



## The use of hypnotic pills due to perceived stressor among pharmacy students at faculty of pharmacy, Benghazi University

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### Abstract

**Purpose:** This study aims to get information's about the female pharmacy students at fourth year pharmacy. Those students are expected to be the most aware and educated students between other students of the faculty of pharmacy, Benghazi university. How did they react with the stress factors during war period especially the sleep disorders to provide updated and effective information's about this part of the Libyan Community?

**Material and methods:** Questionnaires (self-administered) distributed to 50 female students participating at the fourth year pharmacy 2016-2017, and collected after completion. Participation was voluntary and anonymous, and data were confidential and protected. All data were computer-entered. The questionnaire provided to 50 female pharmacy students, also ensuring representativeness of the study sample.

**Results:** This study shows that 44% of the student sample have subjected to emotional stress during war period, which results subsequently into sleep disturbances. The students sample were not motivated to take hypnotic drugs as a solution for such problem. This authorized to their higher education level at the pharmacology subject and their knowledge of those drug problems starting from the simpler side effects of drowsiness to the addiction and tolerance problem.

Additionally, there are 36% of the students subjected to hormonal disturbance accompanied with erratic bowel syndrome and colonic distress in some cases. Those parts of this sample are trying to treat such disorder with taking the herbal (Mentha and Marjoram) and traditional medicine instead of visiting the doctor and take the proper medicine for that.

**Conclusion:** This study reveals that the pharmacy students try to use what they learned as a solution for their own problems and miss the role of physician or psychiatric to solve such problems.

**Keywords:** hypnotic, marjoram, mentha, pharmacy students, sleep disorder

### 1. Introduction

The sources of the stressors for college students are many. One important aspect is the education or curricular (university study-related) stressors. The second important aspect is the war, which happens at our city since years ago. Academic demands are considerable stressors, and the university period could be a stressor for students trying to achieve academic success despite financial constraints. College students' major stressors due to examinations suggested the use of reported symptoms for early detection of stress and proper intervention. Stressors include personal expectations, peer competition, having to attain good grades, or fear of failing/repeating their course, while "examinations and grades" ranked the third highest. Other stressors are related to the general social atmosphere/environment of the students; e.g., new socializations, and financial pressures plus the possibilities of losing the life due the war conditions.

The stressors that students face and the accompanying health symptoms are an increasing problem that adversely affect their health. Especially, the insomnia which occur due to the college-related stressors; and general life stressors under war conditions. This insomnia pushes the students in the way of using hypnotic drugs and addicting on them, or they may use them in a wrong way. Therefore, in this study the data from

female pharmacy students at the fourth year collected to inspect how they use those drugs and how they might addict on it.

Hypnotic (from Greek *Hypnos*, sleep) or soporific drugs, commonly known as sleeping pills, are a class of psychoactive drugs whose primary function is to induce sleep and to be used in the treatment of insomnia (sleeplessness), or surgical anesthesia<sup>[1]</sup>.

The term *sedative* describes drugs that serve to calm or relieve anxiety, the term *hypnotic* generally describes drugs whose main purpose is to initiate, sustain, or lengthen sleep. Because these two functions frequently overlap, and because drugs in this class generally produce dose-dependent effects (ranging from anxiolysis to loss of consciousness) they are referred to collectively as sedative hypnotic drugs. However, Hypnotic drugs regularly prescribed for insomnia and other sleep disorders, with over 95% of insomnia patients being prescribed hypnotics in some countries<sup>[2]</sup>.

Many hypnotic drugs are habit-forming and, due to a large number of factors known to disturb the human sleep pattern, the recommend changes in the environment before and during sleep, better sleep hygiene, and the avoidance of caffeine or other stimulating substances is so important before prescribing medication for sleep<sup>[3]</sup>.

Generally, an effective sedative agent should reduce anxiety and exert a calming effect with little or no effect on motor or mental functions while, a hypnotic drug should produce drowsiness and encourage the onset and maintenance of a state of sleep that as far as possible resembles the natural sleep state<sup>[4]</sup>.

Most hypnotics prescribed today are either benzodiazepines or non-benzodiazepines. Among individuals with sleep disorders, 13.7% are taking or prescribed non-benzodiazepines, while 10.8% are taking benzodiazepines, as of 2010<sup>[5]</sup>. Early classes of drugs, such as barbiturates, have fallen out of use in most practices but continuously prescribed for some patients<sup>[6]</sup>. In children, prescribing hypnotics is not yet acceptable unless used to treat night terrors or somnambulism<sup>[7]</sup>. Elderly people are more sensitive to potential side effects of daytime fatigue and cognitive impairments, and a meta-analysis found that the risks generally outweigh any marginal benefits of hypnotics in the elderly<sup>[8]</sup>.

Barbiturates are drugs that act as central nervous system depressants, and can therefore produce a wide spectrum of effects, from mild sedation to total anesthesia. They are also effective as anxiolytics, hypnotics, and anticonvulsants. The principal mechanism of action of barbiturates is to be positive allosteric modulation of GABAA receptors<sup>[10]</sup>.

Quinazolinones are also a class of drugs, which function as hypnotic/sedatives that contain a 4-quinazolinone core<sup>[9]</sup>.

Benzodiazepines can be useful for short-term treatment of insomnia. Their use beyond 2 to 4 weeks not recommended due to the risk of benzodiazepine dependence. It is preferred that benzodiazepines could be taken intermittently and at the lowest effective dose. They improve sleep-related problems by shortening the time spent in bed before falling asleep, prolonging the sleep time, and, in general, reducing wakefulness<sup>[9]</sup>.

Non benzodiazepines are a class of psychoactive drugs that are very "benzodiazepine-like" in nature. Non benzodiazepines pharmacodynamics are almost entirely the same as benzodiazepine drugs, however, have dissimilar or entirely different chemical structures<sup>[9]</sup>.

Melatonin, the hormone produced in the pineal gland in the brain promotes sleep in diurnal mammals. Due to its hypnotic properties, it is available on prescription in many countries and is over-the-counter in others<sup>[9]</sup>.

Antihistamine refers only to compounds that inhibit action at the H1 receptor (and not H2, etc.). Clinically, H1 antagonists used to treat certain allergies. Sedation is a common side effect, some H1 antagonists, such as diphenhydramine and doxylamine used mostly to treat insomnia<sup>[10]</sup>.

Generally, Second-generation antihistamines cross the blood-brain barrier to a much lower degree than the first ones. This results in their primarily affecting peripheral histamine receptors, and therefore having a much lower sedative effect. High doses can still induce the central nervous system effect of drowsiness<sup>[9]</sup>.

Some antidepressants have sedating effects. Some may increase actual quality of sleep (biologically) in contrast to Benzodiazepines that decrease quality<sup>[9]</sup>. Mint originally used as a medicinal herb to treat stomachache and chest pains. There are several uses in traditional medicine and preliminary research for possible use in treating irritable bowel syndrome

<sup>[12]</sup>. Menthol from mint essential oil (40-90%) has a calming effect which might clarify its use to induce insomnia especially to the children.

Marjoram herb has many medical benefits, as it is famous for the treatment of sexual problems and works to treat stomach pain, malnutrition, insomnia, loss of appetite and abdominal distension. Marjoram used as a moderator and also works on the activity of the thyroid glands and therefore works as treatment of nervous anxiety and reduces stress and increases the tranquility due to its content of flavonoid compound known to act as calming of the nerves<sup>[12]</sup>.

## 2. Material and methods

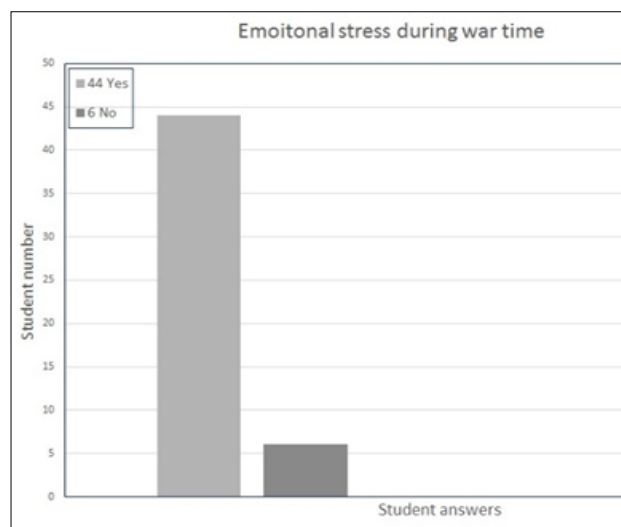
Questionnaires (self-administered) distributed to female students participating at the fourth year pharmacy 2016-2017, and collected after completion. Participation was voluntary and anonymous, and data were confidential and protected. All data were computer-entered. The questionnaire provided to 50 female students, also ensuring representativeness of the study sample. The choice of female students come from the knowledge that the female students are more sensitive and representative to the war situations, which happen at Libya recently (last five years).

## 3. Results and discussions

The analysis of the students answers to the questionnaire show that most of the pharmacy students at the fourth year pharmacy. They are in the age range of 21-27 years old and body weight of 52-85 kg. The pharmacy students have subjected to emotional stress during war period, which shown clearly at Figure 1. Table 1 shows that 88% students suffer from the emotional stress during war period. Only 12% students have answered with no, which might be due to unawareness of those students.

**Table 1:** Students subjected to emotional stress.

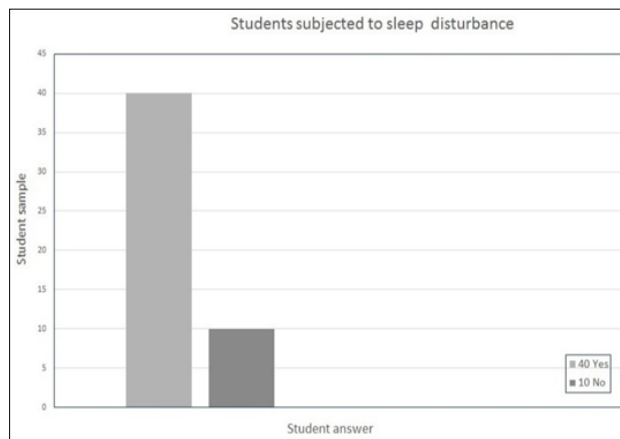
Emotional stress during war time	
Total sample	50
Yes	44
No	6



**Fig 1:** Students subjected to emotional stress.

**Table 2:** Students subjected to sleep disturbances during the wartime:

Subjected to sleep disturbance	
Total	50
Yes	40
No	10

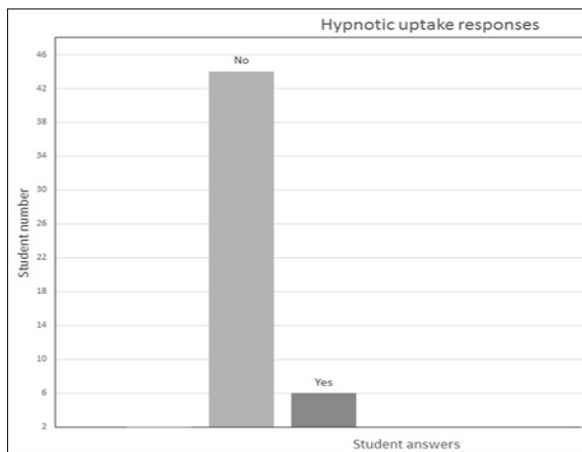


**Fig 2:** Students subjected to sleep disturbances during the wartime.

Sleeplessness is a problem even in good times. One in 10 U.S. adults routinely has trouble getting to sleep or staying asleep, and 3 in 10 experience occasional sleeplessness [11]. There are 80% students were suffering from sleep disturbance, while 20% students were not subjected to sleep disorders shown clearly at Figure 2 and Table 2. Those mode of answering come anatomising the first question answers which might be authorized to unawareness of the those students to what they really suffer from.

**Table 3:** Hypnotic uptake.

Hypnotic uptake	
Total	50
Yes	6
No	44



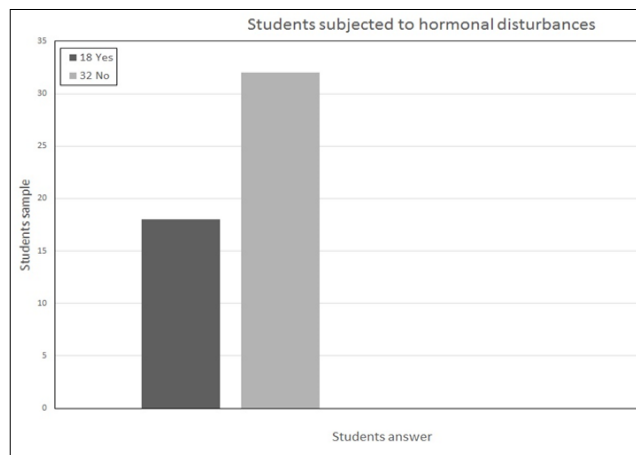
**Fig 3:** Hypnotic drug uptake.

One in six adults with a diagnosed sleep disorder and one in eight adults with trouble sleeping reported using sleep aids [13]. There are 48-pharmacy student's answer the question in the

survey concerning the administration of hypnotic pills. Figure 3 and Table 3 show that 12% of the students have taken sleep aid pills. While 88% students have not subjected to those sleep aid medicines. Additionally, they tend to avoid their sleep disorder symptoms via using traditional medicine or antihistamines, which cause sleep as a side effect of them (drugs).

**Table 4:** Students subjected to Hormonal disturbances during the wartime:

Subjected to hormonal disturbance	
Total	50
Yes	18
No	32

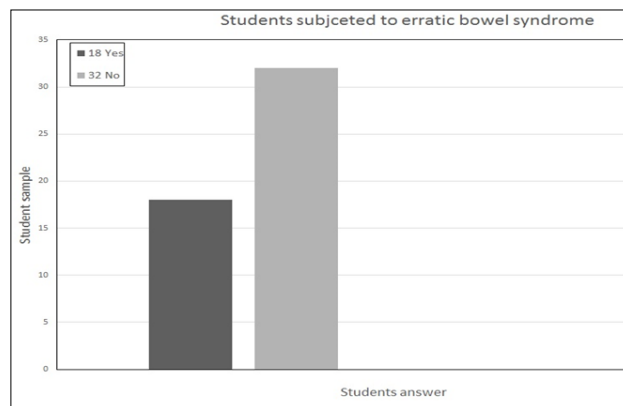


**Fig 4:** Students subjected to hormonal disturbances during the wartime.

Hormonal disturbances during the wartime shown at 36% of the female pharmacy student's sample. While 64% of the female pharmacy students have not suffer from these disturbances as shown in Table 4 and Figure 4. This could be due to the heavy stress that were occurs during that time.

**Table 5:** Students subjected to erratic bowel syndrome

Subjected to erratic bowel syndrome or colonic distress	
Total	50
Yes	18
No	32

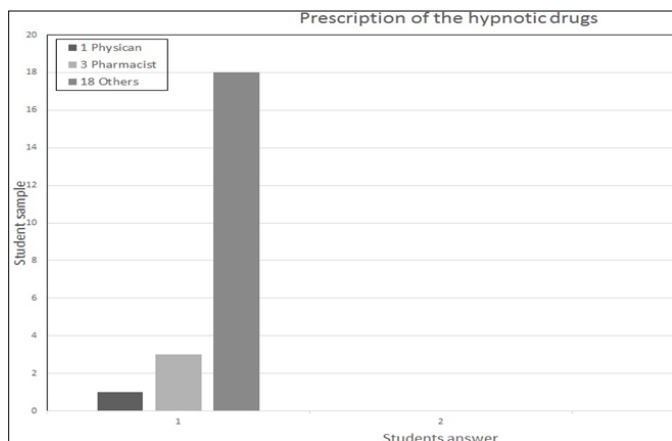


**Fig 5:** Students subjected to erratic bowel syndrome.

Hormonal disturbances (prolactin increases), and erratic bowel syndrome or colonic distress at same time shown at 36% of pharmacy students (Table 5 and Figure 5 respectively). On the other hand, only 6% of the female pharmacy students have suffered from higher levels of the prolactin hormone, but they are not subjected to any type of medical treatment unless some herbal or traditional medicines.

**Table 6:** Hypnotic drug prescription:

Prescription of the hypnotic drugs	
Physician	1
Pharmacist	3
Others	18

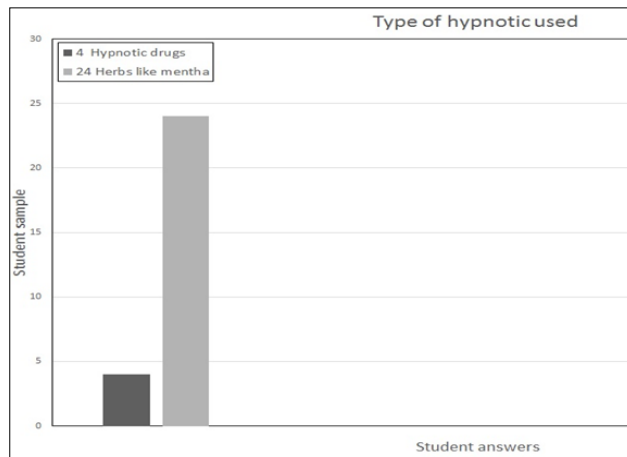


**Fig 6:** Hypnotic drug prescription.

The advice to take those hypnotic drugs and prescription of the hypnotic drugs via a physician were the case of only one student of the female pharmacy students as shown in Table 6. While, the pharmacist have prescribed the sleep aids to three students of the students sample used in this study, which makes a question about the role the pharmacists and how did they play their role in reality and how could they offer such an effort at such time (Figure 6). On the other hand, there are only 18 pharmacy students who have not subjected to any hypnotic inducers whether herbal or medical drugs. One of the female pharmacy students was the only one responsible student who answered our questionnaire honestly that she has taken hypnotic tablets upon pharmacist advice and she want to stop them but she could not beside that she had erratic bowel syndrome.

**Table 7:** Type of hypnotic drugs used:

Type of hypnotic administered	
Hypnotic drugs	4
Herbs like mentha & marjoram	24
Others	No 3



**Fig 7:** Type of hypnotic drugs used.

The type of the hypnotic drugs administered by the student sample shows that, 8% pharmacy students answer this question positively. While 48% students have taken herbs like mentha and marjoram. Lastly, only 6% of the sample students did not take any drugs or herbs as shown in Table 7 and Figure 7.

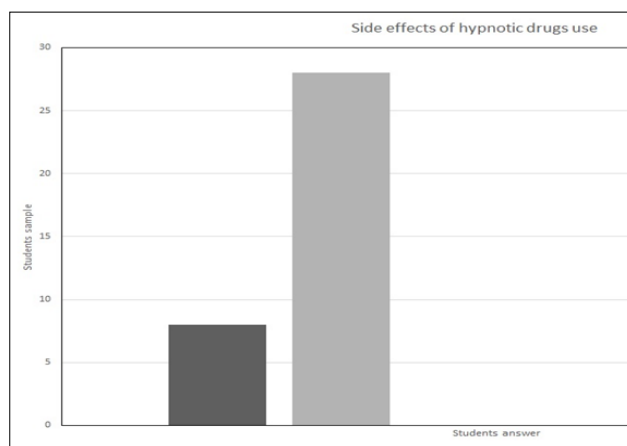
**Table 8:** Use of antihistamine and cough syrups to induce sleep.

Antihistamines and cough syrups use	
Yes	11
No	33

Use of antihistamines and cough syrups to induce sleep presents that 22% of the sample students administer them and three of them have anti-anxiety tablets during war period. On the other hand, 66% students have taken other drugs as a sleep aid and medicinal herbs together as shown in Table 8. The drugs used by that student group were, Actifeid, Flurset, Colona, Congestal, Panadol cold and flu, Norgesic, Librax tablets and some cough syrups, which contain ephedrine derivatives (Sedofan).

**Table 9:** Side effects during hypnotic drug administration.

Side effects during hypnotic drug administration	
Yes	8
No	28

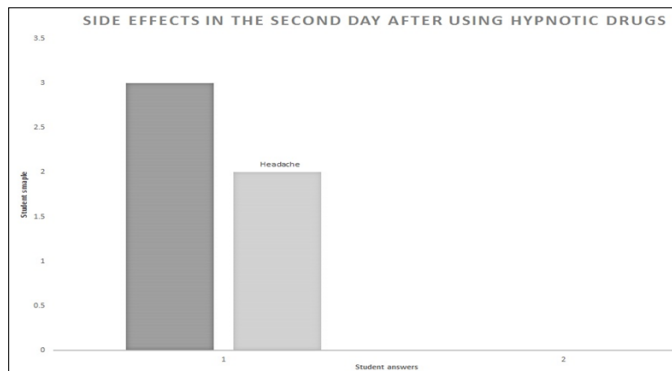


**Fig 8:** Side effects during hypnotic drug administration period.

Suffering from hypnotic drug side effects like drowsiness in the second day after administration, inability to drive or working on the machine are shown clearly at Table 9 and Figure 8 respectively with 16% female pharmacy students. While 56% of the sample students have not subjected to hypnotic drug side effects.

**Table 10:** Side effects in the second day after using the hypnotic drugs.

Side effects in the second day after using the hypnotic drugs	
Depression	3
Headache	2
Other psychological disorder	6



**Fig 9:** Side effects in the second day after using the hypnotic drugs.

The side effects in the second day after using the hypnotic drugs shown clearly in Figure 9. Whereas, only 11% of the female pharmacy students suffer from side effects during hypnotic drug administration as shown in Table 10. Six percent (6%) of the female pharmacy students have subjected to a depression. Four percent, (4%) of the sample students have had a headache and 12% of the students suffer from psychological disorders especially in the second day after the hypnotic drugs administration.

**Table 11:** Hypnotic drug addiction and tolerance.

Hypnotic drug addiction and tolerance	
Yes	-
No	38

There are no students have addiction or tolerance to the hypnotic drugs used as shown in Table 11, although there are missing answers of some students which authorized to the un-seriousness of those student sample to answer this survey question.

**Table 12:** Hypnotic drug dose increase.

The increase of the hypnotic dose	
Yes	3
No	26

**Table 13:** Change of hypnotic drug used.

Change of a hypnotic drug	
Yes	2
Times of drug change	-
Experiencing a better change due to a drug change	-
No	24

There are some students who take hypnotic medicine and six percent (6%) of them have increased their dose as shown in Table 12 and Table 13. Additionally, Four percent (4%) of them have changed the type of their hypnotic drugs, while there are 48% students who have not taken hypnotic drugs and subsequently they could not change the drug type. One student takes a sleep aid drug with medicinal herb to solve her sleep disturbance problem. Two students answer that they take hypnotic drugs and they did not mention the name of those drugs. One student answer that she did not change her hypnotic pills although that she answered before that she did not take those pills at all, which means that she was irresponsible person for answering this survey question. Some students answer randomly without reading any question seriously.

The irresponsibility of some student could be ignored when the rest of the sample population react positively to most survey questions.

**Table 14:** Use of other anti-anxiety tablets during war period.

Use of other tranquilizers during war period	
Yes	3
What is the type?	
No	23

There are six percent (6%) students have taken another types of tranquilizers instead of taking the hypnotic drugs (Table 14). While, there are 46% students did not take another type tranquilizer instead of hypnotic drugs.

**Table 15:** Sleep disorder during the menstrual cycle period.

Sleep disorder during the menstrual cycle period	
Yes	15
No	9

**Table 16:** Hypnotic drug continual use during menstruation.

Continuity of taking hypnotic drugs during the menstrual cycle	
Yes	5
No	15

Normal hormone disturbance at the menstrual time occurs mostly to the vast majority of the female population, which associated with sleep disorders in some of them. Table 15 shows that there are 30% female students concentrate to use sleep aid drugs during their menstruation. Table 16 shows that ten percent (10%) female pharmacy students continue taking hypnotic drugs during the whole time of menstruation.

Additionally, 18% of the female students did not care to take hypnotic drugs during menstruation and subsequently there is no continuity on that drug administration. This careless mode from those 18% female pharmacy students indicate that they are not suffering from the problem of sleep disorders during their menstruation.

#### 4. Conclusion

This study shows that 44% of the student sample have subjected to emotional stress during war period, which results subsequently into sleep disturbances. Subsequently, 12% of the study sample not subjected to this problem, which might be due to their strong personality and a good social life. The students sample were not motivated to take hypnotic drugs as a solution for such problem. This authorized to their higher education level at the pharmacology subject and their knowledge of those drug problems starting from the simpler side effects of drowsiness to the addiction and tolerance problem.

Additionally, there are 36% of the female pharmacy students subjected to hormonal disturbance accompanied with erratic bowel syndrome and colonic distress in some cases. Those parts of our sample study are trying to treat such disorder with taking the herbal (Mentha and Marjoram) and traditional medicine instead of visiting the doctor and take the proper medicine for that. Which, reveals that the pharmacy students try to use what they learned as a solution for their own problems and miss the role of physician or psychiatric to solve such problems. This study shows that the higher education level of our student sample has a direct effect on their manner of life and solvation of their problems, which is a good point for this sample although that we have get touch irresponsibility of some students.

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