Adolescents' use of prescribed drugs and over-the-counter preparations

Regina Dengler and Heather Roberts

Abstract

Background The objectives of this paper are to present data on the self-reported use of prescribed and over-the-counter drugs among young people aged 11-12 and 14-15 years and to examine factors associated with the use of prescribed drugs, over-the-counter painkillers and cough and cold treatments.

Method Data were collected from a representative sample of pupils aged 11-12 years old and 14-15 years old attending 85 schools in Trent Region. Results are based on replies from approximately 8500 pupils in each year group. Pupils were asked to self-report usage by ticking a list of prescribed and non-prescribed drugs or medicines.

Results Girls aged 14-15 years are more likely than others to have used at least one of the drugs in the previous week, with 40 per cent of girls in this age group having used a non-prescribed painkiller. Young people with a long-term illness or previous injuries are more likely to report having used prescribed drugs and/or over-the-counter painkillers. Family car-ownership, a proxy for socio-economic status, is not associated with the use of those drugs examined in more detail.

Conclusions The levels of use of over-the-counter drugs, particularly those with potential side effects, indicate that further studies are needed to examine patterns of use in more detail and that health education about self-medication is appropriate among young people aged 11-12 years and above.

Keywords: adolescent, prescribed drugs, over-the-counter drugs

Introduction

Young people's use of illegal or abused drugs has recently been highlighted, with almost a quarter of young people aged 14-15 reporting that they had ever taken cannabis, the most frequently used illegal or abused substance. However, there is evidence that legally prescribed drugs and preparations sold 'over the counter' (OTC) are taken by far more young people than illegal drugs. These types of drugs are more freely available, but may be potentially damaging or fatal, and are the focus of this paper.

Two types of studies have been conducted into the use of prescribed drugs and OTC preparations among young people. The first considered those administered by parents, who often diagnose and treat their children's ailments. Studies have shown that, among OTC preparations, painkillers are most commonly bought by parents to give to children. For example, in the United Kingdom in the mid-1980s, although 55 per cent of all treatments were prescribed, dosages of aspirin and paracetamol accounted for a further 25 per cent of treatments administered in any one week to those under 17 years of age. The same study observed a decrease in administration of treatments as age increased and that boys were given treatments more often than girls. A US study found that parents in higher socio-economic groups were more likely to administer treatments to children aged 2-12 years of age.

The second type of study has examined self-reports of use of prescribed and OTC drugs or treatments by young people themselves. The largest survey of this type was carried out among 29 074 young people aged 11-16 years in volunteer schools and revealed a different pattern of usage of OTC treatments from that observed when parents were questioned. Crucially, the use of a painkiller in the previous week increased with age from about one in four 11-12-year-olds to two in five 14-15-year-olds, rather than decreased with age. The study also showed that in both age groups girls were more likely than boys to have used a painkiller in the last week and, by the age of 14-15 years, over half were doing so compared with less than a third of boys. Girls of this age were also rather more likely to report having taken a cold, throat or flu remedy recently, with

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TABLE 1 Sample and response (percentages given in parentheses)

<table>
<thead>
<tr>
<th></th>
<th>Aged 11–12 years</th>
<th>Aged 14–15 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eligible sample</td>
<td>11188</td>
<td>11286</td>
</tr>
<tr>
<td>Response</td>
<td>9568 (86)</td>
<td>9138 (81)</td>
</tr>
<tr>
<td>Completed question</td>
<td>8449 (88)</td>
<td>8559 (94)</td>
</tr>
</tbody>
</table>

over a third of girls having used at least one compared with a quarter of boys.

The objectives of this paper are to build on the relatively little knowledge available about self-reported use of prescribed drugs and some OTC preparations by examining their use and the interrelationship of factors associated with the use of prescribed drugs, OTC painkillers and OTC cough or cold medicines among young people aged 11–12 years and 14–15 years.

Method

The study is a secondary analysis of data generated by a school-based survey using a self-completion questionnaire.4 Briefly, schools were randomly selected within each of the ten Health Districts. A total of 85 schools took part, being 94 per cent of the schools agreeing to participate. Between February and June 1994, whole year groups (Year 7 aged 11–12 years, and Year 10 aged 14–15 years) completed a 16-page questionnaire, which had been checked for reliability, on health-related themes. The eligible sample was some 11,000 pupils in each age group. The overall response rate was 83 per cent, being 86 per cent from younger and 81 per cent from older pupils. Response was reasonably evenly distributed by gender.

Responses to the question on the use of ‘drugs or medicines from the chemist or shop’ in the previous week (Fig. 1) were analysed. Eighty-eight per cent of pupils aged 11–12 and 94 per cent of pupils aged 14–15 years completed the question, with a higher response rate from girls than boys (Table 1). Thus for both year groups 76 per cent of eligible pupils both took part in the survey and answered the question under consideration.

Analysis

First, overall gender and age effects in the use of prescribed and OTC drugs were examined. Second, logistic regression, separately for boys and girls aged 11–12 and 14–15 years, was calculated. For each of the age or gender groups, analyses were calculated for prescribed drugs, non-prescribed painkillers and cough or cold medicines. The same set of explanatory vari-

TABLE 2 Explanatory variables for logistic regression

<table>
<thead>
<tr>
<th>Health</th>
<th></th>
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<tbody>
<tr>
<td>Self-reported health status (excellent, very good, good, fair, poor)</td>
<td></td>
</tr>
<tr>
<td>Long-term illness, health problem or disability (no, yes)</td>
<td></td>
</tr>
<tr>
<td>Injuries in previous six months (none, one, two or more)</td>
<td></td>
</tr>
<tr>
<td>Ethnic group [White, Black (African, Caribbean, other), Indian, Pakistani, other]</td>
<td></td>
</tr>
<tr>
<td>Family car (no, yes)</td>
<td></td>
</tr>
<tr>
<td>Emotional factors</td>
<td></td>
</tr>
<tr>
<td>Feeling usually good about (no, yes):</td>
<td></td>
</tr>
<tr>
<td>health, future, looks, home, school work, friendships, none</td>
<td></td>
</tr>
<tr>
<td>Feeling (never, seldom, often):</td>
<td></td>
</tr>
<tr>
<td>lonely, depressed, panicky</td>
<td></td>
</tr>
<tr>
<td>Social support</td>
<td></td>
</tr>
<tr>
<td>Someone to talk to (no, yes):</td>
<td></td>
</tr>
<tr>
<td>adult at home, teacher, friend, sibling, other person, no-one</td>
<td></td>
</tr>
<tr>
<td>Drugs</td>
<td></td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td></td>
</tr>
<tr>
<td>Drugs from chemist or shop (other but outcome variable)</td>
<td></td>
</tr>
<tr>
<td>The category in bold type is used as the reference category.</td>
<td></td>
</tr>
</tbody>
</table>

ables was used (Table 2) and included health measures, ethnic group, family car-ownership (a proxy variable for economic status),5 smoking status, alcohol consumption and a number of questions on emotional factors and social support. The results are presented as percentages or odds ratios. Generally, when findings are commented upon they reach statistical significance at the 5 per cent level, allowing for the other variables.

Results

Estimates for the use of prescribed and OTC drugs

Sixty-seven per cent of young people generally, but 79 per cent of older girls, reported using one or more of the drugs and treatments studied. Of those who used a medication in the previous week, half used more than one drug or medicine, and 56 per cent of older girls did so.

Figure 2 displays the estimates for boys and girls by age group and for each type of drug or treatment. Older girls are more likely to have used medicines in the previous week, in particular prescribed drugs, non-prescribed painkillers or a cough or cold treatment. The most striking difference between the groups is in the reported use of OTC painkillers, as two-fifths of older girls had used them compared with one-fifth of other groups. In most instances, there are no differences between boys and girls aged 11–12 years.
Use of more than one medication

Generally, young people who took a prescribed drug, an OTC painkiller or a cough or cold medicine are also more likely to have taken another drug. This effect is marked for non-prescribed painkillers. For example, for those taking an OTC painkiller the odds are 2 to 1 for the use of indigestion medicines compared with those not taking OTC painkillers. Similarly, for those using a cough or cold medicine, the odds are 3 to 1 for taking vitamin or mineral tablets. The relationship between the use of prescribed drugs and OTC painkillers is different for older girls, as the odds of using a prescribed drug if they also use an OTC painkiller are 0.75 to 1.

Prescribed drugs

The most important association with the use of prescribed drugs is the presence or absence of a long-term illness, health problem or disability. The odds of using a prescribed drug are 4 to 1 for young people with a long-term illness compared with others. For older girls the odds are 5 to 1. For someone who has had two or more injuries in the previous six months compared with someone with no injuries in this time period, the odds are 1.3 to 1 that they have used a prescribed drug, more than 2 to 1 for older girls, whereas one injury does not make a difference. Emotional factors, alcohol consumption and smoking status show little importance after allowing for long-term illness and injuries.

Over-the-counter painkillers

Figure 3 shows the relationship between various measures of health and the relative odds for taking an
OTC painkiller. Young people aged 14–15 years who reported their health as less than excellent have higher odds ratios for taking OTC painkillers. Among older girls, the odds for girls with a long-term illness compared with girls without are 1·2 to 1. The odds of taking OTC painkillers increase with the number of recent injuries reported by older girls. Although there is little impact of the emotional factors examined, depression seems associated with an increase in the use of OTC painkillers, particularly for younger girls.

Figure 4 shows the relationship between ethnic group and the relative odds of taking an OTC painkiller. The pattern for ethnic group suggests that Indian and Pakistani pupils as well as pupils from ‘other’ ethnic groups (e.g. Chinese, Bangladeshi) compared with White or Black ethnic groups have lower odds for using non-prescribed painkillers.

Over-the-counter cough or cold medicines

Use of OTC cough or cold medicines is associated with injuries for older girls, with the odds being 1·3 to 1 for girls aged 14–15 with one injury only compared with no injury. For those with two or more injuries compared with someone with no injury, the odds increase to 1·6 to 1. There is no association with emotional feelings or social support.

Common features
For the three types of drugs examined there was no association with socio-economic status. There was very little association with smoking or alcohol consumption. Emotional factors, with the exception of depression, played only a minor role in explaining the use of the drugs examined.

Discussion

Studies of prescribed drug and OTC preparations taken by young people tend to focus on prescribing by general practitioners, parental reporting and frequency of a drug’s use over time. When young people themselves have been asked to self-report, data collection methods have varied, and this has influenced findings. For example, in a school-based study a different question
using a more complicated layout was used. Differences in method are also highly likely to explain the lack of relationship between drug or preparation usage and higher social class found here, but which has been found in the United States. The proxy indicator of socio-economic status used in this study is not as sensitive as others available, and further studies are needed to explore this relationship. Cultural differences may also explain the lack of congruity in findings between the two countries.

Most studies of young people’s drug and treatment use are open to non-response bias, although this varies. Here, and despite the response rate of over 80 per cent, smokers are more likely to be absent from school than others because of illness, but absence is also due to truants, which is associated with legal and illegal drug use and substance abuse. Non-response bias may therefore help to account for the lack of a hypothesized relationship between smoking status and the use of both prescribed medicines and OTC drugs, despite smokers being more likely than others to self-report poor or only fair health and fewer feeling good about their health. Further studies that focus on these issues may reveal such an inter-relationship. Thus, findings from this study are difficult to assess against others.

In this study, teachers reported that non-response was mainly from pupils who were too ill to be in school on the day of the study and so data are biased away from those likely to be using prescribed drugs for short-term illnesses. However, the issue is not clear-cut, as subjects who do not answer specific questions within a questionnaire tend to do so because they feel they are not relevant and 9 per cent failed to answer the question on drug and treatment usage.

The conditions that prescribed drugs were designed to alleviate were not explored in this study, although 5–12 per cent of young people were likely to have been prescribed antibiotics. These studies, and the relationship here with long-term illnesses and disabilities, also suggest that treatment for asthma, now the most common long-term condition among pupils of school age, would be prescribed for 8–10 per cent of pupils. It is also likely that at least some prescribed medicines reported are painkillers and cough or cold remedies as, although cheap and easily purchased from chemists, supermarkets and corner shops, when prescribed for children they are free. Evidence for this claim comes from comparisons with data from another school-based study using similar methods but which did not distinguish between prescribed and non-prescribed drugs. It found that, by age and gender, the pattern of use of painkillers and cough or cold remedies is the same as that observed in this study, but prevalence of use is consistently higher. For example, comparing the use of painkillers by 14–15-year-old girls the difference is 15 per cent and for cough and cold remedies the difference is 18 per cent. Such differences are unlikely to be caused by non-response bias or the time of the year during which the surveys were conducted. Evidence suggests that some prescriptions for painkillers would have been issued to those who had sustained one or more injuries in the past six months. On the other hand, they were unlikely to have been issued for headaches.

In contrast to prescribed drugs, the use of non-prescribed painkillers which are likely to be used sporadically, and cough and cold remedies, appears high in comparison with a study of parent-administered drugs. It is plausible that young people in the age groups studied here, especially 14–15-year-olds, act more independently than younger children, making their own decisions about what to take and when to use non-prescribed medicines. For example, girls with dysmenorrhoea may be self-medicating, as may those who perceive their health as less than excellent. The greater likelihood of those having had injuries in the last six months using cough or cold remedies is more difficult to explain, unless such individuals become more susceptible and sensitive to common illnesses.

If it is true that parents do not always know about their children’s self-medication with OTC preparations, reports from parents may well underestimate the extent of their use. This proposition raises issues of concern which are not addressed in this study. First, it may be that a range of OTC preparations are bought by parents for household use, but do parents know when and how much of these their children are taking? Which other sources of drugs and treatments, among the many available (such as local shops and friends), do young people turn to for self-medication? Are young people self-treating appropriately whatever the source of preparation? (The appropriateness of drugs administered by parents may also be questionable.) For example, young people may use cough or cold remedies to alleviate coughing or wheezing associated with asthma. What do young people know, for example, about the dosages and side effects of drugs they take, or which drugs can cause drowsiness? Do they know that aspirin causes stomach bleeding? These are highly pertinent questions, as the reading ability of some pupils, especially younger pupils and those with learning difficulties, is likely to be less than that needed to understand literature accompanying some OTC drugs. What influences the choice of drugs used: information from friends, their ready availability in many outlets, or the sophisticated media promotion of commercial health products? Are combinations of prescribed drugs, non-prescribed painkillers and/or cough and cold remedies complementary or potentially
damaging? All may contain paracetamol, which can damage kidneys when used over long periods of time in high doses and is fatal when used in large quantities.

Some cautious and general conclusions based on findings here and elsewhere are possible: (1) about a fifth of young people in school can be expected to take prescribed medicines in any one week; (2) painkillers are generally the most commonly used OTC drugs; (3) boys, especially younger boys, are less likely than girls to have taken drugs and/or treatments and older girls are the most likely to have taken one or more. Studies to explore the validity of self-reports, an issue which was not addressed in this anonymous study, may better indicate the exact extent of young people's use of OTC treatments. However, they would be difficult, expensive and require invasive testing, although checking general practitioners' records for prescribed drug usage would be possible. Set against this is evidence that, generally, self-reported data from young people are reliable and valid, even when sensitive subjects, such as smoking behaviour, are studied. It is therefore argued that the study gives sufficient grounds to justify not only further exploration of patterns of OTC treatment use among young people but also the consideration of health education programmes about legal drug and treatment usage among pupils aged 11–12 years and older.

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References


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