ORIGINAL ARTICLE

Saudi school students’ knowledge, attitude and practice toward medicines

Ahmed S. Eldalo *, Mirghani A. Yousif, Mustafa Awad Abdallah

College of Pharmacy, Taif University, Saudi Arabia

Received 7 May 2013; accepted 24 May 2013
Available online 31 May 2013

Abstract The current study was aimed to assess Saudi school students’ knowledge, attitude and practice about medicines. A pretested self-administered questionnaire was used anonymously among 15–20 year-old adolescents attending tertiary schools in Taif City, KSA. A total of 1022 students completed the questionnaires. Only 15.4% of the respondents knew the medicines’ uses. Most of the students 79.6% affirmed that they used to take medicines after consulting physicians, and 45.1% of the students thought that tablet size affects the medicine’s efficacy. More than half of the students knew that high temperatures affect the efficacy of medicines, there was a significant difference between rural and urban areas (P = 0.005). Physicians (50.6%) and community pharmacists (15.7%), were the main students’ reliable sources of information about medicines. The majority of the students 70.5% were interested in learning more about medicines. The younger students  ≤18 years wish to learn more than the older ones (P < 0.014). The study showed that Saudi school students aged 15–20 years old have poor knowledge, misconception and negative attitudes about medicines. Low level of knowledge may expose adolescents to health-related problems. Educational efforts are important to improve students’ practice toward medicines.

1. Introduction

Falling ill is one of the major problems that humans face during their life and as a consequence, it is common for humans to be in contact with medicines to treat their ailments. Medicines play an important role in the lives of children. School children play an active role in the use of medicines and they perceive themselves as more autonomous than their caretakers perceive them. Poor knowledge could lead to the improper use of commonly used medicines which in turn may lead to serious repercussions. Moreover, attitudes toward medicines formed at a young age may affect the use of medicines later in adulthood. The literature has shown that adolescents get information about medicines from a variety of sources such as: physicians, pharmacists, family members, friends, the media, teachers and the medicine package inserts (Stoelben et al., 2000; Chambers et al., 1997).

Children spend a long time of their growing years in schools. However; most school curricula do not include....
education about medicines. The United Nations Convention on the Rights of the Child advocates the right of every child to self-determination, dignity, respect, non-interference and the right to make informed decisions. Informed decision-making in the area of health implies that children should be informed about medicines (The Right to Health, 2008). Early health education can prevent high-risk behavior in children, enable them to improve decision-making ability about medication uses, and correct misconceptions about them.

This study could be considered as a first attempt to study school students’ behavior toward medicines in Saudi Arabia. The objective of this study was to assess Saudi school students’ knowledge, attitude and practice toward medicines.

2. Method

A self-administered questionnaire was designed to be used anonymously, validated and pretested, then reviewed by experts from the Ministry of Education and College of Pharmacy, Taif University. The questionnaire was originally drafted in English, then translated to Arabic language, and was tested for consistency. The structured survey was developed to elicit the general knowledge, attitude and practice and sources of information about medicines among 15–20 years-old adolescents attending tertiary schools in Taif City, KSA during the period of September to December 2012. A total of 1022 students were randomly selected from eighteen schools. The schools’ selection depended on stratified and randomized base from rural and urban areas. Data collection was carried out during usual class periods under the supervision of the investigators. The questionnaire was prepared in such a way that questions and responses were simple and direct. The students filled up the questionnaire, without help from the teachers or investigators. The students took about 10–15 min to complete the questionnaire. The questionnaire included queries about the following:

Socio-demographic characteristics, medicines and their uses, awareness about prescriptions and pharmacists, knowledge about whether efficacy of medicines is related to color or shape of a tablet, the different dosage forms that exist and ways of taking medicines, whether a medicine having more than one name, and how to ask questions to health care professionals about medicines, how one could differentiate between medicines for children and for adults, proper storage of medicines and observation of expiry date and side effects of medicines. Questions were also inquired about whether commonly used over-the-counter medicines could cause harm if taken in excess and sources of information about medicines. A close ended question was asked whether the respondents wish to learn more about medicines.

Permission was obtained from the Ministry of Education. The questionnaire was pre-tested with a suitable number of students, the pilot students were selected from a similar setting. The pilot outcome results were not included in the research study. The collected data were analyzed by using Statistical Package for Social Sciences (SPSS) program (version 16). The differences in the participants’ responses were measured with the chi-square test, \( p \text{-value} < 0.05 \) was considered statistically significant.

3. Results

A total of 1022 students completed the survey. The students’ ages ranged from 15–20 years (mean 17.63 ± 1.33 years), most of them 825 (80.7%) were \( \leq 18 \) years old, the majority of respondents 738 (72.2%) were living in urban areas.

Results indicated that only 158 (15.5%) of the students were familiar with the term medicines, and 157 (15.4%) of them knew medicines’ uses. Results had shown a significant difference between rural and urban areas, when correlating knowledge of students about medicines’ definition to their residence (\( p \text{-value} < 0.001 \)). Only 294 (28.8%) of the participants defined the pharmacist correctly, and 767 (75.0%) respondents did not know the pharmacist role. More than half 532 (52.1%) of the students were able to enumerate the route of administration of drugs. There was a significant difference between students’ ages below and above 18 years, (\( p \text{-value} < 0.001 \)). The present study revealed that 667 (65.3%) of the students did not recognize the names of the medicines that were prescribed for their illness.

Fig. 1 showed that most of the students 814 (79.6%) affirmed that they used to take medicines after consulting physicians.

![Figure 1](image-url)
Regarding the students’ attitude toward a missed dose; slightly more than one-third 362 (35.4%) of them preferred to take the missed dose once they remember it, only 127 (12.4%) used to postpone taking it with the next dose, while 301 (29.5%) of them used to continue the treatment without substitution, and 232 (22.7%) did not know how to deal with missed dose intake. The students from urban areas had more tendency to ignore the missed dose 229 (31%) than those from rural areas 72 (25.4%), \( (P \text{ value} = 0.012) \). More than half 572 (56.0%) of the students thought that it was safe to use eye drops after opening the container till the date of expiry, while 326 (31.9%) and 124 (12.1%) of them believed on its safety up to one and six months upon opening the container respectively.

Fig. 2 illustrated that 328 (32.1%) of the students preferred to adhere to the treatment regimens as prescribed to them, while 312 (30.5%) of them preferred to stop medication intake when they felt well without referring to the physicians.

As illustrated in Table 1; 723 (70.7%) students had answered that, medicines may cause harmful effects on humans. Almost 910 (89.0%) of the students stated that children did not take same adults’ medications, there was no significant difference between rural and urban areas \( (P \text{ value} = 0.354) \).

Regarding the relationship between the different dosage forms and efficacy; 319 (31.2%) of the students thought that medicine’s taste affects its efficacy, while 461 (45.1%) of them thought that the tablet size does the same, and 161 (15.8%) of the students thought large tablets are the most efficient ones. A total of 213 (20.8%) participants believed that the capsule is the most efficient unit dosage form. A total of 185 (18.1%) of them preferred to discontinue their medication when they felt well without referring to the physicians, while 312 (30.5%) of them preferred to stop medication intake following doctor’s advice (Dawood et al., 2011).

Figure 2. The response of students toward medicines after feeling well.

![Figure 2](image)

4. Discussion

The current study was conducted to provide baseline data on the knowledge, attitude, and practice of Saudi school students toward medicines. The majority (84.5%) of students did not recognize what did the term medicines refer to, only 28.8% of participant students defined the pharmacist correctly. These results have revealed a poor basic knowledge of students about medicines. This may affect the way of their future drug intake, drug adherence and even compliance to therapy. This is in agreement with a study on adolescent carried out in Germany (Stoelben et al., 2000), and in contrast with a research conducted in Malta among school children, where the participants’ knowledge was good (Menacker et al., 1999). Almost 79.6% of the students have faith in their physicians and they used to take their medicines after consulting physicians, while only 10.9% of them preferred self-administered medicines. A similar result was found in Malaysian study which showed that three-quarters of the participants used to administer their treatment following doctor’s advice (Dawood et al., 2011).

Regarding the students’ practice toward medicines; a total of 29.5% of the students neglected taking the missed dose once they remember it. More than half of them used to use eye drops after opening the container up to the last date of expiry. These data encourage the physicians and pharmacists to educate and consult the patients when prescribing and/or dispensing the medicines.

About one-third of the students preferred to adhere to the treatment regimen as prescribed to them, whereas 30.5% of participants used to stop medication intake without referring to the physicians if they feel better. A study conducted in Philippines on university students had shown that more than half (54.9%) of surveyed students preferred to discontinue their medicines when they felt better (Carl et al., 2010).

The current study showed that almost 89.0% of the students stated that children did not take same adults’ doses, which was in agreement with a result obtained from Malaysian study (Dawood et al., 2011).
About one-third of the respondents denied the availability of the same medicine in different brand names, while 38.9% agreed about this fact. A study published from Malta had shown a majority (73.6%) of school adolescents knew that a particular medicine may be available in different names and different unit dosage forms (Ellul et al., 2008). Another study in the USA showed similar results (Menacker et al., 1999).

Almost half of the students knew that high temperatures affect the efficacy of medicines, about one third of them thought that the bathroom was a suitable place to store the medicines. This may reflect what the students usually observe at home. Bathrooms are not suitable for medicine storage due to high humidity and temperature which negatively affect the stability of stored medicines. Storing medicines in bathrooms is a common practice in different countries (Sanz et al., 1996; Kheir et al., 2011).

Regarding the overuse of the common over the counter medicines; only 56.7% of the interviewed students admitted that, excessive use of paracetamol may cause harm. This response was lower than published results from different studies about the effect of paracetamol overuse which ranged from 60% to 90% (Gilbertson et al. 1996; Huott and Storrow, 1997; Al-Hassan, 2011). The liberal use of OTC products may be attributed to the free availability and to massive media advertisement (Al-Hassan, 2011).

About one-third of the respondents denied the availability of the same medicine in different brand names, while 38.9% agreed about this fact. A study published from Malta had shown a majority (73.6%) of school adolescents knew that a particular medicine may be available in different names and different unit dosage forms (Ellul et al., 2008). Another study in the USA showed similar results (Menacker et al., 1999).
Results in the current study revealed that 68.2% of the surveyed students agreed that it is important to ask about the action of the newly prescribed medication, 73.0% assured the importance of asking about the duration of treatment, and 79.9% agreed on the importance of asking how and when to use the newly prescribed medicine. These results are similar to those obtained from Malta (Ellul et al., 2008), and higher than results from an online quiz carried out in the UK (Gray et al., 2005).

The main sources of information about medicines that students rely on are: physicians (50.6%), community pharmacists (15.7%), parents/adult relatives (7.2%), and internet (5.6%). The obtained findings reflect the role and the accessibility of physicians and pharmacists in health education among Saudi students in the study sample. This is a similar to the results from the neighboring country (Kuwait) (Abahussain et al., 2005) and in contrast to a study carried out in Canada (Chambers et al., 1997). It was also notable that in the present study, the proportion of students who had got their information about medicines from their parents was low (7.2%), which mentions the important role of parents that had been reported in the previous study in other countries. (Abahussain et al., 2005; Da Silva and Giugliani 2004). Parents should be educated to be good role models for their sons with respect to the rational use of medicines.

On the other hand, the teachers played a very minor role (2%) in educating students about medicines. This is similar to a finding from a study carried out in Canada, where the adolescents who had obtained information about medicines from school were 0.9–3.6% (Cordina et al. 2002). Students spend a long time at school, so teachers can share more in educating them about the correct use of medicines, provided that teachers themselves have been given the appropriate training (Bush et al., 1999). Internet was not a primary source of information about medicines among Saudi students, this was contrasted by Kuwaiti study in which students got their medicines’ information from internet (20.0%) (Abahussain et al., 2005). In addition, another study that was carried out in the UK and the USA, had shown that students admitted that internet was a primary source of information (Gray et al., 2005).

The majority (70.5%) of respondents in this study expressed their wish to learn more about medicines. The younger students (71.6%) wish to learn more than the older ones (65.5%). Since students learn through their role models and trust their parents, parents should teach students basic information like taking right medicines and right doses for right duration. Schools are also ideal settings for students to receive basic information about medicines and the rational use of medicines by means of continuous health educational programs.

5. Conclusion

The study showed Saudi school students aged 15–20 years old have poor knowledge, misconception and negative attitudes about medicines. Low level of knowledge may expose adolescents to health-related problems.

6. Recommendations

The obtained poor knowledge, and attitudes toward the use of medicines among the school students in Taif had encouraged the authors of this work to elicit an interaction study aimed to upgrade school students’ knowledge, attitude and practice toward medicines.

Acknowledgment

Authors are acknowledging the grant that was provided by the Secretariat of Postgraduates and Scientific Research, Taif University. The authors also are thanking Ministry of Education, Taif, Saudi Arabia and the all schools which help me to carry out this study. The authors highly appreciated the hard work of data collection that was carried out by the undergraduate final year students; Tariq M. Alwadei, Mamdouh S. Alshehri, and Hossam S. Almalki.

References


