University Students' Attitudes Concerning OTC Drug Use;Survey from Istanbul

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ABSTRACT

Objectives: Young population is thought to use fewer drugs however their drug use habit is important especially in countries like Turkey in which young generation constitutes main part of the population. Thus it becomes important to investigate their knowledge, perception and habits about drug use.

Methods: A total 205 university students were included in the study. 120 of the students were from medically relevant schools and 85 were other faculty students. Survey includes questions about their socio-demographic properties, their knowledge and habits about drug use and previous experience with prescription medicine.

Results: 66% of the students' consulted to the doctor for a health problem during the past 1 year and 71.7% of them used medicine for that reason. Half of the students used drugs without prescription, 31% of the students' recommended their medicine to their relatives. Female students drug usage without prescription was significantly higher than male students (p<0.05).

Conclusion: The results showed that students have some inaccurate habits about medicine use which needs to be taken into consideration and training should be conducted to improve their knowledge and attitude. In this respect corresponding authorities like Ministry of Health and Ministry of Education can put into service some awareness-raising applications concerning OTC (over the counter) drugs.

Keywords: *University students, OTC, Self-medication, Prescribed medicine, Drug use habits*

1. INTRODUCTION

Generally young people do not take active part in clinical pharmacology research except early clinic phases and bioequivalence/bioavailability studies. There is a gap in this field especially in post-marketing drug use among this population. This group carry their own drug use patterns although drug use was not frequent as children, old people and chronic disease patients. It is important to point out factors underlying this special groups' drug use pattern which can be listed as sociocultural life, economic condition and education level [1-4].

Drug use in young population was handled as drug abuse in Turkey like many other countries in the world [5-11]. These types use of drugs include only one part of health problems in young adults. On the other hand this population also use drugs in order to stay healthy and prevent/cure disease. For this reason we need to know which drug/medical products they use and whether they use them correctly. Also there is a need to find out their knowledge and attitude about the use of medicine.

In a study done in Turkey showed that university students use antibiotics irrationally [12]. There results show discrepancies among developed and developing countries. Study performed in Lisbon, showed that Portuguese students use drugs for appropriate indication (89%) and there was significant difference between genders [13]. Other survey done in Mozambique and Bahrain had some similar outcome with European studies but differences were found in self-treatment habits and cultural restricting factors [14, 15].

Istanbul is the biggest city in Turkey with 13.5 million people [16] and one of the metropolitan cities of the world. Marmara University (MU) is one of the biggest state universities in Turkey with more than 50.000 students coming from Turkeys' different cities. Haydarpasa campus has the resident students of Faculties of Medicine, Pharmacy, Nursing, Law and Fine Arts. Thus we aimed to investigate knowledge, perception, and habits about drug use in this young adult population in a university.

2. METHOD

Undergraduate students at MU Haydarpasa Campus, aged between 17-26 years, were included in the study (response rate 68.3%). Survey took place between March-April 2009. Data presented here was collected as a part of a drug utilization study that was published another part of study investigated students' attitudes about drug-medicinal products utilization and their advertising [17]. A face to face interview was conducted with 205 students who consented to participate in the study. A hundred and twenty (58.5%) were "health related faculty students" (HRS) which are from Faculties of Medicine, Pharmacy and Nursing. Other 85 (41.5%) students were from Faculty of Law and Faculty of Fine Arts and categorised as "non-health (other) related faculty students"(NHRS). We investigated prescribed/ non-prescribed drug use habits of students.

Survey consists of some socio-demographic properties such as age, gender, education history, income level, education level of their family. Other questions were intended to see their drug use patterns. Survey consisted of questions about the diseases they had and medicine they used during the last one year; side effects due to drug use in last one and last five year; drugs used with or without

prescription; their drug information leaflet reading habits and their attitude of recommending medicine to their relatives.

ATC (Anatomical Therapeutic Chemical) classification was used for drug classification. Data management and computations of descriptive statistics were performed using Statistical Package for Social Sciences (v11.5) (SPSS) for Windows. Chi square and Student t tests were used in analysis and p<0.05 was considered significant.

3. RESULTS

Total of 205 participants aged between 17 and 26 participated in the survey and 58.5% of them were female. 56.1% of the students were at their first two years (1stand 2nd class students) and 43.9% were last two years (3rd, 4thclass students). Approximately 11% of the students had a part-time job. Thirty eight per cent lived in a metropolis before being a student at MU, 29% graduated a regular high school (56.6% graduated science-mathematic division). Family properties are: most of the students (84.9%) had families with three or less children, their parents' university graduation percentage was 40.9% and 26.3% for father and mother, respectively. Half of the students' families had monthly income less than 1000$. Twenty eight per cent of the participants spent monthly 200$ and less, 48% spent 200-400$, 24% spent more than 400$. The majority (87.3%) of the students had social reimbursement.

We found significant difference between genders in some points (Table 1). These were "visiting to a physician in last one year" (75.0% in female and 54.1% in male),(p<0.05); recommending their drugs to others (37.8% in female and 21.4% in male),(p<0.05);drug information leaflet reading habit (87.5% in female and 70.6% in male), (p<0.05).

Another significant difference between genders was found in using drugs without prescription. Non-prescribed medicine use was found significantly (p<0.05) higher in females than males; respectively 3.1±2.8 vs 2.4±2.2. Other answers related drug use habits were similar for female and male students.

We also compared students in first two years (1 and 2 class) with last two years (3 and 4 class). Last year students refer to a medical doctor more frequently than first year students (1.2±0.5 vs 1.1±0.3; p<0.05 admissions in last one year). Furthermore the prescribed drug, non-prescribed drug use was found to be significantly (p<0.05) higher in last year students than first year students as shown in Table 1.

Table 1: Comparison of female-male; Health related students (HRS)- non health related students (NHRS); first two years-last two years students regarding their drug use patterns. Marmara University, March-April 2009

Question		Yes (%)	Statistics
Applying to the doctor in last one year (n=205)	Female	75.0	**p < 0.05**
	Male	54.1	
Recommending drugs to others (n= 203)	Female	37.8	**p < 0.05**
	Male	21.4	
Drug information leaflet reading habit (n=205)	Female	87.5	**p < 0.05**
	Male	70.6	
Understanding drug information leaflet (n=205)	HRS	74.2	**p < 0.05**
	NHRS	30.6	
Quitting drug use before the recommended time by the physician (n=205)	HRS	49.2	**p < 0.05**
	NHRS	74.1	
Using drug for health related problem in last one year (n=205)	First two years	66.1	**p < 0.05**
	Last two years	78.9	
Using drug without physicians' advice (n=204)	First two years	39.5	**p < 0.05**
	Last two years	63.3	

When we compare students based on their schools, we found significant difference between HRS and NHRS in drug use patterns (p<0.05). NHRS quit the drug before the time that physician advice (74.1%) and this was 49.2% in HRS. HRS understood the drug information leaflet much higher than NHRS (respectively 74.2% and 30.6%).These findings were summarized in Table 1. Besides NHRS were found to use more drugs than HRS when they get sick (p<0.05). There was not any significant difference in other answers between groups.

A total 32 of the students had chronic diseases which were sinusitis (12.5%), allergic diseases (12.5%), migraine (9.4%), gastritis (6.3%), diabetes (3.1%), polycystic ovary (3.1%), anaemia (3.1%) and others. A hundred and thirty six students (66.3%) stated that applied to the doctor for "health related problems" during last year. These problems were upper respiratory tract infections (URTI), (41.2%), eye complaints (8.8%), gastrointestinal (GIS) disorders (8.8%), headache (2.9%) and acne (2.9%).

A hundred and forty seven students (71.7%) had used drugs for their "health related problems" and these medicine requiring diseases were URTI (44.9%), GIS disorders (6.1%), migraine (4.1%), allergy (4.1%), headache (3.4%), anaemia (2.7%), eye related diseases (2.7%), bronchitis (2%) and dysmenorrhoea (2%), (Figure 1).
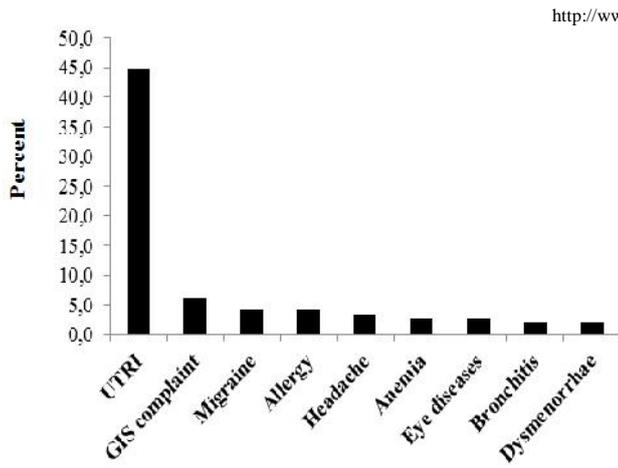
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Fig 1: Distribution of students' health problems that they need to use drug in last one year (URTI, upper respiratory tract infections; GIS, gastrointestinal)

The participants listed the name of 263 drugs when they were asked to recall "top three drugs they used within the past 1 year". Most frequently used drugs were analgesics (29.3%), antibiotics (16.7%) and combination of common cold products (15.6%). The other used drugs were antiulcer drugs (4.9%), antihistaminic (3.4%), antianaemics (3%), nasal decongestants (2.7%) and vitamin-mineral products (2.3%), (Figure2).
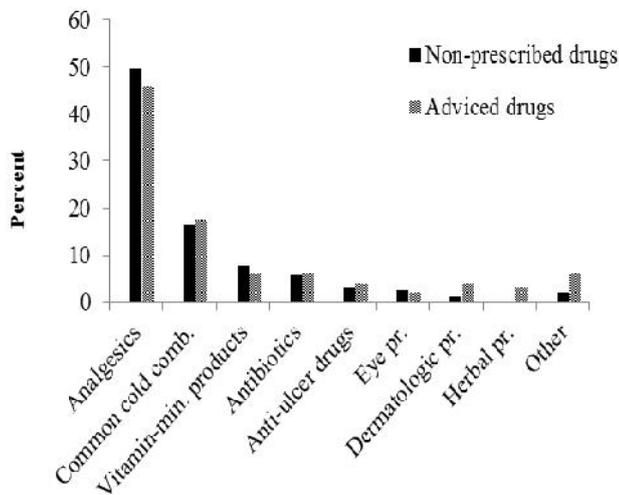

Fig 2: Distribution of drugs which were "mostly used in last one year" by students

Half of the students (102) declared that they use drugs without physician's prescription or order (non-prescribed drugs). Afterwards they were asked to list "most five used drugs as without prescription". Total 185 drugs were told and were analgesics (49.7%), combination of common cold products (16.2%), vitamin-minerals (7.6%), antibiotics (5.9%) and antiulcer drugs (3.2%), (Figure 3).
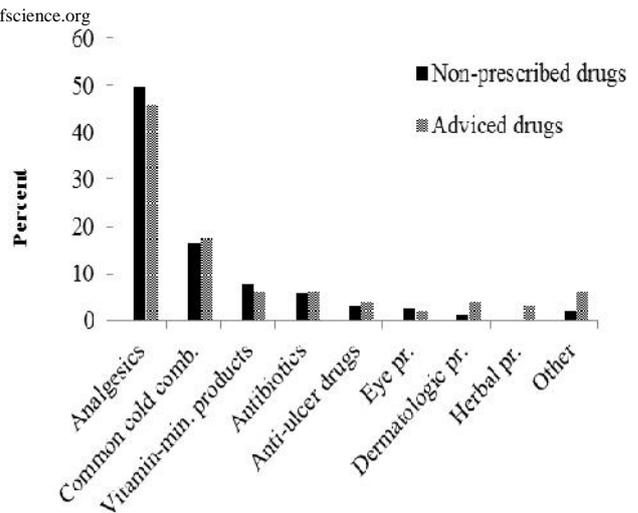

Fig 3: Comparison of drugs distribution which aroused "non-prescribed drug" and "drugs advised to others" by students (pr, products)

Thirty one per cent of the participants declared that they recommended these drugs to their friends and relatives. They mostly recommend these drugs to their friends (83.5%) and relatives (16.5%). The mentioned 96 drugs were analgesics (45.8%), combination of common cold products (17.7%) antibiotics (6.3%) and vitamin-mineral products (6.3%),(Figure 3). They use these non-prescribed drugs for pain relief (42.7%), treat URTI (25.3%), vitamin-mineral support (5.1%), dysmenorrhoea (4.5%), stomach complaint (2.8%) and acne (2.2%) (Table 2).

Table 2: Distribution of students' diseases which they use non-prescribed drugs. Marmara University, March-April 2009

Disease/ complaint	Pain subgroups	%	n	%
Pain	Headache	**38.2**		
	Toothache	**3.9**		
	Myalgia	**2.6**		
	Stomach ache	**2.6**		
	Arthralgia	**1.3**		
	Pain (unclassified)	**51.3**		
	Total	**100.0**	76	**42.7**
Upper respiratory tract infections			45	**25.3**
Vitamin supplement			9	**5.1**
Dysmenorrhoea			8	**4.5**
Stomach complaint			5	**2.8**
Acne			4	**2.2**
Total			**147**	**100.0**

Those who declared that they used drugs without physicians prescription or order, mostly used these drugs in regard to their previous experience (53.6%), recommendation by their relatives (24.6%), recommendation by a pharmacist (12.3%), and recommendation by a friend (7.3%).

Students were also asked whether they had used complementary products for their health related problems in the last one year and 17.2% of the students stated that they had used it (mean= 3.6±2.3 complementary products in a year). The reason for taking this product was mostly URTI (65.0%) and followed by pain (20%). The most frequent used product was herbal tea (51.4%).

Seventeen percent of the students claimed that they had experienced drug related side effects (mean= 1.8±1.2 events in year and total 53 events). Most observed top three side effects were nausea-vomiting (24.5%), G S complaint-other than nausea-vomiting (11.3%), vertigo (9.4%), causing sleep (7.5%),(Figure 4). Also these were asked for last five years and 19.5% of them said to come through with side effects (mean 1.9±2.7 events in 5 years). Similarly most observed side effects were nausea-vomiting (18.5%), GIS complaint-other than nausea-vomiting (16.7%), headache (5.6%) insomnia (5.6%), malaise (5.6%), pruritus (5.6%), (Figure 4). They told that they were aware of these effects before using the drug (74.5%). Students stated that they had read from the drug information leaflet (74.3%), had previous experience with this drug (11.4%), physician informed (8.6%), pharmacist informed (5.7%).

Fig 4: Distribution of side effects experienced by students in last one and five year

In additionally drug use patterns were questioned. Based on students answers, orally taken drugs were used "without water" or "with liquids except water" (24.2%).Twenty four participants use liquids except water and these were fruit juice (37.5%), tea (20.8%), others were (each, 8.3%) milk, alcohol and coke. 12.1% of the students used drugs without looking at expiry date. For all that 74.5% of the participants declared that they save their unfinished drugs after their treatment to use in future, and 21.6% junk their remaining drugs. Students' said that they read drug information leaflet (80.5%), sometimes (16.1%), never (3.4%). Those who read drug information leaflet stated that they were able to understand drug information leaflet (56.1%), paid attention to side effects (80.4%), watched out the warnings (87.3%).

Students were asked to score their drug use when they get sick between 1-100 points and this was found 46.9±28.4. Students stated that they use average 2.7±2.5 drugs without prescription in "every 10 drugs they use". They take side effects into consideration (22.2%), efficacy (14.5%), others recommendation (12.5%), cost (7.4%), their previous experience (6.7%) and products' trademark (5.1%) while using drugs without prescription.

4. DISCUSSION

Young population had less likelihood to have chronic disease, seconder accompanying disease and polypharmacy. For these reasons there are less "stirring factors" in this group when it comes to drug use research. We choose this population because we did not have enough information about non-prescribed drug use and side effects generating from drugs in this group. At the same time this group is of great importance since university students will influence society's future drug use attitudes and investigating their drug use behaviours' will light to our future studies concerning drugs.

Drug use is increasing in each days, especially non-prescribed drug use rate had reached very important levels. Particularly countries which had constituted health policy about use of non-prescribed drug/medical product faced some dilemma. For example non-prescribed drug sale was 17.4 billion $ in 2011 at United States of America [18]. There are about 100.000 drugs utilized without prescription and more than 490 combination products to use in medical conditions and treatment [18]. This situation is far different in Turkey. There are few drugs that have permission to sale without prescription. Unfortunately most of drugs including antibiotics can be easily provided without prescription from the pharmacies. In this study showed that antibiotics were most fourth frequently used drugs as "non-prescribed drug" by students. On the other hand, another part of our study that published before, reported that university students support the continuing of a pharmacy-focused service concerning the consumption of drug-medicinal products [17]. Non prescribed drug utilization loads extra responsibilities to community pharmacists in their practices. Both national health policies and pharmacists should take in to the consideration in these responsibilities.

United Kingdom health policy encourages self-care for minor diseases [19]. In this manner many drugs which were previously restricted to prescription only; were re-classified and allowed to be purchased OTC. There are number of organizations stand up for OTC drugs which can be listed as North American Pharmacist Licensure Examination (NAPLEX), the Centre for the Advancement of Pharmaceutical Education (CAPE) and Accreditation Council of Pharmaceutical Education (ACRE). Also the World Health Organization (WHO) supports self-medication in order to reduce costs of the healthcare [20]. This is aimed both at individual and national level. At the
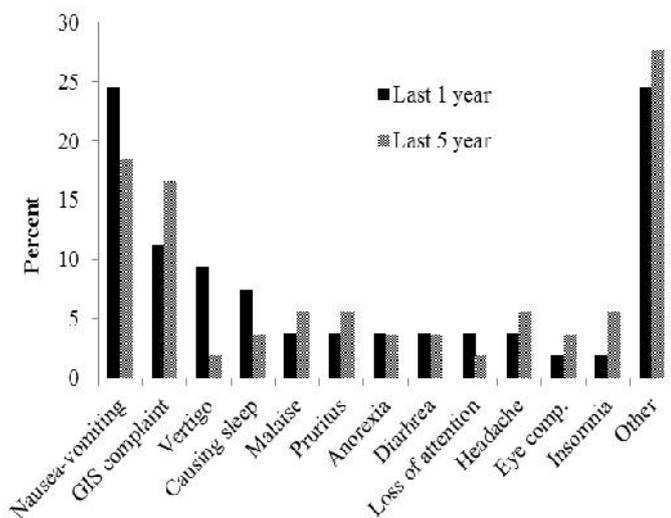
same time WHO emphasized that this (self-medication) can only be applied in countries which are able to provide adequate healthcare and education [20].

Despite all efforts self-treatment tendency in simple diseases is increasing. For this reason pharmacovigilance of non-prescribed drugs have to be improved. Factors leading usage of non-prescription medicine are age, gender, education level, health status, social security condition and usage of prescribed analgesics [21]. Also these factors are predictors of self-medication and usage of prescribed/non-prescribed medicine. Non-prescribed analgesic use was frequent in general population.

Several studies pointed out that, analgesics were most commonly used non-prescription medicines [21-25]. Our study showed the similar findings with these studies. Students' answers given for "drugs mostly used in last one year"; "drugs used without prescription" and "drugs advised to others by students" was by far analgesics for three of the categories. OTC drugs were mostly analgesics for this reason more attention should be given to non-prescribed analgesic use. People thought that these drugs are harmless because of selling without prescription. OTC analgesics were found to be associated with chronic renal failure [26]. Not only analgesics, also other OTC medicine were known to interact with each other, food and prescribed drugs. These interactions may alter the therapeutic outcome and harm to the patient.

One of the contributing factors to self-medication is gender. More female students acquire drugs for self-medication. In general women practice more self-medication than men and self-medication is more prevalent among women. There are studies from different countries that pointed the similar results [27-30]. Study done in Scotland showed women used non-prescription drugs in general and analgesic more than men [21]. This was consistent with our findings, in our study female students declared that they use more drugs than male students and visit physician more often than male students.

Another contributing factor for self-medication is education level. Several studies showed that as education level rises also self-medication tendency rises [21, 22, 31]. Our findings were similar with these studies. We found that last year students use more drugs than first year students for health related problems. Also drug use without physician advice was more frequent among senior students. Inconsistent with these Saptoka et al [32] reported than being a last year student was a protective factor from self-medication. Self-medication was very common among medical students and physicians as shown by other studies [33, 34]. When we compare medical vs. non-medical students we observed HRS understood the drug information leaflet thus they know operating instructions and are aware of side effects. These can protect them from unwanted and unintended conditions arising from self-medication. Also medical related students tend to use the drug in recommended time compared with NHRS.

In a previous study conducted in Turkey with 1618 patients, who visited primary healthcare centres, patients were asked about the name(s) and effect(s) of the drug(s) on their prescriptions. In that study only 11% of the respondents could recall the appropriate names of their drug(s) and 21% knew the effects of their prescribed drugs though 74% of these patients asked for a prescription refill. Of these, 53% admitted that they have done self-medication before applying to the facility [35].

According to students declarations they mostly suffer from UTRI. At the same time they use analgesics, antibiotics and common cold combination products consistent with this disease. Although this group of drugs were used very common and thought to be harmless participant's experienced adverse effects arising from these drugs. Analgesics were used frequently by young population and faced with serious adverse events [36, 37]. They young generation seem to underestimate the dangerousness of drugs and lack knowledge regarding side effects.

There are some limitations of the study. Reasons underlying OTC drug use could be questioned. It would be great to exhibit and understand underlying cause of OTC use among young population. For example reasons can be listed as too minor to see o doctor, long waiting time, lack of time, avoiding the cost of doctor's visit. What for students underuse or overuse medications. Also detailed information about OTC analgesics (name, group) can be surrogated. After wards drug related side effects can be evaluated precisely. These would help to see more clearly medicine-taking behaviour, OTC drug use and drug related side effects among young population. When handling young generation researchers have to follow latest trends in social networking area. Although it was not this study's concern to find out or show the effect of Social Network Websites on OTC drug use, studies planning to carry out with students or young generation should put emphasis on the effect of internet and especially Social Network Websites.

In conclusion it can be said that university students had some positive and mostly negative attitudes about drug use. In particular medical related students did not seem to be under influence of their education according to our results. These findings indicate that university students who are thought to be at high education level did not have right attitude and enough knowledge when it comes to drug use. For these reason it is important to educate young population and develop health policies related with self-medication. Drug education programmes beginning from school should point the some dangerousness of OTC drugs and put emphasis on adverse events, especially when they used irrationally. Corresponding authorities like Ministry of Health and Ministry of Education can put into service some awareness-raising, educational and instructive applications regarding OTC (over the counter) drugs.

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