Knowledge of Substance Abuse Among High School Students in Jordan

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Abstract

Objectives: The purpose of this study was to explore the knowledge, attitude, and beliefs about substance abuse among Jordanian adolescents (aged 15-18 years).

Design: A descriptive design was employed using a self-administered questionnaire to collect the data from 400 high school students.

Methods: A multistage, random sample was generated in selecting schools from the educational directorate located in a large urban city located in the north of Jordan. This city district contains 23 public secondary schools and serves 56.8% of the adolescents in the entire province.

Results: The results revealed the following: Students of both sexes were knowledgeable about aspects of substance abuse, including its harmful effects on the body and society and reported that even occasional or frequent use of cigarettes, alcohol, and other drugs was extremely harmful. A majority of the students perceived substance abuse as a problem, although the older students were more acutely aware than the younger group. However, the results revealed that the students lack in-depth knowledge of substance abuse. In addition, the adolescents consistently refer to Islamic principles forbidding use of intoxicants but mistakenly presume that mosques are sources for assistance regarding substance abuse.

Conclusions: Policy makers, health workers, and religious leaders must collaborate to build structured educational programs and readily accessible, evidence-based treatment programs for adolescents. Given that young people constitute the majority of the Jordanian population and that drug trafficking is prevalent in the region, the implications of prevention programs are critical to maintaining gains in public health outcomes as well as economic progress and development in Jordan.

Keywords
adolescent, students, developing countries, Middle East, substance abuse, Jordan

Although Jordan is known for its conservative Islamic values, drug use has become increasingly common. Because a significant proportion of Jordan’s population is young, increased use of nicotine, considered a gateway drug, and hard drugs are a significant health concern. In 2005, Jordan’s population was 5,703,000, with an annual growth rate of 2.9% (Hashemite Kingdom of Jordan, 2003; World Health Organization, 2007). Young adults (15-29 years of age) represent 31% of the population—the largest group in Jordanian society. Almost 60% of the population is younger than 25 years and 38% younger than 15 years (Muzio et al., 2000; United Nations, 2006).

In contrast to the historic and cultural prohibition of smoking among youths in Jordan, a recent report on adolescent (13-15 years of age, N = 7,088) smoking documented the following: 44% have smoked, 21% currently smoke, and 25% of never smokers reported that they were likely to initiate smoking in the next year. Many teens (33% boys, 27% girls) held the belief that smokers had more friends; others (26% boys, 20% girls) thought smokers were more attractive. Furthermore, more juveniles saw pro-cigarette ads (7 out of every 10) than antismoking media messages in the 30 days prior to being surveyed (Centers for Disease Control and Prevention, 2003). Smoking behavior has also changed in the recent past, influenced by peer pressure and the popular media. For example, cigarette smoking in public by teenagers, especially males, has become extremely common. This is in stark contrast to the Jordanian legal prohibition of smoking for those aged less than 18 years (Ghouri, Atcha, & Sheikh, 2006). Studies of Jordanian college students reported a smoking prevalence of 28.6%, and some respondents (17%) also reported smoking before the age of 15 years (Haddad & Malak, 2002; Haddad & Petro 2006).
Some hypothesize that drug use has expanded owing to economically disadvantaged countries that produce drugs. Middle East. Jordan also borders, or is in close proximity to, the East/West and North/South routes of commerce in the region. Historically, Jordan has been the crossroads of

Tobacco is considered a “gateway drug” that may lead to alcohol, marijuana, and other drug abuse as well high-risk behaviors in the long term (National Center on Addiction and Substance Abuse, 2007; Tapert, Aarons, Sedlar, & Brown, 2001). That is, use of an addictive substance before the age of 15 years significantly increases the risk for future substance use and abuse. This is in contrast to the risk for initiation of use of all substances, which decreases by the age of 20 years (Lynch & Bonnie, 1994). Other investigators have shown that risk for initiation of use of alcohol and marijuana is greatest between the ages of 16 and 18 years, with 18 years being the most venerable time for initiation of illicit substance use of any type (Andrews, Tildesley, Hops, Duncan, & Severson, 2003; Graham, Marks, & Hansen, 1991).

According to law enforcement agencies in Jordan, the scope of illicit drug problem began to expand in 1995. A report from 2000 documented that most drug abusers were male (94%) and between the ages of 20 and 35 years (Muzio et al., 2000). Data from 2003 showed a 200% increase in the number of drug offences between 1994 and 1999. In 1999, there were 775 cases of drug use and drug dealing (Hashemite Kingdom of Jordan, 2003). In 2000, heroin users were mainly located in pockets in border cities and the capital city, Amman. Today, drug use has penetrated into villages and rural areas in Jordan. The situation is alarming not only in Jordan but also in the region. For example, it is estimated that 15% of young people in Israel use drugs (Brook, Feigin, Sherer, & Geva, 2001), and 25% of high school students in Iran were experiencing problems with at least one illegal drug (Ahmadi, Rayisi, & Alishahi, 2003).

A number of factors contribute to the illegal drug problem in the region. Historically, Jordan has been the crossroads of the East/West and North/South routes of commerce in the Middle East. Jordan also borders, or is in close proximity to, economically disadvantaged countries that produce drugs. Some hypothesize that drug use has expanded owing to factors such as the migration of the rural poor to the larger cities, a decline in illegal drug prices, and the recent influx of Iraqi refugees.

Intoxicant use and addictive drug use among adolescents is a worldwide problem. Alcohol consumption, tobacco, and other illicit drugs among U.S. teens are associated with injury and death, including motor vehicle accidents, suicidal behavior, violence, accidental falls, drowning, unprotected sexual behavior, and cancer (Karch, Lubell, Friday, Patel, & Williams, 2008; Substance Abuse and Mental Health Services Administration [SAMHSA], 2002). Adolescents often report that drugs help them to deal with their anxiety and overcome depression (O’Malley, Johnston, & Bachman, 1998). They believe that drug use improves coping with personal difficulties in their personal, social, and school life. It is assumed that experimentation with intoxicating and addictive substances begins in adolescence because this is the period of life for exploration and experimentation (SAMHSA, 2002). Adolescents are cognitively immature and vulnerable to experimentation with drugs because of social influences and commercial marketing strategies. Recent reports have documented a global increase in addictive drug availability and consumption and a pattern of vulnerability among those aged between 15 and 25 years (Johnston, O’Malley, & Bachman, 2001; Johnston, O’Malley, Bachman, & Schulenberg, 2006). Nearly half (43%) of teenagers aged between 15 and 16 years and a quarter of those aged between 13 to 14 years have already tried illicit/addictive drugs (Johnson & Leff, 1999).

Thus, there is increasing need to address substance use among young Jordanians to forestall future problems with hard drugs. Very little is known about the knowledge, attitudes, and beliefs regarding substance use among Jordanian adolescents. Experts in the field state that normative beliefs about drug use and drug-related behavior play a crucial role in developing effective school-based drug education programs (Florin, Mitchell, & Stevenson, 1993). Without proper evaluation of the adolescent population prior to creating national prevention programs, this vulnerable group may not receive the most relevant and potentially effective interventions regarding drug education. Thus, the purpose of this study of Jordanian adolescents (aged 15-18 years) was to answer the following questions:

1. What do these adolescents know about substance abuse?
2. What do they believe about the consequences of substance abuse?
3. What are their attitudes about substance abuse?

For the purpose of this study, attitude and beliefs toward the target behaviors are defined as the person’s previous attitude toward that behavior. This assumes that individuals think about their decisions and the possible outcomes before making a decision. There is an attitude formed about the

![Figure 1. 2005 Population of Jordan by age-group (U.S. Census Bureau, 2005)](Image)
overall decision and the object of that decision. Subjective norms (beliefs) include the individual’s belief that specific individuals or groups think that he should or should not perform a behavior and the motivation to comply with these influential persons.

Method

Population and Study Sample

A multistage, random sample was generated by selecting schools and students from the educational directorate located in a large urban area in northern Jordan. The school district has 23 high schools, which represents 56.8% of the adolescents in the entire governorate. The total enrollment of these schools was 7,818 students, 5,055 enrolled in schools for boys and 2,763 in schools for girls. The sample size was estimated to be 400 students. Thus, the system for selecting participants was as follows: Six individual schools were randomly selected by drawing the names of schools from a hat. After that, two individual classes of students were selected randomly from each school using a simple random sampling technique until the sample size of 400 was achieved.

Instrument

A self-administered pencil-and-paper questionnaire was used to collect data on knowledge, attitudes, beliefs, and practices regarding substance abuse. This questionnaire was developed in 2002 by National Agency for the Treatment and Rehabilitation of Substance Abusers in Bangladesh (Ahmed, Rana, Chowdhury, Mills, & Bennett, 2002) to survey young people (aged 12-24 years) regarding substance use. However, the original questionnaire did not report any validity and reliability. The instrument was translated into Arabic using a comprehensive method to ensure equivalence and validity. The method requires translation from English to Arabic, then back-translation from the Arabic version to English to validate equivalence. The translated version and original instrument were also reviewed by a committee comprising four experts in the topic who were competent both in Arabic and English languages to consider the equivalence of terms, clarity, and cultural adaptation. Minor modifications were made according to committee recommendations. The instrument consisted of 30 items in the following four sections: (a) knowledge about substance abuse and attitudes and beliefs toward substance abuse, (b) awareness of structures for social problems, (c) modes of life counteracting substance abuse, and (d) awareness of health, socioeconomic, and sociocultural problems associated with substance abuse. A pilot study \( n = 40 \) was conducted to test the data collection procedures and to compute the reliability coefficient of the Arabic version of the instrument. The findings of the pilot study indicated that the instrument was reliable \( (\alpha = .93) \), had an appropriate reading level, was easy to understand, and was comprehensive.

Data Collection and Ethical Issues

The committee for protection of human subjects at Jordan University of Science and Technology approved the study design and consenting methods prior to beginning the study. Investigators contacted the regional director of schools and obtained official access to students. A brief description of the study purpose was given to students before the questionnaire was distributed, and voluntary consent was obtained. Participants were informed that their responses would be kept confidential and that all results would be presented as an aggregate. Data were collected from two classes of students at each study site on the same day, and identical instructions were given to each class.

Results

Demographic Data

Questionnaires were distributed to randomly selected classes of 10th- and 11th-grade students \( (N = 430) \), and a total of 400 students completed the questionnaire resulting in a 93.5% response rate. Table 1 shows the demographic data of the study sample. The participants ranged in age from 15 to 18 years; about 45% were 16 years old and 44% were 17 years old at the time of data collection. Male and female participants were almost equally distributed; about 60% were 11th-grade students whereas 40% were in the 10th grade. Nearly all students (96.5%) reported that they lived with
The majority believed that substance use would lead to problems related to substance abuse (see Table 2). In particular, 33.8% of subjects identified imprisonment as a cause of substance abuse problems. The most frequently mentioned consequences included social ostracism (26.8%), loss of job (29%), illicit drug use contributing to mental health issues (91%), alcoholism as a cause of heart and lung diseases (91%), and legal fines/imprisonment (33.8%).

Most subjects were aware of the consequences of substance abuse, such as smoking a single cigarette. However, nearly half (49.5%) knew about various forms of substance abuse including intoxicating drugs such as marijuana, cocaine, and psychotherapeutic drugs. On the other hand, 32.3% did not know the consequences of smoking a single cigarette. Less than one third (28%) of the subjects knew of individuals or institutions that assist people with the substance abuse problems, and few (17.8%) were aware that there were treatment centers for substance abusers. Even fewer (11.8%) thought that mosques might offer assistance in dealing with substance abuse.

When subjects were asked about institutions that assist with drug problems, one third (33.3%) were not aware of any institutions. Among those who were aware of institutions that assist, half (50.3%) of the students indicated that they were sure that these institutions were accessible. More than half (56.3%) of the participants who were aware of these institutions believed that they were helpful for adolescents. Even fewer (11.8%) thought that mosques might offer assistance in dealing with substance abuse.

Knowledge About Substance Abuse

Most respondents (70.5%) had heard of substance abuse, and nearly half (49.5%) knew about various forms of substance abuse including intoxicating drugs such as marijuana, cocaine, and psychotherapeutic drugs. On the other hand, 32.3% did not know the consequences of smoking a single cigarette. Less than one third (28%) of the subjects knew of individuals or institutions that assist people with the substance abuse problems, and few (17.8%) were aware that there were treatment centers for substance abusers. Even fewer (11.8%) thought that mosques might offer assistance in dealing with substance abuse.

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Attitudes About Substance Abuse

Table 3 shows that majority of subjects believe that substance abuse was a problem among adolescents. However, the older participants (11th-grade class) were more acutely aware of drug abuse as a problem than the younger group ($\chi^2 = 46.54, df = 2, p = .000$). When participants were asked how the adolescents should resist the substance misuse, they suggested several alternatives to counteract the urge for substance misuse (see Table 3). The frequently mentioned alternatives were avoiding the pressure of peers, thinking of substances as a killer, and staying away from places that sell drugs (30%, 17%, 11%, respectively). In relation to participants’ perception of substance abuse as a problem, two thirds (65%) perceived substance misuse as a problem among adolescents.

Beliefs About Substance Abuse

The adolescents also believed that occasional cigarette smoking, alcohol drinking, and illicit drug use were extremely harmful (36%, 72.8%, and 87%, respectively; see Table 4). Likewise, frequent use of cigarettes, alcohol, and illicit drug use...
Table 3. Techniques to Resist the Urge to Use Drugs Compared by Grade Level (N = 398)

<table>
<thead>
<tr>
<th></th>
<th>Grade 10</th>
<th>Grade 11</th>
<th>Total (%)</th>
<th>df</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resist peer pressure</td>
<td>56</td>
<td>64</td>
<td>30</td>
<td>1</td>
<td>.048</td>
</tr>
<tr>
<td>Always think of drug as a killer</td>
<td>19</td>
<td>49</td>
<td>17</td>
<td>2</td>
<td>.023</td>
</tr>
<tr>
<td>Stay away from places where drugs are sold/consumed</td>
<td>18</td>
<td>25</td>
<td>11</td>
<td>2</td>
<td>.058</td>
</tr>
<tr>
<td>Practice sports/indoor or outdoor activities</td>
<td>2</td>
<td>30</td>
<td>8.3</td>
<td>1</td>
<td>.000</td>
</tr>
<tr>
<td>Get involved in social work</td>
<td>2</td>
<td>15</td>
<td>4.3</td>
<td>1</td>
<td>.008</td>
</tr>
<tr>
<td>Look down on drugs consumption</td>
<td>3</td>
<td>22</td>
<td>6.3</td>
<td>1</td>
<td>.002</td>
</tr>
<tr>
<td>Do not know</td>
<td>59</td>
<td>32</td>
<td>22.8</td>
<td>2</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note: Total values may not add up to 100% because of missing responses.

Table 4. Consequences Using Drugs Based on Frequency of Use (N = 400)

<table>
<thead>
<tr>
<th></th>
<th>Cigarettes (%)</th>
<th>Alcohol (%)</th>
<th>Other Drugs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occasional use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely harmful</td>
<td>36.0</td>
<td>72.8</td>
<td>87.0</td>
</tr>
<tr>
<td>Harmful</td>
<td>35.8</td>
<td>19.8</td>
<td>9.0</td>
</tr>
<tr>
<td>Somewhat harmful</td>
<td>22.5</td>
<td>5.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Not too harmful</td>
<td>3.0</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Not harmful</td>
<td>2.8</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>Frequent use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extremely harmful</td>
<td>57.0</td>
<td>84.0</td>
<td>93.3</td>
</tr>
<tr>
<td>Harmful</td>
<td>31.0</td>
<td>10.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Somewhat harmful</td>
<td>8.3</td>
<td>2.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Not too harmful</td>
<td>1.5</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Not harmful</td>
<td>1.3</td>
<td>0.8</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Note: Total values may not add up to 100% because of missing responses.

Table 6. Beliefs About Occasional Cigarette Use Compared by Grade Level (N = 400)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Extremely Harmful</th>
<th>Harmful</th>
<th>Somewhat Harmful</th>
<th>Not too Harmful</th>
<th>Not Harmful</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten</td>
<td>144</td>
<td>143</td>
<td>90</td>
<td>12</td>
<td>11</td>
<td>400</td>
</tr>
<tr>
<td>Eleven</td>
<td>143</td>
<td>90</td>
<td>70</td>
<td>12</td>
<td>11</td>
<td>400</td>
</tr>
<tr>
<td>Note: χ² = 24.782, df = 4, p &lt; .000.</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

was viewed as extremely harmful for adolescents (57%, 84%, and 93.3%, respectively; see Table 5).

One quarter of the participants believed that nothing harmful would happen to a regular smoker if he was deprived of cigarettes. A similar number of subjects (28.3%) identified that an alcoholic drinker might manifest nausea and vomiting during withdrawal. A third of the subjects (33%) believed that an addict might become aggressive when deprived of drugs. More than two thirds (68.8%) of teens believed that a tobacco addict can quit cigarette smoking, only half (50.5%) believed that an alcoholic could quit drinking, and just less than two thirds (63.5%) believed that a drug addict could not abstain. As for methods of quitting substances, many adolescents believed in the power of counseling (smoking), prayer (alcoholism), and forgetting (drug abuse).

The majority of participants (77.3%) believed that adolescents should be supported in efforts to resist the temptation for substance abuse. Nearly one third (32.0%) of participants proposed having information, education, and communication campaigns against substance abuse. These students believed that the main sources of information regarding substance abuse were parents and relatives (48.5%) along with friends/classmates and teachers (25.0%). In a separate analysis (see Table 6), the older students (11th grade) reported that occasional cigarette smoking as more harmful than the younger cohort reported (χ² = 24.782, df = 4, p = .000).

Discussion

The results of the current study point out that Jordanian adolescent have a basic understanding of the nature of substance abuse and cigarette smoking. Subjects were also knowledgeable about the health, socioeconomic, and sociocultural implications of substance abuse. However, this raises the question as to the source of information on substance abuse.
On one hand, this knowledge might reflect improved access to the mass media (i.e., Internet, satellite TV channels), resulting from improvement in the economic status of the families in Jordan or to the higher educational status of adults in Jordan. Jordan’s adult population has a very high literacy rate (90%), which is a reflection of the high primary, secondary, and tertiary gross enrolment (Daghestani, Dajani, Hakki, Nimri, & Quilliam, 2004). On the other hand, others assert that knowledge of substance abuse among adolescents may reflect their exposure to drug use within their peer group (Htoon, Myint, & Thwe, 1999). This may be less likely, however, because of the extreme social restrictions on illicit drug use in this conservative Islamic culture.

A high percentage of the students believed that a smoking habit could be alleviated with the aid of counseling. On the other hand, many students believed that addictions to alcohol and illicit substances were enduring. These erroneous beliefs speak about the limited knowledge among these adolescents about addictive substances as well as the lack of educational programs on the topic. Typically, most people in Jordan have little first-hand knowledge of these problems because of the long-standing history of social stigma, shame, and isolation associated with illicit drugs. Drug abuse is so onerous in the community that citizens will notify law enforcement agencies to arrest drug abusers in their families.

When asked how adolescents should deal with exposure to substance abuse, a majority of the subjects believed that they should “resist” drug use. Consistent with another study of teens in the region, they acknowledged the negative influence of peer pressure (Haddad & Malak, 2001; Kofahi & Haddad, 2005; Teichman, Rahav, & Barnea, 1987). This finding is also congruent with the others that report that peer pressure is a predisposing factor for multidimensional adolescent behavior (Bank, Marlowe, Reid, Patterson, & Weinrott, 1991; Griffin, Botvin, Nichols, & Doyle, 2003). However, the notion of resistance is countered by findings from the Global Youth Tobacco Survey where Jordanian teens thought that smokers had more friends and were more attractive (Centers for Disease Control and Prevention, 2003).

The data also show that these young subjects believed that both occasional and frequent use of cigarette, alcohol, and other drugs is extremely harmful. These data are not surprising because of the newsworthiness of drug busts in Jordan and the strong cultural mores. Geographically, Jordan lies in the path of drug exporters and buyers in Saudi Arabia, Syria, and Israel. As a result of increasing drug activity nationally and regionally, the government has begun airing public announcements regarding drug trafficking and addiction on television, in newspapers, and in brochures distributed to school students. This is in direct contrast to more conservative Middle Eastern countries that have denied that drug abuse exists within their borders. Because of this recent media emphasis on drug problems and the legal consequences, drug abuse is discussed more freely in all social venues and may have shaped some of the responses by this sample of adolescents.

Health education implications have also emerged from the data. For example, these teens were uninformed about where to seek help when faced with problems related to substance abuse. The majority reported that they did not know any individual or organization that might provide assistance to young substance abusers. This particular finding highlights a vital piece of information to include in future health education programming for this age-group.

Social and cultural implications are also important issues drawn from the findings of this study. Because preventing substance abuse among adolescents has not been included in the strategic plan of the Jordanian Ministry of Health or the United Nations, there have been no formal public health campaigns to develop or market substance treatment services. At present, most treatment resources that exist are situated in the capital city, Amman. In smaller communities, however, existing social norms might deter efforts to develop or market treatment programs. That is, potential users in smaller communities may view treatment programs as stigmatizing, even though they would be needed services. The climate of social stigma associated with substance abuse is a barrier to educating the population about the nature of these problems and help-seeking behavior.

Even though the young respondents thought that religious organizations and mosques were resources for help, there are no such programs in the area. Also, the students surveyed indicated that spirituality (praying) was one method to address substance abuse. These two findings suggest that older youths may gravitate toward religious organizations for assistance with addiction, whereas health care providers typically treat addiction as a physical disorder. However, there has been controversy among public health experts surrounding the idea of using religion as a tool of public health intervention. The concern is that religious institutions and authorities may become the main public health players and overshadow weaker public health institutions (Jabbour & Fouad, 2004). Although a given program related to smoking or drugs, for example, may be successful, religious authorities might extend their influence to another health issue, such as family planning. The unintended consequence would be that religious custom would direct important health initiatives that should be driven by health precepts.

Given this emphasis on the role of Islam in the responses of the subjects, it is relevant to review some of the beliefs and attitudes held by Muslims. Although Jordan is not 100% Muslim, the predominant culture is based on Islamic principles. This includes the judicial system as well as principles of common law. For example, Islam does not accept or tolerate behaviors that may harm or threaten the body or the soul. Substance abuse and use of intoxicants, in particular, are both considered destructive to the body as well as destructive to the social structure of the community. Drug abuse is seen as unclean or causing the individual to become unclean.
Ritual bathing is symbolic of physical cleanliness that is required before prayer, which occurs five times a day. Thus, the Islamic culture/religion does not tolerate habits that predispose the person to be dirty or to lack motivation to wash, as occurs with addiction to hard drugs.

Because of the invisible nature of physical addiction, this type of malady may be viewed as a form spiritual punishment in Islamic cultures. For example, the concept of jihad is often used as a synonym for “making war” when it is meant to describe “taking on a spiritual challenge.” That is, addiction may be interpreted as a temptation or spiritual challenge from Allah. Muslims are encouraged to use Islamic principles and prayer to solve and mitigate problems of the human condition; this is the true meaning of jihad. In Islam, religiosity and spirituality are viewed as tools in developing approaches and solutions to deal with substance abuse as well as other forms of illness or disability. Thus, this adolescent sample readily identified the cultural role that Islam is expected to play in dealing with the use of illicit substances at the spiritual, personal, and community levels.

**Nursing Practice Implications**

The findings of this study provide the basis for developing comprehensive prevention programs that are directed to adolescents, families, at-risk populations, and the public. These programs should encompass selective school-based, parent training, and television programs and should be based on relevant research findings among Arabs and Jordanian adolescents. The educational programs should include information concerning addiction and forms of treatment as well as appropriate treatment services. School and public health programs must address the importance of smoking avoidance/cessation and the addictive nature of nicotine as a gateway substance. Jordanian nurses need to be trained in the signs and symptoms suggestive of substance abuse and high-risk behaviors.

**Limitations**

The region where the participants’ schools were located is primarily rural, and the population is dispersed across a large geographic areas. There are two large universities in this area, and the majority of Jordanians are university educated. However, the findings of this study may not reflect the characteristics of youth in the more densely populated capitol city, Amman, where substance abuse is more common and more serious. Findings from this research, thus, should remain tentative until more studies are conducted in regard to substance abuse.

**Summary**

In conclusion, the results of this study offer important directions for developing programs on drug abuse prevention for adolescents. These programs need to focus on school settings and local public health organizations to address the developmental level and perceptions of this vulnerable population. These programs should also be initiated at both the local and national levels to maximize effects and for efficiency. Given that young people constitute the majority of the Jordanian population today, the implications of prevention programs are extremely important to continued economic progress and national development. Young adults and adolescents represent the future of Jordan; a healthy today will support a healthy tomorrow.

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