

Sharing Prescription Medication Among Teenage Girls: Potential Danger to Unplanned/Undiagnosed Pregnancies

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ABSTRACT. *Objective.* The objective of this study was to determine how often children and adolescents share prescription medications and, because of teratogenic concerns, assess specific reasons why girls might engage in medication-sharing behaviors.

Methods. Data were collected as part of Youthstyles, a mail survey of children and adolescents 9 through 18 years of age (764 girls and 804 boys) about health issues, attitudinal variables, and media preferences. Information collected by the survey included the respondent's history of borrowing or sharing prescription medications, the frequency with which sharing occurred, the reasons why medications might be borrowed or shared, and who influences their decisions to borrow or share medication.

Results. A total of 20.1% of girls and 13.4% of boys reported ever borrowing or sharing medications. Of the girls surveyed, 15.7% reported borrowing prescription medications from others, and 14.5% reported sharing their prescription medication with someone else. The reported likelihood of sharing increased with age. Medication sharing or borrowing was not a "one time only" emergency use for many: 7.3% of girls 15 through 18 years of age had shared medications >3 times. Reasons that girls gave for why they would share medications included having a prescription for the same medicine (40.2%), getting the medication from a family member (33.4%), having the same problem as the person who had the medication (29%), or wanting something strong for pimples or oily skin (10.5%).

Conclusions. Medication sharing is relatively common among children and adolescents and is more common among girls than boys. An adolescent who receives a medication via sharing does not receive the appropriate information about its actions and possible negative interactions with other medications or any other associated risks. Sharing potentially teratogenic drugs is of special concern. Many barriers exist to communicating the risk about teratogenic drugs to women and girls, particularly if they are not planning a pregnancy or are unaware that they are already pregnant. These findings suggest the need for basic research on issues related to the dangers of medication sharing and teratogenic risks, as well as the development of successful approaches to communicate these risks. *Pediatrics* 2003;111:1167-1170; *drug prescriptions, medication sharing, adolescence, teratogens.*

Sharing prescription medication is a concern among adolescent girls not only for potential health effects to the girls taking the medications but also because of the potential for teratogenic effects (causing birth defects) on an unplanned or unrecognized pregnancy. A number of factors contribute to this latter concern, including the relatively common use of prescription drugs among children and adolescents; in 1 study, children and adolescents 9 through 17 years of age received 2 to 3 prescriptions per year.¹ Another factor is that the practice of marketing drugs directly to the consumer through advertising has increased dramatically during the past 15 years and has led to increased requests for specific prescriptions from health care providers.² This marketing can influence consumer perceptions of and knowledge about the safety of highly advertised medications. Attitudes and behaviors concerning medication sharing that are formulated during childhood or adolescence might influence the potential for such risk behaviors throughout a woman's reproductive years.

Two recent studies reported circumstances related to prescription medication sharing among adult women. The first study documented women who had obtained a teratogenic medication outside of a clinical setting, including from friends or colleagues.³ The second reported reasons that women gave for sharing medications; among the reasons cited were: common practice, medication costs, sharing with friends and family, helping others, and already having a prescription for the same medication.⁴ A search of published medical, psychological, and drug abuse literature yielded few studies of prescription medication borrowing or sharing.^{5,6} Illicit use of prescription drugs, often in place of illegal drugs, has received some attention.⁷⁻¹¹ In contrast, very little is known about well-intended prescription medication sharing, despite the risks associated with this inappropriate practice. No studies were found on prescription medication sharing among adolescents. In reporting this study, we identify some of the factors that influence medication sharing among children and adolescents, and we encourage pediatricians to integrate this knowledge into patient education and counseling on proper medication use.

METHODS

We analyzed data from Youthstyles, a mail survey of boys and girls 9 through 18 years of age about their attitudes and reported behaviors related to prescription medications. Results from the survey, a supplement to the American Healthstyles Audience

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Segmentation Project (Healthstyles survey), provide an outline of reported beliefs and behaviors related to prescription medication sharing and other health issues among US adolescents and pre-adolescents. Youthstyles is a survey questionnaire mailed to a stratified sample of the US population as a follow-up survey to the DDB Needham Lifestyles Survey on demographics and media use.¹² The Youthstyles survey, intended for the parents, children, and adolescents in each household, was mailed to 3050 households that had already completed the Lifestyle survey; 1583 responses were received (52% response rate). Parents were offered a small incentive (the choice of a travel mug or a road atlas) to encourage the family to respond; children and adolescents were not offered additional incentives to fill out their part of the questionnaire.

Youthstyles data were stratified by factors, including household income, race, ethnicity, education, age, gender, geographic region, marital status of parents, household size, and population density of area of residence (demographics were reported by parents). Data weighting was based on census figures to address any discrepancies between the US population and the sample.¹² The margin of error for estimates based on 1568 valid respondents (804 boys and 764 girls) 9 through 18 years of age was $\pm 3\%$. For analysis of subgroups, the margin of error was larger.

Prescription medication was defined in the survey for the respondents as follows: "A 'prescription' means the doctor has signed a paper so that you can get a medicine. It usually has your name on it. It does not mean medicines like Tylenol or aspirin that you can just buy at any grocery or drug store." This description was pilot-tested with children and adolescents of the relevant ages to assess their understanding. Questions in Youthstyles were intended to elicit respondents' behaviors and frequency of prescription medication sharing, including both sharing one's own prescription medications with others and borrowing other people's medications for oneself. Children and adolescents 9 through 18 years of age were asked, "Have you ever shared your prescription medication with others?" and, "Have you ever borrowed prescription medication from others?"

Social cognitive theory¹³ recognizes an interdependence of cognitive/emotional, behavioral, and social/environmental factors and was used to design the attitudinal questions for Youthstyles. Respondents were asked to respond to hypothetical reasons that they would share prescription medications (or they could respond that they would not). This hypothetical question was asked only of respondents who were 12 years of age or older because of concern that younger children would not be able to interpret the question appropriately.

Categorical variables related to respondent demographics were analyzed using χ^2 tests. Responses were compared by gender and among age groups (9 through 11, 12 through 14, and 15 through 18 years) and other variables, including household income and size, geographic area, population density, type of dwelling unit, residence ownership, marital status of parents, and multivitamin use (as a proxy for pill-taking behavior). A multivariate analysis was performed using SPSS 10.0 (SPSS Inc, Chicago, IL) to test the significance of these variables on reported medication sharing.

RESULTS

Among all respondents (9 through 18 years of age), 10.9% reported having ever shared their prescription medications with someone else, and 13.5% reported having ever borrowed someone else's medication. The combined rate of any sharing and borrowing behaviors (Table 1) was higher among girls (20.1%) than boys (13.4%) and was most common among girls 15 through 18 years of age (22.9%). Other variables significantly associated with increased medication sharing were rural population density, lower income, and larger household size ($P < .01$).

When respondents were asked about their actual medication borrowing or sharing practices in the past year, 16.9% of girls and 10.4% of boys reported this behavior (Table 2). Medication sharing or borrowing in the past year was most common among

TABLE 1. Reported Medication Sharing Among 9- to 18-Year-Olds by Age and Gender, United States, 2001, Youthstyles ($N = 1568$)

	Boys ($n = 804$) n (%)	Girls ($n = 764$) n (%)
Ever borrowed prescription medication from others?		
9-11 y	17 (6.8)	23 (9.5)
12-14 y	31 (13.1)	29 (12.8)
15-18 y	44 (13.9)	68 (22.9)*
Total	92 (11.5)	120 (15.7)†
Ever shared your prescription medication with others?		
9-11 y	16 (6.4)	18 (7.5)
12-14 y	20 (8.5)	25 (11.1)
15-18 y	25 (7.9)	68 (22.9)*
Total	61 (7.6)	111 (14.5)†
Ever borrowed and/or shared?		
9-11 y	24 (9.4)	30 (12.4)
12-14 y	37 (15.5)	38 (16.5)
15-18 y	48 (15.1)	87 (29.2)
Total	108 (13.4)	155 (20.1)*

* $P < .01$ for comparisons between gender and age groups.

† $P < .01$ for comparisons between genders.

respondents 15 through 18 years of age. Among girls in that age group, 18.5% reported sharing medications (either borrowing from others or sharing theirs) 1 or 2 times in the past year, and 7.3% reported doing so 3 or more times in the past year.

Among respondents 12 through 18 years of age, 58% provided at least 1 reason that they would share prescription medications (Table 3). These adolescents considered that family members, someone who "knows something" about medicines, and someone who "has the same problem" were acceptable sources of prescription medications. Medication sharing was also deemed to be more acceptable if the person with whom the medication was being shared 1) already had a prescription but had run out or did not have it with them, 2) had an emergency, or 3) could not afford the medication but needed it. Medications would also be shared if the person were experiencing specific medical conditions such as headache or pain, had sleep needs, or had "pimples or oily skin." This dermatologic reason was given by significantly more girls than boys: 10.5% of girls 12

TABLE 2. Frequency of Medication Sharing in Previous Year Among 9- to 18-Year-Olds, United States, 2001, Youthstyles

	Boys ($n = 804$) n (%)	Girls ($n = 764$) n (%)
Shared 1-2 times in the past year		
9-11 y	13 (5.1)	12 (5.0)
12-14 y	28 (9.5)	32 (12.4)
15-18 y	18 (7.0)	48 (18.5)
Total	59 (7.3)	92 (12.0)*
Shared 3 or more times in past year		
9-11 y	7 (2.7)	6 (2.5)
12-14 y	6 (2.0)	10 (3.9)
15-18 y	10 (3.9)	19 (7.3)
Total	23 (2.9)	35 (4.6)*
Total number who shared in the past year	84 (10.4)	129 (16.9)†

* $P < .01$ for comparisons between genders.

† $P < .01$ for comparisons between gender and age groups.

TABLE 3. Reasons That Respondents 12 Through 18 Years of Age Say That They Would Share Prescription Medications, United States, 2001, Youthstyles

	Boys <i>n</i> (%)	Girls <i>n</i> (%)	Medication Sharers (<i>n</i> = 210) (All Respondents Who Reported Ever Borrowing or Sharing)
Already have a prescription for that medicine, but ran out or don't have it with me	142 (27.1)	203 (40.2)*	136 (64.8)†
Got it from a family member	139 (26.6)	168 (33.4)*	139 (66.2)†
Have an emergency	117 (22.4)	139 (27.6)‡	82 (39.0)†
Have the same problem as the person who has the medicine	105 (20.1)	146 (29.0)*	127 (60.5)†
Want something strong for pain or headache	79 (15.2)	94 (18.7)	91 (43.3)†
Got it from someone who knows something about medicines	55 (10.5)	69 (13.8)	59 (28.1)†
Want something strong for pimples or oily skin	37 (7.0)	53 (10.5)‡	40 (19.0)†
Need something to help me sleep	33 (6.3)	39 (7.8)	46 (21.9)†
Can't afford to buy the medicine, but I need it	31 (6.0)	39 (7.6)	38 (18.1)†
Have leftover medicine that would be wasted	16 (3.1)	34 (6.7)*	29 (13.8)†
Want to relax or feel good	24 (4.5)	16 (3.2)	27 (12.9)†
Have heard a lot about medicine from ads or commercials	7 (1.4)	7 (1.5)	9 (4.3)†
Wouldn't share prescription medicines	254 (48.5)*	177 (35.2)	8 (3.8)†
Not specified	31 (5.9)	23 (4.6)	3 (1.4)†

Multiple responses accepted; total may exceed 100%.

* $P < .01$, comparing girls with boys.

† $P < .01$, comparing shares with nonsharers.

‡ $P < .05$, comparing girls with boys.

through 18 years of age said they would share medication for that reason. Significantly fewer girls than boys (35.2% vs 48.5%) 12 through 18 years of age stated that they would not share medications at all.

There was some overlap between those who borrowed and those who shared medications: of the 1568 respondents, 206 had borrowed medications from others, 165 had shared their medications with others, and 115 had done both. Respondents who reported having previously shared medications offered many more reasons for sharing medications than did those who did not report sharing, but the types of reasons provided did not differ qualitatively between the 2 groups.

DISCUSSION

These data suggest that children and adolescents, and older teenage girls in particular, need education regarding the risks of prescription medication sharing. This is a heightened concern for girls because several studies have reported that young women are more likely to use prescription medications than young men.^{14,15} In this study, reported sharing/borrowing behavior increases with age just as girls are approaching their primary reproductive years (18 through 29 years of age). Pediatricians, dermatologists, and other health care providers should educate girls and their parents about the importance of taking prescription medications (indeed, all medications) safely and under the supervision of a health care provider. Pediatricians need to be aware of the increased risk of medication sharing among teenage girls, discuss the dangers of medication sharing while delivering contraception counseling and referrals, discuss proper medication use with adolescent patients and their parents, and follow the American Academy of Pediatrics anticipatory guidance on preventing adolescent pregnancies.

Given the evidence that prescription medication

sharing is common among teenage girls who are entering their reproductive years and that many prescription medications are potentially teratogenic, it is of paramount importance that girls be counseled to remember that all prescription medications should be taken only under the direction of a health care provider. This contention is supported by a number of statistics. For example, the Youthstyles survey revealed that almost 20% of female respondents 15 through 18 years of age reported that they had shared prescription medications in the past year. In addition, in the United States in 1995, 22% of 15-year-old girls and 65% of 18-year-old girls reported that they had ever had sexual intercourse.¹⁶ Up to half of the pregnancies in the United States are unplanned or mistimed,¹⁷ and that number is even higher among adolescents.¹⁶ In fact, the United States has the highest rate of adolescent births in the developed world.¹⁸ In addition, prescriptions for isotretinoin (Accutane), a teratogenic drug used to treat acne, increased 250% during the period 1992 through 2000¹⁹; >700 000 prescriptions for Accutane were dispensed to women of childbearing age in 1999 alone, and approximately 35% of the women who voluntarily enrolled in one recent study of Accutane use were younger than 20 years.²⁰ With this information in mind, it is evident that medication sharing increases the risk for exposure to potential teratogens in this vulnerable population.

Recent research by the Centers for Disease Control and Prevention has shown that there is a low level of understanding about the nature of teratogenic prescription medications among women as well.^{3,4} Symbols on packages of teratogenic drugs that were intended to warn patients about the risks of taking the medication while pregnant have been misinterpreted as labels indicating that the medication is a contraceptive. Unambiguous text or symbols, or both, to warn women and girls about medication dangers

have not yet been identified and tested. A primary concern in medication-sharing behaviors is the probability that acquisition of teratogens will occur outside the usual doctor-patient setting and thus in the absence of the appropriate educational materials and counseling.

Advertising increases consumer awareness of certain drugs and conditions and can give a false sense of security about the safety of advertised drugs.² This increased awareness could also increase the likelihood of a person's borrowing a drug that has never been prescribed for him or her. Potential hazards involved with medication sharing include 1) use of medications among people who are poor candidates for the drugs; 2) adverse effects of the drugs given other existing chronic or acute medical conditions; 3) adverse interactions with other prescribed or over-the-counter medications; 4) decreased effectiveness of other prescribed medications, such as the interaction between oral contraceptives and some antibiotics; and 5) lack of appropriate educational materials that are normally distributed with prescriptions at either the physician's office or the pharmacy.

The Youthstyles survey had several limitations. Participation was voluntary, and self-selected respondents might represent a group that is somewhat different from the general population. For example, they might be more literate or more interested in the topic or have more time available, and these differences might limit the generalizability of the results. Recall bias and sensitivity to some items might also be reflected in the responses.

Although medication sharing is acknowledged as a common occurrence, this is the first study to document the extent of this phenomenon among those 9 through 18 years of age. Medication sharing is an important public health issue, and efforts should be designed to better inform children and adolescents about prescription medications and teratogens, with the goal of positively influencing their behavior. These survey results highlight the need for the development and testing of targeted educational messages about safe prescription medication use for adolescents. Pediatric practitioners and other health care providers are important partners in such efforts.

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