

# The Extent of Alcohol and Illicit Drug Use by Pharmacy Students in Texas

Karen Rascati  
Nawarut Charupatanapong  
William McCormick

## *INTRODUCTION*

Chemical dependency, including alcohol and drug dependency, is a growing concern for all segments of the population. Some suggest that health professionals, including physicians, nurses, and pharmacists, are at an even higher risk of chemical dependency than the general population because of the stress inherent in their practices and the access they have to drugs (1, 2). Pharmacy students, as well as other health professions students, are under pressure to perform well and may also have access to drugs in their clerkships and externships.

When reviewing the literature on alcohol and drug use by college students, Meilman reported that although many inconsistencies in surveys exist, there is consensus that alcohol is the drug of choice on college campuses: more than 90% of college students have used alcohol, and men drink significantly more than women

---

Karen Rascati, Ph.D., is in the Pharmacy Administration Division at the University of Texas at Austin College of Pharmacy, Austin, TX 78712. Nawarut Charupatanapong, Ph.D., is at the Texas Southern University College of Pharmacy and Health Sciences, Houston, TX 77004. William McCormick, Ph.D., is at the University of Houston College of Pharmacy, 4800 Calhoun, Houston, TX 77204.

(3). The results of studies on pharmacy students' use of alcohol are similar for the first two statements, but pharmacy studies did not always find a difference in alcohol use by gender (4-7).

Previous pharmacy research has attempted to quantify the amount of chemical abuse among pharmacy students. Students in eight southeastern pharmacy schools were surveyed concerning their use of alcohol and illicit drugs (6, 7). When the results of the southeastern study were compared to the results of the general college student population as a whole, the authors concluded that there was a significantly lower use of alcohol and most illicit drugs by pharmacy students but cautioned that pharmacy students in southeastern schools were compared to a nationwide sampling of general students and that regional variations may contribute to this difference (7). The idea of geographical differences is supported when one notes the similarity between results of a survey of New England pharmacy students and results of a survey of New England students at a liberal arts university (4, 8). Also, the use reported by New England pharmacy students is higher than that reported in the southeastern pharmacy student survey and in a pharmacy student survey conducted in Nebraska (5-7).

Studies of pharmacy students have also indicated that most pharmacy students think a drug and alcohol abuse awareness program is needed at their school, and most of those surveyed indicated that they would *not* know where to get help if they or another student had a problem (5, 6, 9). The three colleges of pharmacy in Texas—Texas Southern University (TSU), the University of Houston (UH), and the University of Texas (UT)—with the help of the Texas Pharmaceutical Association, have begun to implement a day-long chemical dependency seminar for pharmacy students.

The objectives of this study were to determine the extent of alcohol and drug use by pharmacy students in Texas, to compare the results to other studies, and to determine whether the students feel there is a need for a chemical abuse program at their university.

### METHODS

Previous authors patterned their surveys after NIDA's "Monitoring the Future" project (6, 7). We chose to use these questions

because they served our purpose, they were already pretested, and our results could be directly compared to previous findings. Substance abuse was defined on the survey using the same definition used in other surveys (6, 7, 9). One professor at each Texas school was in charge of distributing the questionnaires and answer sheets to pharmacy students during class time. Students were asked not to write their names or to identify themselves on the questionnaire or answer sheet, and they were assured that all responses would be anonymous and confidential. Answer sheets were computer scanned by the University of Texas Measurement and Evaluation Center, and analyses were conducted by the first author using the SAS-PC<sup>R</sup> statistical package. An alpha level of .01 was set a priori due to the number of statistical tests conducted.

## RESULTS

A total of 603 usable surveys were returned. For each course in which the survey was distributed, more than 90% of the students attending the course that day completed the survey. The demographics of the respondents from each school, listed in Table 1, are consistent with the total student population at each school. Table 2 shows the professional characteristics of the respondents.

Table 3 illustrates students' responses concerning their use of alcohol. About 86% of the respondents indicated that they had consumed 2 or more alcoholic drinks on at least 1 occasion in their lives ("lifetime use"). This compares to 87% lifetime use reported by the southeastern pharmacy survey and 89% reported by the Nebraska pharmacy survey (5, 6). About 72% reported having 2 or more drinks on at least 1 occasion in the past year ("current use"). Southeastern pharmacy students reported a 78% rate (6).

When current alcohol use was examined by student demographics and characteristics, significant differences were found for three attributes: race, professional year, and attendance at religious services. White students reported the highest percentage of current alcohol use among the races, while oriental students reported the lowest use (Table 4). Students who were further along in pharmacy

Table 1  
Demographics of respondents<sup>a,b</sup>

| Variable                | TSU<br>N(%) | UH<br>N(%) | UT<br>N(%) | Total<br>N(%) |
|-------------------------|-------------|------------|------------|---------------|
| Sex                     |             |            |            |               |
| Male                    | 66 (39.0)   | 41 (37.3)  | 108 (33.4) | 215 (35.7)    |
| Female                  | 103 (61.0)  | 69 (62.7)  | 215 (66.6) | 387 (64.3)    |
| Race                    |             |            |            |               |
| Black/Afro-American     | 116 (68.2)  | 5 (4.6)    | 11 (3.4)   | 132 (22.0)    |
| Mexican-American        | 11 (6.5)    | 10 (9.1)   | 58 (18.0)  | 79 (13.1)     |
| Oriental/Asian American | 15 (8.8)    | 30 (27.3)  | 40 (12.4)  | 85 (14.1)     |
| White/Caucasian         | 7 (4.1)     | 54 (49.1)  | 202 (62.7) | 263 (43.7)    |
| Other                   | 21 (12.4)   | 11 (10.0)  | 11 (3.4)   | 43 (7.1)      |

Marital Status

|                    |           |           |            |            |
|--------------------|-----------|-----------|------------|------------|
| Married            | 59 (34.7) | 23 (21.1) | 68 (21.1)  | 150 (24.9) |
| Engaged            | 12 (7.1)  | 5 (4.6)   | 18 (5.6)   | 35 (5.8)   |
| Separated/Divorced | 11 (6.5)  | 6 (5.5)   | 14 (4.3)   | 31 (5.2)   |
| Single             | 88 (51.8) | 75 (68.8) | 223 (69.0) | 386 (64.1) |

a: N= 603 (170 TSU, 110 UH, 323 UT); differences between sample size and number of respondents in each category are due to missing data.

b: Percentages may not add to 100.0% due to rounding.

Table 2  
Professional characteristics of respondents<sup>a,b</sup>

|  | N   | (%)    |
|--|-----|--------|
| Professional Year in Pharmacy B.S. Program |     |        |
| Early admission 1:4 <sup>c</sup>           | 43  | (7.2)  |
| 3rd to last professional year              | 245 | (41.0) |
| Next to last professional year             | 187 | (31.3) |
| Last professional year                     | 122 | (20.4) |
| Prepharmacy Work                           |     |        |
| Junior college                             | 101 | (16.9) |
| Other 4-year institution                   | 230 | (38.4) |

|                  |     |        |
|------------------|-----|--------|
| Same institution | 247 | (41.2) |
| Other            | 21  | (3.5)  |

- 
- a: Six respondents did not indicate their professional year and four respondents did not indicate where they did their prepharmacy work.
- b: Percentages may not add to 100.0% due to rounding.
- c: The schools admit a small number of students after their first prepharmacy year. The majority of students are admitted after two years of prepharmacy education.
- 

|                  |     |        |
|------------------|-----|--------|
| Same institution | 247 | (41.2) |
| Other            | 21  | (3.5)  |

- 
- a: Six respondents did not indicate their professional year and four respondents did not indicate where they did their prepharmacy work.
- b: Percentages may not add to 100.0% due to rounding.
- c: The schools admit a small number of students after their first prepharmacy year. The majority of students are admitted after two years of prepharmacy education.
-

74 /

Table 3  
Percentage of students using alcohol during the last twelve months

|   | Never <sup>a</sup> | 0 times <sup>b</sup> | 1-5 times | 6+ times |
|---|--------------------|----------------------|-----------|----------|
| Drink 2 or more beers                           | 29.0               | 20.2                 | 22.4      | 28.4     |
| Drink 2 or more glasses of wine                 | 22.5               | 26.7                 | 39.4      | 11.4     |
| Drink 2 or more mixed drinks or straight liquor | 24.0               | 19.3                 | 34.4      | 22.3     |
| Drink two or more of any of the above           | 13.6               | 14.5                 | 35.6      | 36.4     |

a: Never = Never in their lifetime

b: 0 times = Zero times in the last 12 months

N= 598-602

74 /

Table 3  
Percentage of students using alcohol during the last twelve months

|   | Never <sup>a</sup> | 0 times <sup>b</sup> | 1-5 times | 6+ times |
|---|--------------------|----------------------|-----------|----------|
| Drink 2 or more beers                           | 29.0               | 20.2                 | 22.4      | 28.4     |
| Drink 2 or more glasses of wine                 | 22.5               | 26.7                 | 39.4      | 11.4     |
| Drink 2 or more mixed drinks or straight liquor | 24.0               | 19.3                 | 34.4      | 22.3     |
| Drink two or more of any of the above           | 13.6               | 14.5                 | 35.6      | 36.4     |

a: Never = Never in their lifetime

b: 0 times = Zero times in the last 12 months

N= 598-602



Table 4  
Students using alcohol within the last twelve months by race \*

| Race                    | Alcohol use<br>last 12 mo. |        | No alcohol<br>use last 12 mo. |        |
|-------------------------|----------------------------|--------|-------------------------------|--------|
|                         | N                          | (%)    | N                             | (%)    |
| Black/Afro-American     | 92                         | (69.7) | 40                            | (30.3) |
| Mexican American        | 53                         | (67.1) | 26                            | (32.9) |
| Oriental/Asian-American | 34                         | (40.0) | 51                            | (60.0) |
| White/Caucasian         | 227                        | (86.3) | 36                            | (13.7) |
| Other                   | 26                         | (60.5) | 17                            | (39.5) |

\* Chi-square = 73.6 df = 4; p < .001

Table 4  
Students using alcohol within the last twelve months by race \*

| Race                    | Alcohol use<br>last 12 mo. |        | No alcohol<br>use last 12 mo. |        |
|-------------------------|----------------------------|--------|-------------------------------|--------|
|                         | N                          | (%)    | N                             | (%)    |
| Black/Afro-American     | 92                         | (69.7) | 40                            | (30.3) |
| Mexican American        | 53                         | (67.1) | 26                            | (32.9) |
| Oriental/Asian-American | 34                         | (40.0) | 51                            | (60.0) |
| White/Caucasian         | 227                        | (86.3) | 36                            | (13.7) |
| Other                   | 26                         | (60.5) | 17                            | (39.5) |

\* Chi-square = 73.6 df = 4; p < .001

school reported more alcohol use, and students who attended religious services once a week or more reported the lowest percentage of current use of alcohol (Tables 5 and 6).

When measuring illicit drug use (drug use without a physician's order) in their lifetime, about 26% of those surveyed indicated that they had used marijuana or hashish; 9% had used amphetamines, and 7% had used cocaine. Current use was much lower: 6% reported using marijuana or hashish, 3% reported using amphetamines, and 1% reported using cocaine within the last year (Table 7). Reported lifetime use and current use were lower for all three drugs in this survey than in other pharmacy student studies. The range for lifetime use was 39-52% for marijuana, 15-18% for amphetamines, and 12-26% for cocaine, while current use has been reported as 14-28% for marijuana, 7-8% for amphetamines, and 3-13% for cocaine (4-6).

About 30% of the students reported the use of any illicit drugs in their lifetime, and 10% reported use of any illicit drug within the past year. Again, these percentages are lower than those of other pharmacy student studies, with lifetime drug use reported as 44-57% and current drug use reported at 36% (4, 5).

When current drug use is examined by student demographics and characteristics, significant differences are found for two attributes: race and religious attendance. Similar to the findings on current alcohol use, we found that white students reported a higher percentage of current drug use, while oriental students reported the lowest percentage (Table 8). Also, frequency of religious attendance was inversely related to current drug use (Table 9).

The responses to the next three survey questions appear in Table 10. When asked, "Do you think you have a drug or alcohol abuse problem?" about 6% said yes. In other pharmacy student studies, the range of students reporting that they had a drug problem ranged from 2-6% (5, 6). When asked if they thought an alcohol and drug abuse awareness program was needed at their school, 72% said yes. This finding is similar to those of the North Carolina pharmacy student survey (70%) and the southeastern study (68%) but higher than that found in the Nebraska study (54%) (5, 6, 9). Lastly, when asked if they knew where to get help or refer someone who was impaired, only about 35% indicated that they did.

Table 5  
Students using alcohol within the last twelve months by professional year \*

| Professional year | Alcohol use<br>last 12 mo. |        | No alcohol<br>use last 12 mo. |        |
|-------------------|----------------------------|--------|-------------------------------|--------|
|                   | N                          | (%)    | N                             | (%)    |
| 4th to last year  | 22                         | (51.2) | 21                            | (48.8) |
| 3rd to last year  | 171                        | (69.8) | 74                            | (30.2) |
| 2nd to last year  | 142                        | (75.9) | 45                            | (24.1) |
| Last year         | 96                         | (78.7) | 26                            | (21.3) |

\*Wilcoxon Rank sums;  $z = -3.2$ ;  $p = .001$ .

Table 5  
Students using alcohol within the last twelve months by professional year \*

| Professional year | Alcohol use<br>last 12 mo. |        | No alcohol<br>use last 12 mo. |        |
|-------------------|----------------------------|--------|-------------------------------|--------|
|                   | N                          | (%)    | N                             | (%)    |
| 4th to last year  | 22                         | (51.2) | 21                            | (48.8) |
| 3rd to last year  | 171                        | (69.8) | 74                            | (30.2) |
| 2nd to last year  | 142                        | (75.9) | 45                            | (24.1) |
| Last year         | 96                         | (78.7) | 26                            | (21.3) |

\*Wilcoxon Rank sums;  $z = -3.2$ ;  $p = .001$ .

Table 6  
Students using alcohol within the last twelve months by  
attendance at religious services\*

| Religious services        | Alcohol use<br>last 12 mo. |        | No alcohol<br>use last 12 mo. |        |
|---------------------------|----------------------------|--------|-------------------------------|--------|
|                           | N                          | (%)    | N                             | (%)    |
| Never attend              | 44                         | (72.1) | 17                            | (27.9) |
| Rarely attend             | 158                        | (76.0) | 50                            | (24.0) |
| Attend 1-2 times/mo.      | 125                        | (79.1) | 33                            | (20.9) |
| Attend one a week or more | 102                        | (59.3) | 70                            | (40.7) |

\*Wilcoxon rank sums;  $z = 2.9$ ;  $p = .004$

Table 6  
Students using alcohol within the last twelve months by  
attendance at religious services\*

| Religious services        | Alcohol use<br>last 12 mo. |        | No alcohol<br>use last 12 mo. |        |
|---------------------------|----------------------------|--------|-------------------------------|--------|
|                           | N                          | (%)    | N                             | (%)    |
| Never attend              | 44                         | (72.1) | 17                            | (27.9) |
| Rarely attend             | 158                        | (76.0) | 50                            | (24.0) |
| Attend 1-2 times/mo.      | 125                        | (79.1) | 33                            | (20.9) |
| Attend one a week or more | 102                        | (59.3) | 70                            | (40.7) |

\*Wilcoxon rank sums;  $z = 2.9$ ;  $p = .004$

Authors of the North Carolina study reported that "less than one-third" knew where to seek help, compared to 45% in the southeastern study (6, 9). About 47% of UT students indicated that they knew where to get help compared to 22% of the TSU students and 18% of the UH students. This may have occurred as a result of the one-day chemical dependency seminar which had been in place for one year at UT at the time of the study but was just beginning at the other two schools.

### **CONCLUSIONS**

When interpreting the results, some limitations must be kept in mind. A convenience sample of students was sampled. Only those who attended a particular class on the day of the survey had an opportunity to participate. It can be argued that those with alcohol or drug problems may be less likely to attend class. Although self-reports of alcohol and drug use have been found to be relatively consistent and valid when questionnaires are administered and confidentiality is assured, underreporting may occur (10, 11).

Many studies enumerated the number of occasions of any alcohol consumption, while our survey (as well as the southeastern survey) asked for the number of occasions the student consumed two or more drinks. This should be kept in mind when our results are compared to those of other studies.

The reported frequency of alcohol and drug use was lower than that found in other studies. This might be due to regional differences, but other factors should be kept in mind. For example, one might argue that pharmacy students as a whole may be becoming more moderate in alcohol and drug use, and therefore the differences are due to the year in which the surveys were administered. At present, there is not a large enough body of pharmacy research for comparison purposes.

Although the reported use of alcohol and drugs was relatively low, students still expressed a need for an awareness program, and two-thirds of the students did not know where to get help at their university.

Table 7  
Percentage of students using illicit drugs during the last twelve months<sup>a,b</sup>

|                           | Never <sup>c</sup> | 0 times <sup>d</sup> | 1-5<br>times | 6+<br>times |
|---------------------------|--------------------|----------------------|--------------|-------------|
| Use marijuana or hashish  | 73.9               | 20.0                 | 5.2          | 1.0         |
| Use LSD                   | 96.0               | 3.2                  | 0.7          | 0.2         |
| Use any other psychedelic | 96.2               | 3.2                  | 0.7          | 0.0         |
| Use amphetamines          | 90.5               | 6.7                  | 2.0          | 0.8         |
| Use Quaaludes®            | 97.7               | 2.3                  | 0.0          | 0.0         |
| Use barbiturates          | 97.8               | 2.0                  | 0.2          | 0.0         |
| Use tranquilizers         | 94.5               | 3.2                  | 2.0          | 0.3         |
| Use cocaine               | 93.0               | 6.0                  | 0.8          | 0.2         |

Table 7  
Percentage of students using illicit drugs during the last twelve months<sup>a,b</sup>

|                           | Never <sup>c</sup> | 0 times <sup>d</sup> | 1-5<br>times | 6+<br>times |
|---------------------------|--------------------|----------------------|--------------|-------------|
| Use marijuana or hashish  | 73.9               | 20.0                 | 5.2          | 1.0         |
| Use LSD                   | 96.0               | 3.2                  | 0.7          | 0.2         |
| Use any other psychedelic | 96.2               | 3.2                  | 0.7          | 0.0         |
| Use amphetamines          | 90.5               | 6.7                  | 2.0          | 0.8         |
| Use Quaaludes®            | 97.7               | 2.3                  | 0.0          | 0.0         |
| Use barbiturates          | 97.8               | 2.0                  | 0.2          | 0.0         |
| Use tranquilizers         | 94.5               | 3.2                  | 2.0          | 0.3         |
| Use cocaine               | 93.0               | 6.0                  | 0.8          | 0.2         |

|                        |      |      |     |     |
|------------------------|------|------|-----|-----|
| Use heroine            | 99.5 | 0.5  | 0.0 | 0.0 |
| Use any other narcotic | 96.7 | 3.0  | 0.2 | 0.2 |
| Use inhalants          | 95.2 | 4.3  | 0.3 | 0.2 |
| Use ecstasy            | 94.3 | 4.7  | 1.0 | 0.0 |
| <hr/>                  |      |      |     |     |
| Use any illicit drug   | 70.4 | 19.6 | 7.8 | 2.2 |

a: Students were instructed not to include anything they took as a prescription or because a physician told them to take it.

b: Percentages may not add to 100.0% due to rounding.

c: Never = Never in their lifetime

d: 0 times = Zero times in the last 12 months

N= 599-601

18

|                        |      |      |     |     |
|------------------------|------|------|-----|-----|
| Use heroine            | 99.5 | 0.5  | 0.0 | 0.0 |
| Use any other narcotic | 96.7 | 3.0  | 0.2 | 0.2 |
| Use inhalants          | 95.2 | 4.3  | 0.3 | 0.2 |
| Use ecstasy            | 94.3 | 4.7  | 1.0 | 0.0 |
| <hr/>                  |      |      |     |     |
| Use any illicit drug   | 70.4 | 19.6 | 7.8 | 2.2 |

a: Students were instructed not to include anything they took as a prescription or because a physician told them to take it.

b: Percentages may not add to 100.0% due to rounding.

c: Never = Never in their lifetime

d: 0 times = Zero times in the last 12 months

N= 599-601

18

Table 8  
Students using illicit drugs within the last twelve months by race \*

| Race                    | Illicit drug<br>use last 12 mo. |        | No illicit drug<br>use last 12 mo. |        |
|-------------------------|---------------------------------|--------|------------------------------------|--------|
|                         | N                               | (%)    | N                                  | (%)    |
| Black/Afro-American     | 10                              | (7.6)  | 122                                | (92.4) |
| Mexican American        | 7                               | (8.9)  | 72                                 | (91.1) |
| Oriental/Asian-American | 2                               | (2.3)  | 83                                 | (97.7) |
| White/Caucasian         | 38                              | (14.4) | 225                                | (85.6) |
| Other                   | 3                               | (7.0)  | 40                                 | (93.0) |

\* Chi-square = 12.76; df = 4 p = .01

Table 8  
Students using illicit drugs within the last twelve months by race \*

| Race                    | Illicit drug<br>use last 12 mo. |        | No illicit drug<br>use last 12 mo. |        |
|-------------------------|---------------------------------|--------|------------------------------------|--------|
|                         | N                               | (%)    | N                                  | (%)    |
| Black/Afro-American     | 10                              | (7.6)  | 122                                | (92.4) |
| Mexican American        | 7                               | (8.9)  | 72                                 | (91.1) |
| Oriental/Asian-American | 2                               | (2.3)  | 83                                 | (97.7) |
| White/Caucasian         | 38                              | (14.4) | 225                                | (85.6) |
| Other                   | 3                               | (7.0)  | 40                                 | (93.0) |

\* Chi-square = 12.76; df = 4 p = .01



Table 9  
Students using illicit drugs within the last twelve months  
by attendance at religious services \*

| Religious Services         | Illicit drug<br>use last 12 mo. |        | No illicit drug<br>use last 12 mo. |        |
|----------------------------|---------------------------------|--------|------------------------------------|--------|
|                            | N                               | (%)    | N                                  | (%)    |
| Never                      | 13                              | (21.3) | 48                                 | (78.7) |
| Rarely                     | 27                              | (13.0) | 181                                | (87.0) |
| Attend 1-2 x mo.           | 11                              | (7.0)  | 147                                | (93.0) |
| Attend once a week or more | 9                               | (5.2)  | 163                                | (94.8) |

\*Wilcoxon rank sums;  $z = -3.84$ ;  $p = .001$ .

83 /

Table 9  
Students using illicit drugs within the last twelve months  
by attendance at religious services \*

| Religious Services ✓       | Illicit drug<br>use last 12 mo. |        | No illicit drug<br>use last 12 mo. |        |
|----------------------------|---------------------------------|--------|------------------------------------|--------|
|                            | N                               | (%)    | N                                  | (%)    |
| Never                      | 13                              | (21.3) | 48                                 | (78.7) |
| Rarely                     | 27                              | (13.0) | 181                                | (87.0) |
| Attend 1-2 x mo.           | 11                              | (7.0)  | 147                                | (93.0) |
| Attend once a week or more | 9                               | (5.2)  | 163                                | (94.8) |

\*Wilcoxon rank sums;  $z = -3.84$ ;  $p = .001$ .

83 /

Table 10  
Need for program

| Question   | Response | (N) | (%)    |
|--|----------|-----|--------|
| Do you think you have a drug or alcohol abuse problem?   | Yes      | 35  | (5.9)  |
|  | No       | 557 | (93.1) |
|  | Not sure | 6   | (1.0)  |
| Do you think an alcohol and drug abuse awareness program is needed?                              | Yes      | 435 | (72.5) |
|  | No       | 60  | (10.0) |
|  | Not sure | 105 | (17.5) |
| If you or another student were impaired, would you know where to go for help at your university? | Yes      | 206 | (34.6) |
|  | No       | 302 | (50.5) |
|  | Not sure | 89  | (14.9) |

Table 10  
Need for program

| Question   | Response | (N) | (%)    |
|--|----------|-----|--------|
| Do you think you have a drug or alcohol abuse problem?   | Yes      | 35  | (5.9)  |
|  | No       | 557 | (93.1) |
|  | Not sure | 6   | (1.0)  |
| Do you think an alcohol and drug abuse awareness program is needed?                              | Yes      | 435 | (72.5) |
|  | No       | 60  | (10.0) |
|  | Not sure | 105 | (17.5) |
| If you or another student were impaired, would you know where to go for help at your university? | Yes      | 206 | (34.6) |
|  | No       | 302 | (50.5) |
|  | Not sure | 89  | (14.9) |

## REFERENCES

1. Sherlock BJ. Career problems and narcotics addiction in the health professions: an exploratory study. *Int J Addict* 1967;2:191-206.
2. Wolfgang AP. Substance abuse potential and job stress: a study of pharmacists, physicians, and nurses. *J Pharm Market Manage* 1989;3(4):97-110.
3. Meilman PW, et al. Alcohol consumption by college undergraduates: current use and 10-year trends. *J Stud Alcohol* 1990;51:389-95.
4. McAuliffe WE, Santangelo SL, Gingras J, Rohman M, Sobol A, Magnuson E. Use and abuse of controlled substances by pharmacists and pharmacy students. *Am J Hosp Pharm* 1987;44:311-7.
5. Tucker DR, Gurnee MC, Sylvestri MF, Baldwin JN, Roche EB. Psychoactive drug use and impairment markers in pharmacy students. *Am J Pharm Educ* 1988;52:42-7.
6. Szeinbach SL, Banahan BF. Pharmacy students' attitudes toward the need for university implemented policies regarding alcohol and illicit drug use. *Am J Pharm Educ* 1990;54:155-8.
7. Miller JM, Banahan BF, Borne RF. A comparison of alcohol and illicit drug use between pharmacy students and the general college population. *Am J Pharm Educ* 1990;54:27-30.
8. Meilman PW, et al. Drug use among college undergraduates: current use and 10-year trends. *Int J Addict* 1990;25:1025-36.
9. Normark JW, Eckel FM, Pfifferling J-H, Cocolas G. Impairment risk in North Carolina pharmacy students. *Am Pharm* 1985;25:388-90.
10. O'Malley PM, Bachman JG, Johnston LD. Reliability and consistency in self-reports of drug use. *Int J Addict* 1983;18:805-24.
11. Sobell LC, Sobell MB. Self-reports across addictive behaviors: issues and future directions in clinical and research settings. *Behav Assess* 1990;12:1-4.