likely, or more likely, to take risky behaviours than their healthy counterparts and should receive the same anticipatory guidance.

**Keywords:** adolescents, chronic disease, risk-taking behaviour, drug use, sexual behaviour

The basis of Jessor's problem behaviour theory is that problem behaviours are part of normal adolescent development and play a major role in the transition process to adulthood.[1]

Studies using school-based samples of adolescents indicate that around 10% of school-aged youths suffer from a chronic condition.[2–4] For a long time it has been assumed that having a chronic condition acted as a protective factor against risky behaviour among chronically ill adolescents, as if they had to follow different paths from their healthy counterparts in their journey from childhood to adulthood. However, a growing body of literature indicates that adolescents with chronic conditions are as likely or more likely to take risky behaviours (such as drug use or unprotected sexual intercourse) than their healthy peers.[4–12] Research on samples of adolescents with insulin-dependent diabetes mellitus, asthma, cystic fibrosis, sickle cell disease and cancer show important rates of tobacco,[10,13–17] alcohol[13,14,16] and illegal drug[13,14,16] use. Likewise, chronically ill adolescents report similar rates of sexual activity.[2,8,9,13,14,18] Sizeable rates of unprotected intercourse are also reported.[2,13,14] There are no data relating to risk-taking behaviours among chronically ill adolescents in Spain.

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The objective of this paper is to assess whether adolescents with chronic conditions in Catalonia, Spain, differ from their healthy peers in their risk-taking behaviours.

## Methods

The data source was the Catalonia Adolescent Health Survey 2001,[19] a cross-sectional study of 14–19-year-old students carried out in spring 2001. To select a representative sample, the administrative division of the territory was used. Catalonia is administratively divided into six areas. Within each area, a random sample of private and public schools was chosen according to the density of students. Rural schools were over sampled. Ninety-seven schools were finally selected, of which 84 (86.6%) agreed to participate. One class per grade was randomly chosen in each school. The students completed an anonymous self-administered questionnaire during normal school hours. The questionnaire included 92 questions divided into eight main categories: personal data, family, school, health, drug use, personal problems, vehicle-related behaviour and sexual behaviour. A total of 7057 questionnaires were collected. Of those, 6952 (98.5%) were considered valid and 105 (1.5%) were eliminated because they were not correctly completed. Females represented 53.5% of the sample. Globally, the sample represented 2.6% of all enrolled students during the 2000–2001 academic year and the distribution between students in private (38.8%) and public (61.2%) schools was very similar to the distribution in the territory (39.7 and 60.3%, respectively).[20] In Spain, schooling is mandatory to age 16, and in 2001 75% of those aged 16–19 years were in school.[21]

Using a non-categorical approach as described by Stein and Jessop,[22] the index group (IG) included 665 adolescents (415 females) reporting a history of diabetes, allergy, asthma, scoliosis, epilepsy, cancer, arthritis, kidney disease or ocular

conditions. For allergy, asthma, scoliosis and ocular conditions, only those indicating that the condition limited their daily activities were included. The comparison group (CG) comprised 6287 adolescents (3306 females) not reporting a chronic condition.

To ensure group comparability, personal, family and school-related variables were analysed. Personal variables included: age, perceived health status [on a scale ranging from 1 (very poor) to 10 (excellent)], having seen their primary care physician in the last year, having seen a medical specialist in the last year, and taking medication on a regular basis. Family variables included: living with both biological parents, relationship with father and with mother [on a scale ranging from 1 (very poor) to 10 (excellent)], having siblings, father and mother's smoking status, and ever talking about drugs or sex with their father and with their mother. School-related variables comprised: liking going to school, average grades of 'Aprobado' or better (a grade of 'Aprobado' or better is considered as 'pass', while grades below that mean failing the exam), relationship with teachers [on a scale ranging from 1 (very poor) to 10 (excellent)] and old-for-grade.

For sexual behaviour, data were collected on sexual activity, age at first intercourse, most frequently used contraceptive method (where those answering *condoms* or *oral contraception* were considered as *reliable contraception*, while those answering *withdrawal* or *none* were considered as *non-reliable contraception*), having ever had sex without using contraception, having ever used the morning-after pill (either them or their sexual partner), having had multiple (more than two) sexual partners in the last year, ever being/getting their partner pregnant, and ever having had a sexually transmitted infection (STI).

For drug use, data were collected on tobacco, alcohol, cannabis, cocaine and synthetic drug use. In the questionnaire there were six possible answers to all drug-related questions: *never*, *only once*, *a few times*, *often*, *daily* and *on weekends*. They were transformed into dichotomous variables where all possible answers except *never* constituted the *ever used* category. For the three most-used drugs (tobacco, alcohol and cannabis), those answering *often*, *daily* and *on weekends* were considered as *regular* users. The category *on weekends* was included in the *regular* users category because of the pattern of drug (both legal and illegal) use among Spanish youth, where they often only or mainly use on weekends. For the variable ever being drunk, all the possible answers except *never* were included in the category *ever drunk*. Adolescents were also asked about whether they thought that there was alcohol or drug use, at least occasionally, in their schools and if they thought that half or more of their peers used tobacco, alcohol or cannabis.

Analysis was carried out separately by gender. For statistical analysis, SPSS 11.0® for Windows® (SPSS Inc, Chicago, IL) was used. To compare categorical variables, chi-square and Fisher's tests were used when appropriate. To compare continuous variables, Student's *t*-test was used.

## Results

Overall, the prevalence of chronic conditions was 9.6% (665/6952), being significantly higher among females (415/3721; 11.2%) than among males (250/3231; 7.7%) ($P < 0.01$).

Males showed no differences between groups in age, family or school-related variables, with the exception that IG males showed a worse relationship with their father ($P < 0.05$). As expected, IG males were significantly more likely to rate their perceived health status lower ($P < 0.01$), to have seen their primary care physician ($P < 0.01$) or a medical specialist ($P < 0.05$) in the last year and to take medication regularly ($P < 0.01$).

For females, there were no differences between groups in age, family or school-related variables, but chronically ill females were significantly more likely to be old-for-grade ($P < 0.05$). Similar to males, IG females were significantly more likely to rate their health status lower ($P < 0.01$), to have seen their primary care physician ($P < 0.01$) or a medical specialist in the last year ($P < 0.05$), and to take medication on a regular basis ($P < 0.01$). As for males, no differences were noted between groups in father or mother's smoking status or in the proportion of those talking about sex or drugs with their parents (table 1).

IG males were slightly more likely to be sexually active and to start slightly earlier. They also showed similar or higher rates in all the sexual behaviour variables analysed, although none were significant.

The only significant variables related to sexual behaviour for females with chronic illnesses were that they were more likely to be sexually active ($P < 0.01$) and to have been pregnant ($P < 0.05$). The age at first intercourse was slightly, but non-significantly, lower. All the other sexuality-related variables were similar for both groups, none of them being significant (table 2).

Overall, chronically ill males showed similar drug use rates as their healthy counterparts, without statistically significant differences. Likewise, no differences were found in the perception that half or more of their peers used tobacco, alcohol or cannabis or that there was alcohol or drug consumption in their schools.

With the exception of being a regular drinker, females with chronic conditions showed higher rates for all the drug use variables analysed, although the difference was statistically significant only for being a regular smoker ($P < 0.05$) and ever using synthetic drugs ($P < 0.01$). No differences were found either in the perception that the majority of their peers used tobacco, alcohol or cannabis or that there were students using alcohol or drugs in their schools (table 3).

## Discussion

The overall prevalence of chronic conditions in our sample is similar to those described by other authors.[2–4] Both the Swiss[2] and the Canadian[4] studies also found a higher prevalence among females.

There were no differences between groups in demographic characteristics, with the exception of chronically ill males having a worse relationship with their father. It is not clear whether having a chronically ill child increases the divorce rate,[23] and the child health status can influence both positively or negatively on the prospects for divorce.[24,25] Henoch *et al.*[26] found a higher rate of divorce among parents of children with juvenile rheumatoid arthritis, Chang[27] found no consistent evidence of higher divorce rates among families of childhood cancer survivors and Choquet *et al.*[9] found a higher rate of parental divorce among boys with chronic conditions but not among girls. Similarly to our results, Westbom[28] found no differences between chronically ill and healthy children, with most of them (90%) living with both parents and having at least one sibling (85–90%).

Contrary to other studies where adolescents with asthma perceived their school performance to be below average[7], or where chronically ill students were less likely to have repeated a grade,[10] the only difference found in this study related to school performance was that IG females were more likely to be old-for-grade.

As could be expected, both males and females with chronic conditions were more likely to be in contact with medical services and to rate their health lower. Nevertheless, having more contact with health services does not seem to be associated with a lower rate of risk-taking behaviour, especially among females. Although the effectiveness of office-based counselling for adolescents is not clear,[29] data from our country indicate that most adolescents state that they cannot talk with their

**Table 1** Personal, familial and academic characteristics of the sample

| | Males | | Females | |
|---|---|---|---|---|
| | Index $n = 250$ | Comparison $n = 2981$ | Index $n = 415$ | Comparison $n = 3306$ |
| Personal variables | | | | |
| Mean (±SD) age (years) | 16.0 ± 1.4 | 16.0 ± 1.4 | 16.2 ± 1.4 | 16.1 ± 1.4 |
| Mean (±SD) perceived health status | 7.5 ± 1.7 | 8.1 ± 1.5* | 7.1 ± 2.4 | 7.6 ± 1.4* |
| Seen primary care physician last year | 82.0% | 72.8%* | 85.7% | 79.0%* |
| Seen medical specialist last year | 79.2% | 68.2%** | 88.0% | 78.0%** |
| Takes medication regularly | 33.2% | 11.6%* | 40.7% | 21.4%* |
| Family variables | | | | |
| Living with both biological parents | 85.5% | 87.1% | 82.4% | 85.0% |
| Have siblings | 84.0% | 85.2% | 84.1% | 86.4% |
| Relationship with father | 7.3 ± 2.2 | 7.6 ± 2.0** | 7.1 ± 2.4 | 7.2 ± 2.2 |
| Relationship with mother | 8.0 ± 1.8 | 8.1 ± 1.7 | 7.9 ± 1.9 | 8.1 ± 1.7 |
| Father smokes | 39.7% | 43.5% | 42.5% | 45.3% |
| Mother smokes | 28.5% | 30.5% | 33.8% | 32.3% |
| Talks about drugs with father | 41.2% | 39.6% | 41.7% | 42.7% |
| Talks about drugs with mother | 50.8% | 45.6% | 59.0% | 56.4% |
| Talks about sex with father | 38.0% | 33.4% | 15.9% | 16.9% |
| Talks about sex with mother | 39.2% | 34.1% | 57.8% | 55.1% |
| School variables | | | | |
| Likes going to school | 61.7% | 65.0% | 82.3% | 78.2% |
| Mean grades of 'aprobado' or better | 85.2% | 84.9% | 92.5% | 91.1% |
| Relationship with teachers | 6.1 ± 2.0 | 6.1 ± 1.9 | 6.5 ± 1.6 | 6.5 ± 1.6 |
| Old for grade | 22.8% | 24.7% | 24.3% | 18.8%** |

*$P < 0.01$; **$P < 0.05$.

**Table 2** Sexual behaviour of chronically ill and healthy adolescents

| | Males | | Females | |
|---|---|---|---|---|
| | Index | Comparison | Index | Comparison |
| Sexually active | 24.4% | 20.2% | 32% | 23.1%* |
| Mean age (±SD) at first intercourse (years) | 15.3 ± 2.2 | 15.5 ± 1.6 | 15.7 ± 1.2 | 15.8 ± 1.3 |
| Non-reliable contraception use | 11.5% | 8.8% | 9.1% | 9.7% |
| Ever used no contraceptive method | 43.6% | 43.0% | 47.7% | 47.8% |
| Ever used morning-after pill | 10.2% | 15.1% | 32.1% | 28.3% |
| More than two sexual partners in last year | 18.9% | 15.3% | 4.9% | 6.7% |
| Ever pregnant/got partner pregnant | 2.8% | 1.8% | 3.6% | 1.4%** |
| History of STI | 0.8% | 0.3% | 1.2% | 0.7% |

*$P < 0.01$; ** $P < 0.05$.

primary care provider (whether a paediatrician or a family physician) about any issue that worries them,[30] and that paediatricians do very little prevention with their adolescent patients on a routine basis.[31] However, the fact that adolescents with chronic conditions are less likely to receive guidance[32,33] may also explain, at least in part, our results. The good news is that there are no differences between groups in the proportion of those reporting that they talk about sex or drugs with their father or with their mother.

As has been reported in other studies,[4,8,9] students with chronic illness in our sample showed higher rates of sexual activity than their healthy counterparts. However, the sexual activity rate in our sample is lower than those published from similar samples in British Columbia,[4] Minnesota[8] or France.[9] This result confirms what we had already found in a previous study:[34] that intercourse rates among adolescents in our region are lower than among European or American high-school students. In agreement with other studies,[10] IG

**Table 3** Drug use of chronically ill and healthy adolescents (percentages)

| | Males | | Females | |
|---|---|---|---|---|
| | **Index** | **Comparison** | **Index** | **Comparison** |
| Ever used tobacco | 70.8 | 71.3 | 82.2 | 81.6 |
| Regular smoker | 26.8 | 31.9 | 49.4 | 43.7** |
| Ever used alcohol | 85.6 | 83.4 | 91.3 | 88.9 |
| Regular drinker | 34.8 | 38.1 | 36.1 | 37.4 |
| Ever drunk | 57.8 | 51.5 | 58.8 | 56.8 |
| Ever used cannabis | 45.6 | 49.5 | 52.0 | 48.7 |
| Regular cannabis user | 15.2 | 16.6 | 12.8 | 11.0 |
| Ever used cocaine | 8.4 | 9.7 | 9.4 | 7.3 |
| Ever used synthetic drugs | 12.0 | 11.3 | 12.6 | 7.8* |
| Perception: >50% their peers smoke | 90.7 | 91.6 | 97.6 | 97.2 |
| Perception: >50% their peers drink alcohol | 83.5 | 84.2 | 91.8 | 89.4 |
| Perception: >50% their peers use cannabis | 49.0 | 54.9 | 68.9 | 64.8 |
| Perceived alcohol use in their school | 87.1 | 86.5 | 87.3 | 88.2 |
| Perceived drug use in their school | 82.1 | 81.7 | 81.1 | 81.7 |

*$P < 0.01$; **$P < 0.05$.

adolescents in our sample have their sexual debut slightly before their healthy counterparts.

Similarly, chronically ill adolescents in our study report higher rates of sexual risk behaviour than their healthy peers, in concordance with previous research.[4,8–10,14] As a result, chronically ill youth in our sample are more likely to have a history of pregnancy or to have a history of STI. Other studies[4,8] have reported similar data, and Choquet *et al.*[9] found that although chronically ill girls were more likely to use hormonal contraception, they more frequently had a history of pregnancy.

It is worth noting that although there are almost no differences in the use of non-reliable contraception or in ever not using a contraceptive method, the rate of ever using the morning-after pill for emergency contraception is lower among males but not among females. There are no data so far on emergency contraception use in Spain, but other authors have indicated that the under utilization of this contraception method is mainly due to a lack of awareness[35] and that, even if they know about it, adolescents use it infrequently even when they lack contraception.[36]

For drug use there is a clear gender difference. While males (with the exceptions of ever used alcohol, ever being drunk and ever used synthetic drugs) show lower rates than their healthy peers, chronically ill female rates are higher for every studied drug use. Our results agree with other studies showing that chronically ill youth are as likely or more likely to smoke, drink or use illegal drugs[4,7,10] than their healthy peers. However, this is the first time, to our knowledge, that rates of synthetic drug use among chronically ill adolescents have been reported.

It is interesting to note that most adolescents (both ill and healthy) have the perception that the majority of their peers use tobacco, alcohol or cannabis and that there are students using alcohol or drugs, at least occasionally, in their schools. It has been described[37,38] that adolescents tend to overestimate the prevalence of drug use among their peers, and that the perceived prevalence in late childhood is strongly related to the initiation and experimentation stages of tobacco and alcohol use.[39] From this fact we can assume that adolescents consider using these drugs a normative behaviour. Additionally, the perception that 'everybody' is using them may be an additional factor for chronically ill adolescents to use them in their eagerness to be 'normal'.

However, our study has some limitations that need to be mentioned. Being a school-based sample, adolescents with a condition that does not allow them to attend school are not included. This fact could bias our results towards normal adolescent behaviour. Likewise, although 75% of 16–19-year-olds are in school, those who are working or just doing nothing are not included in the sample, and this fact could also bias our results towards normality. The study is based on self-report and we cannot know from our data the severity of the condition. Finally, these results are based on a cross-sectional study and causality cannot be assumed.

Our results indicate that having a chronic condition does not seem to be a protective factor against taking risky behaviours. As health professionals dealing with teenagers with chronic conditions, we must take this fact into account. We must keep in mind that having a chronic condition does not mean that they are not adolescents and that they will not behave as such. We must ensure that they receive the same type of prevention and anticipatory guidance as any other adolescent.

## Key points

- Our objective was to assess whether adolescents with chronic illness differ from their healthy peers in risk-taking behaviour.
- Adolescents with chronic illness showed higher rates of sexual activity and risky sexual behaviour than their healthy counterparts.
- For substance use there is a clear gender difference: males show lower rates and females higher rates than their healthy.
- Chronically ill adolescents are as likely or more to take risky behaviours than their healthy counterparts.
- Chronically ill adolescents should receive the same anticipatory guidance as any other adolescent.

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