King Saud University

**Saudi Pharmaceutical Journal**

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# ORIGINAL ARTICLE

# Students' attitude toward use of over the counter medicines during exams in Saudi Arabia

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**Abstract** *Purpose:* To explore the use of over the counter (OTC) medicines among students during exams in Riyadh City, Kingdom of Saudi Arabia.

*Method:* A cross-sectional study was designed; using a self-administered twenty-two item online questionnaire for the students' convenience and easy response disclosure. Data were analyzed using Statistical Package for Social Science (SPSS) version 13®.

*Results:* A total of $N = 1596$ students participated in this survey, of whom 829 (51.9%) were university students and 767 (48.1%) were high school students. Overall, 80.0% of the respondents disclosed the use of OTC non-steroidal anti-inflammatory drugs for headache and pain relief. In addition, other substances used during the exams were Energy Drinks (5.0%), Flu Medication (5.0%), Vitamins (5.0%) and Antibiotics (5.0%). Female students were found to be more knowledgeable about safety issues concerning the use of OTC medicines ($5.11 \pm 1.27$, $p = <0.001$) than male students. Ease in access to OTC medicine, availability of pharmacist consultation and advertisement in print and electronic media were the main factors disclosed by the respondents that may result in an increase in the use of OTC products. The use of OTC medicines was generally higher among female students ($p = 0.001$).

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*Conclusion:* The use of OTC medication during exams was more among high school and university students. Gender, age and educational institution were found significantly affecting the use of OTC medicines during exams.

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## 1. Introduction

Self-medication is one of the major reasons for the irrational use of medicines (Filho et al., 2004). Globally, self-medication practices are more frequently observed for the over the counter (OTC) medicines (World Health Organization, 1998). Social and economic factors are the main reasons that compel the individual to take a medicine without an appropriate diagnosis and surveillance of the medical therapy (WHO, 2000). It is rare to see someone purchasing an OTC product with a prescription (Collins and McAllister, 2006). In some developing countries, poor implementations of drug policies make many non-OTC products available from a pharmacy without a prescription. However, sometimes certain situations also act as compelling factors to request an OTC product or a non-prescription medicine. Tight job schedules, high job responsibilities, academic burden and exams are some of the situations that result in the use of certain medicines to improve work concentration and alertness. During exams, many students use different OTC and non-OTC substances to improve their concentration or alertness while studying. Substances like stimulants, antidepressants, OTC and non-OTC analgesics, anti-histamines and some traditional and alternative medicines like Ginko Biloba are all substances commonly abused by students, in general and during exams (National Institute on Drug Abuse, 2006; Syed Nabeel Zafar, 2008; Joffe, 2006).

The irrational use of medicines is a challenge in both developed and developing nations. In developed nations like the US, there are growing concerns about the use of OTC and non-OTC medicines by the students during exams. A recent report by Hugh C. McBride has argued that high school students use Methylphenidate (Ritalin) during exams to improve performance and attention (Hugh, xxxx). Similarly, among the developing nations like Taiwan and Pakistan, the misuse of a variety of painkillers, vitamin and sedatives has been reported among high school and university students (Syed Nabeel Zafar, 2008). However, no such study examining the misuse of medicine during exams has been performed in Saudi Arabia. Keeping in mind the drug safety concerns among the Saudi youth, the current study aims to explore the misuse of medication by high school and university students in Riyadh City.

## 2. Methods

### 2.1. Setting and participants

A cross-sectional study was conducted to achieve the study objective. Students from the King Saud University and a high school in central Riyadh City were invited to participate. An online questionnaire format was uploaded on the university and high school websites from May 2011-until December 2011. Email notifications were sent to all students through collaboration with the university and high school administrations. To further increase survey awareness, posters were also placed on bulletin boards throughout the university and high schools. The minimum effective sample size calculated for this study was 377, with a confidence interval of 95% and margin of error of 5%. However, to reduce the chances of bias all the students registered at study setting were approached for their participation in this study.

### 2.2. Validity and reliability of the questionnaire

A self-administered questionnaire was subjected to the process of content validation. During the content selection, the questions were limited to the use of aspirin, paracetamol, ibuprofen and anti-histamines. The content validation of the study tool was performed by the research team at the Medication Safety Research Chair, King Saud University. While, the face validity was tested on a pilot sample of thirty students. During the pilot phase respondents were found to understand all the questions without any confusion. Furthermore, factor analysis was carried out using Bartlett's test of sphericity and the Kaiser–Meyer–Olkin measure. Bartlett's test of sphericity was significant at 0.0001, while the Kaiser–Meyer–Olkin measure was 0.710. According to Scheridan and Lyndall (2001), the contents of a tool are considered adequate if the Kaiser–Meyer–Olkin measure value is more than 0.6 (Scheridan and Lyndall, 2001). In addition, a reliability scale evaluation was applied to estimate the internal consistency of the items; it was estimated based on Cronbach's Alpha ($\alpha = 0.73$).

### 2.3. Study tool

A twenty-two item questionnaire was used to attain the study objectives. The questionnaire was mainly composed of four sections.

*Section one:* This section was composed of four items with the main focus on respondent demographic information.

*Section two:* The main aim of this section was to evaluate student general knowledge toward safety and toxicity of the OTC products. A nominal scale (Yes/No) was used for the purpose of evaluation using eight items as shown in Table 2. To make a clear demarcation of respondent knowledge level, the responses were scored. Every correct answer added one mark to the respondents' total score, and zero was given for a wrong answer. The minimum possible score was one, while the maximum was eight. For the first items in Table 2, reverse scoring was performed. Respondents received one mark for selecting a *No* option. For the other seven items, *Yes* was the right answer. To discern the knowledge differences among the groups, knowledge score was further divided into three categories: 0–3 (Poor Knowledge Level), 4–6 (Moderate Knowledge Level) & 7–8 (Good Knowledge Level). Details about the items and the categorical distribution of scores are shown in Table 2 and Fig. 1.

*Section three:* This section evaluated respondent views on the sale and use of OTC products in Saudi Arabia. Six items