Knowledge, attitude, behaviour and practice of self-medication among second year undergraduate medical students in a medical college

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ABSTRACT

Self-medication is widely practiced among medical students in India for various reasons. Hence this questionnaire based study was carried out in a medical college at Tamilnadu to assess the knowledge, attitude and practice of self-medication among second year medical students. About 120 students participated in the study. A pre-tested questionnaire was given to each student. The questions in each domain were scored; the scores were summed up and assessed. The mean age group was 19 ± 0.70 years. The study revealed that self-medication was practiced by females more than males (mean practice score $=3.37\pm0.72$) ($p<0.05$) and the students from urban background (mean practice score $=2.70\pm1.36$), ($p<0.05$) practiced self-medication more than their rural counterparts. The common morbidities for which self-medications were used include cough, cold, fever and other infections. The common drugs used were antibiotics, antipyretics and analgesics. Most of the students believed that the self-medicated drugs are economical (34%) and easily available (17%), and that they can cure minor symptoms by themselves. However this practice is associated with its own risks. Hence it becomes essential to increase the awareness of these students regarding the rational use of drugs.

KEYWORDS: self-care, trends, adverse effects, rational drug use

INTRODUCTION

The World Health Organization defines self-medication as the selection and use of medicines, including herbal and traditional products by individuals to treat self-recognized illnesses or symptoms. [1]. The prevalence of self medication varies from 32.5% in rural community to 81.5% in urban community in India [2]. The practice of self medication offers various benefits to the patient like increased access to medication, quicker relief of symptoms, and active participation of the patient in his or her own health care. It also reduces the workload of physicians and pharmacists, so that their skills can be utilized in a better manner. It also reduces the burden of governments due to health expenditure linked to the treatment of minor health conditions. However, this practice is also associated with potential risks like incorrect self-diagnosis, delay in seeking medical advice when needed, infrequent but severe adverse reactions, polypharmacy and dangerous drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease and risk of dependence and abuse [3]. Unlike the general population, medical students have a higher tendency to use self medication because of their medical knowledge and easy access to drugs. The results of previous studies reveal that approximately 50% of the medical students indulge in the practice of self medication[4],[5].It becomes absolutely essential that medical students, who are the future treating physicians, should have adequate knowledge about the use and misuse of medicines, and should be aware of the correct prescribing practices. Hence this study was undertaken with the objective of assessing the knowledge, attitude and practice of self medication among second year medical students, to elicit the factors predisposing to the use of self medication, the common morbidities for which they use self medication and the common drugs used, and to elicit the probable reasons for not consulting a doctor. This study also aims to assess the awareness of the students regarding proper disposal of used and expired medicines.

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MATERIALS AND METHODS

This study was a questionnaire based cross-sectional study, carried out in the Department of Pharmacology, Chennai Medical College Hospital & Research Centre Irungalur, Trichy. The ethical clearance was obtained from the Institutional Ethical Committee, Chennai Medical College Hospital & Research Centre, Irungalur, Trichy. The study was carried out among the second year medical students of this college, after obtaining informed written consent for participation in the study.The study was carried out over a period of 6 months. The second year medical students of both the sexes were included. The students who refused to give informed consent were excluded from the study. A total number of 120 students, who fulfilled the inclusion and exclusion criteria, were enrolled in the study. The students were given a detailed set of self developed questionnaire, which consisted of closed end questions. The questions were tested for content validity by a group of 5 physicians to review the questionnaire for clarity and understanding by the students. Face validity was tested by doing a pilot study, in which the questions were given to 5 students for assessment. During the pilot study the questions were found to be unambiguous for the students. The participants' knowledge of self medication was assessed by asking 18 questions. The responses were recorded as yes, no or partially. A scoring system was designed in this study to determine participants' knowledge. A score of one was given to a yes response, and a score of zero was given to a no response, and a score of 0.5 was given to a partial response. The total score for knowledge domain ranged from 0-18. The scores were summed, and the total knowledge score was calculated. A cut off level of <9 was considered poor knowledge, and a score of ≥9 was considered adequate knowledge of self-medication. The attitude towards self-medication was assessed by asking 15 questions. The responses were scored as follows: strongly agree = +2, agree = +1, unsure = 0, disagree = - 1, strongly disagree = - 2. The responses were summed and the total attitude score was calculated. The total attitude score ranged from -30 to + 30. A score of -30 to 0 was considered negative attitude, and a score of 0 to +30 as positive attitude towards self-medication. Practice of self-medication was assessed by asking 12 questions. The responses were scored as yes, no or sometimes. The score for the first four questions were as follows: yes = -1, no = 0, sometimes = -0.5. The score for the remaining eight questions were as follows: yes = +1, no = 0, sometimes = + 0.5. The total score ranged from 0-4. A cut of level of <2 was considered negative practice, and a score of ≥2 was considered positive practice of self medication.

Confidentiality of data was maintained throughout the study. The Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) version 18 was utilized to analyze the study data. Results were expressed in simple descriptive statistics. Categorical variables were presented as count and percentages and continuous variables as mean and standard deviation. For continuous and normally distributed values, the two tailed paired t test was used for intragroup analysis and student's independent t-test was used for intergroup analysis. For continuous and not normally distributed variables, Mann Whitney U-test was used. For discrete variables, Chi square test was used. The KAP scores before and after the intervention was analyzed by Wilcoxon matched pairs signed rank tests. Correlation is assessed using correlation and regression tests. The p value of <0.05 was considered statistically significant

RESULTS

A total number of 120 students were included in the study. The mean age of the students was 19±0.70 years. The gender wise distribution of the study population is depicted in Figure 1.About 73 % of the students belonged to urban background (n=93) and 27% belonged to rural background (n=27).All of them were second year medical undergraduate students. About 25% of the students (n=30) obtained information about self medications from their family members or relatives, and 25% (n=30) from previous prescription of a doctor. About 5% of the students (n=6) obtained information about self medications from friends or neighbours, 10% (n=12) from chemists, 10% (n=12) from practitioners of alternative systems of medicine, 10% (n=12) from advertisements, and 15% from internet (n=18). The common illnesses for using self medication and the common drugs used are depicted in Figure 2 and Figure 3.About 89% (n=107) used allopathy and 11% (n=13) used homeopathy medicines. About 70% (n=84) used self medication occasionally, 10% (n=12), twice a month, 10% (n=12) everyday and 10% (n=12), had never used self medication. About 60% of the students (n=72) used self medication for more than one week, 20% for less than one week (n=24), 10% for less than one month (n=12) and 10% for more than one month (n=12). About 67% of the students (n=80) used self medication for five times within the past 3 months, and 33% (n=40) for more than five times in the past 3 months. The source of purchase of self medication is illustrated in Figure 4.About 34% of the students (n=40) obtained self medication by mentioning the brand name, 34% (n=40) by showing an old sample of the medicine, 8% (n=10) by mentioning the generic name, 8% (n=10) by telling the symptoms of the illness, 8%

(n=10) by presenting piece of paper and 8% (n=10) by describing the physical characteristics of the medicine. Tablets were the most preferred form of self medication. About 76% (n=90) of the students reported that they will consult a doctor if the symptoms are not relieved by using self medication, 8% (n=10) said that they will repeatedly take the medicine, 8% (n=10) tried an increase in dose, and 8% (n=10) switched over to another medicine for the same illness. The reasons for using self medications and the reasons for not consulting a doctor and the reason are illustrated in Figure 5 and Figure 6 respectively. About 70% (n=84) reported that they will throw away the expired medicines in the dustbin, 10% (n=12) threw them in the street, 10% (n=12) said that they will take them, 10% (n=12) said that they will not take the expired medicines.

The questionnaire in the knowledge domain is depicted in Table 1, attitude domain in Table 2 and practice domain in Table 3 respectively. About 70% (n=84) had adequate knowledge about self medication (score > 9), and 60% (n=72) negative attitude towards self medication. The practice of self medication was found in almost 50% of the students (n=60).Female students (n=70), though they had greater knowledge (mean knowledge score = 13 ± 3.14) ($p<0.05$), and negative attitude towards self medication (mean attitude score = -12 ± 6.03) ($p<0.05$), tend to practice self medication (mean practice score =3.37 ± 0.72) ($p<0.05$) more than male students. Similarly, the students from urban background (n=93), had good knowledge (mean knowledge score = 12.52 ± 3.16) ($p<0.05$), and negative attitude (mean attitude score = -6.9 ± 10.8) ($p<0.05$), towards self medication, still practiced self medication (mean practice score =2.70 ± 1.36), ($p<0.05$) more than students from a rural background.

DISCUSSION

This study was conducted in 120 second year undergraduate medical students to assess the knowledge, attitude and practice towards self medication. The results revealed a female preponderance towards practice of self medication (mean practice score =3.37 ± 0.72) ($p<0.05$). A similar study conducted in Slovenia (Klemenc-Ketis Z et al, 2010) failed to demonstrate a statistically significant difference between male and female students in the practice of self medication [6]. Similarly, students from urban background, tend to practice self medication more than their rural counterparts, (mean practice score =2.70 ± 1.36), ($p<0.05$) consistent with the results of a similar study done in Pakistan (T Aqeel et al, 2014) [7]. The common source of information

about self medication were from family members or relatives (25%, n=30), who gave them advice based on their previous cure experiences with the same medicine. The next common source was based on previous prescription of a doctor (25%, n=30), as they have easy access to various prescriptions for a similar illness. In contrast to a study conducted in Ethiopia (Abhay et al,2010) [8] where reading materials constituted the most important source, information from the internet (15%) remained a major source of obtaining information about self medication, because of the ease of access and usage. Most of the students (70%) used self medication occasionally (n=84), for more than a week (60%, n=72). Majority of the students (67%, n=80) had used self medication for more than five times in the past three months. The common morbidities for which self medication were used include cough, cold, fever and other infections. The common drugs used were antibiotics, antipyretics and analgesics. Studies conducted in Bahrain and Karachi [9,10] (James H et al, 2006 and Jafar SN et al, 2008) revealed that headache (70.9%), (72.6%)is the most common ailment for which medical students seek self medication, and analgesics (88.3%),(81.3%) remain the most commonly used drug. The higher use of antibiotics among students of our country may be due to lack of strict rules and regulations regarding proper antibiotic use, which contributes to the emergence of multi-drug resistant organisms. Hence improper usage and unnecessary usage of antibiotics should be limited by inculcating proper awareness about the rational usage of antibiotics. Allopathic medicines (89%, n=107) were commonly used, and tablets remained the most common dosage form of self medication. Because of the proximity, hospital pharmacy (n=90, 75%) remained the common source of obtaining drugs, followed by medicine stores (n=20, 16.7%), and from friends (n=10, 8.3%). In a study conducted among university students at Nigeria (KP Osemene et al, 2012) [11] the major sources of the drugs used for self medication were the patent medicine store (n=901) (49.3 %), community pharmacies (n=531) (29.1 %), friends (n=210) (11.5 %), relatives (n=130) (7.1 %) and leftover drugs from previous prescriptions (n=55) (3.0 %).The most common method used to obtain self medication was by mentioning the brand name of the drug (n=40,34%) or by showing the old sample of the medicine (34%, n=40). This is consistent with the results obtained from a study conducted in Australia (Emmerton L, 2008) [12] wherein 89% of the people purchased self medication by asking a staff member for that particular brand.

The striking contrast in this study was that though the students had adequate knowledge about the

harmful effects of self medication and negative attitude, yet they preferred to use self medication. The reasons for this difference is because the students consider that self medication is economical (34%), easily available (17%) and the students believe that it is not necessary to consult a doctor for minor symptoms (17%). About 8% of the students responded that they had adequate awareness about self medication and its adverse effects; hence they believe that they can decide their own treatment for minor symptoms. However, majority of the students (n=90, 76%) responded that they will consult a doctor if the symptoms are not relieved using self medication. The reasons for not consulting a doctor included the perception that the illness is not serious (n=40, 33.2%), due to higher cost of consultation (16.7% n=20), and lack of time (16.7% n=20) to consult a doctor. This is consistent with the results conducted in Maharashtra, (Phalke VD et al, 2006) [13] where the reasons for using self medications include the urge of self-care, lack of time, financial constraint, extensive advertisement and availability of drugs in other than drug shops. The students lacked a proper knowledge about method of disposal of self medication. Majority of them (n=84, 70%) said that they will throw the expired medicines to the dustbin, whereas a small population of the students (n=12, 10%) responded that they will still continue to take the medicine even after knowing that it is expired. This shows that the students lacked the knowledge of proper storage and disposal of expired drugs. A similar study conducted by Surushi Aditya (2013) among dental students showed similar results, wherein disposal along with household trash and flushing of liquid medicaments were the common methods of disposal of expired drugs [14]. This practice is hazardous, both to the individual as well as to the environment, and such practices should be curbed.

CONCLUSION

This study shows that self medication is widely practiced by medical students in spite of adequate knowledge and negative attitude about self medication and the practice of self medication is more in female students and from students with urban background. This is because self medicated

drugs are easily available, economical, and consulting a doctor for minor illnesses is considered expensive by the students. Moreover, their partial knowledge about the drugs and long waiting times for consulting a doctor might lead to this increasing trend in the use of self medication. Also medical students believe that they can treat minor symptoms by themselves. However, this practice is associated with potential risks like incorrect self-diagnosis, failure to seek appropriate medical advice promptly, incorrect choice of therapy, failure to recognize special pharmacological risks, occurrence of rare but severe adverse effects and the failure to recognize or report them, lack of awareness about the contraindications, interactions, warnings and precautions, failure to report current self-medication to the prescribing physician leading to double medication or harmful interaction, taking the incorrect route , dose or duration leading to excessive or prolonged use, the risk of dependence and abuse with some drugs [15], and most importantly, antibiotic resistance. Also, students lacked proper knowledge about the proper disposal of used and expired medicines. Encouraging the students to return the expired and unused medicines to the pharmacy can avoid improper drug disposal. Also the government should take up proper initiatives to implement drug take back programmes and to strengthen ecopharmacovigilance, to decrease the environmental load of drugs. Hence it becomes mandatory to incorporate these important issues of self medication and proper drug disposal into the existing curriculum of pharmacology, enabling both the teachers and students will become aware of these concepts and will implement them in future, so that rational drug use and disposal will become the ideology in the long run.

ACKNOWLEDGEMENTS

TABLE 1: KNOWLEDGE OF SELF MEDICATION

Question	Yes	No	Partially
Are you aware that medicines are chemicals having side effects when taken by people?			
Are you aware that medicines can be bought without a prescription of a doctor?			
Are you aware of the quantity of the medicine which you consume by yourself?			
Are you aware of the frequency of usage?			
Are you aware of the duration of therapy?			
Are you aware that every medicine has expiry date?			
Are you aware of the risks of using over the counter medicines?			
Are you aware of the side effects of over the counter medicines?			
Are you aware of precautions to be taken when giving a medicine to children and elderly?			
Are you aware that the dosage differs between adults and pediatrics?			
Are you aware that certain medicines when used in pregnant or lactating women will cause damage to the baby?			
Are you aware that certain medicines can be used only on the advice of a medical practitioner?			
Are you aware that some medicines when taken together may interact with each other?			
Are you aware that self medication might lead to choosing the wrong medicine for the disease?			
Are you aware that the use of self medication is wrong without knowing the cause?			
Are you aware that certain self medicated medicines carry abuse potential?			
Are you aware that some of the self medicated medicines induce sleep and will interfere with decision making?			
Are you aware that some self medicated medicines when used inappropriately can cause death of the concerned person?			

TABLE 2: ATTITUDE TOWARDS SELF MEDICATION

Question	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
The Medicines Used For Self-Medication Are Safe.					
Ayurvedic/unani/siddha or other alternative systems of medicine are safer than allopathic medicines.					
I can self diagnose my illness.					
It is not necessary to consult a doctor for mild symptoms					
It is not necessary to consult a doctor before changing dose/duration or adding medicines to my regimen.					
It is not necessary to consult a doctor before stopping a medicine.					
I should stop the medicine when symptoms subsides					
Advice on self medication can be taken from others.					
I can give advice on self medication.					
Self medication can be taken without adequate knowledge.					
For recurrence of symptoms, it is unnecessary to consult a doctor.					
For persistent illness, medications can be bought by showing the prescriptions alone					
It is not necessary to consult a doctor before taking any medicine					
Over the counter medicines are better options than obtaining prescribed medicines from a doctor					
All medicines will have the same curing effect on all individuals					

TABLE 3: PRACTICE OF SELF MEDICATION

| Question	Yes	No	Partially
Do you follow doctor's prescription? Will you inform about the medicines consumed on your own to the reporting physician? Are you aware of the information leaflet which comes with each medicine pack? Will you read the information details in the medicines packet before taking the medicine? Do you go to the same place every time to purchase the medicine? Have you experienced the relief of symptoms or complaints? Have you experienced any side effects/medicine reactions while taking self medication? Are you habitual to any medicine? Have you reused the medicines with you when experienced with similar symptoms? Have you ever given medicine available with you to someone who is having similar symptoms as yours before? Have you ever obtained medicines from your friend or relatives who had similar illness before? Do you ask the pharmacist about the medicine dosage and precautions of taking medicine?			
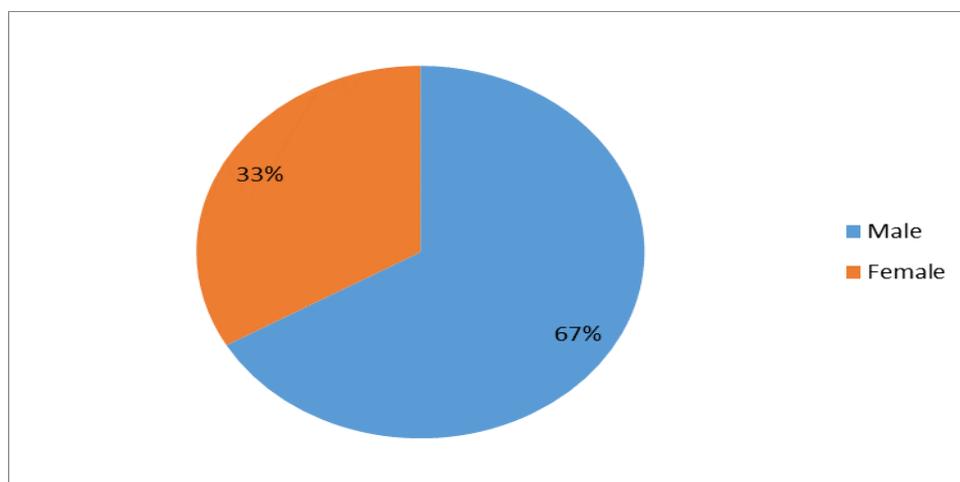
Figure 1: Genderwise distribution of the study population
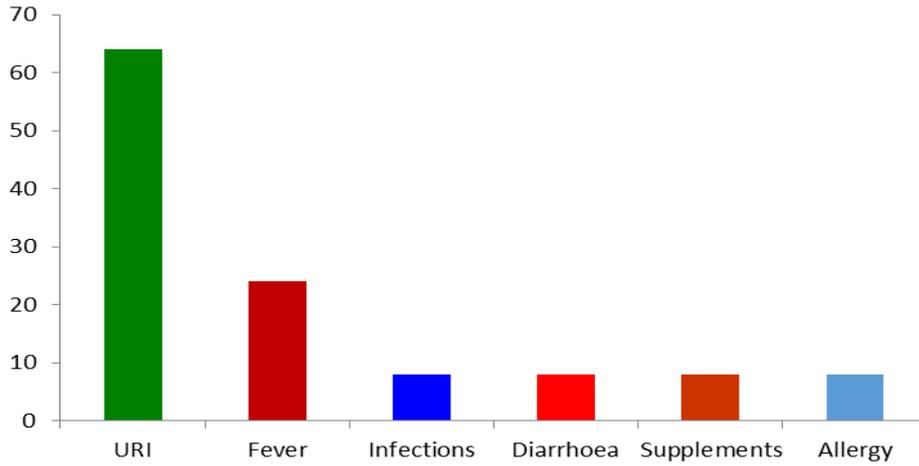
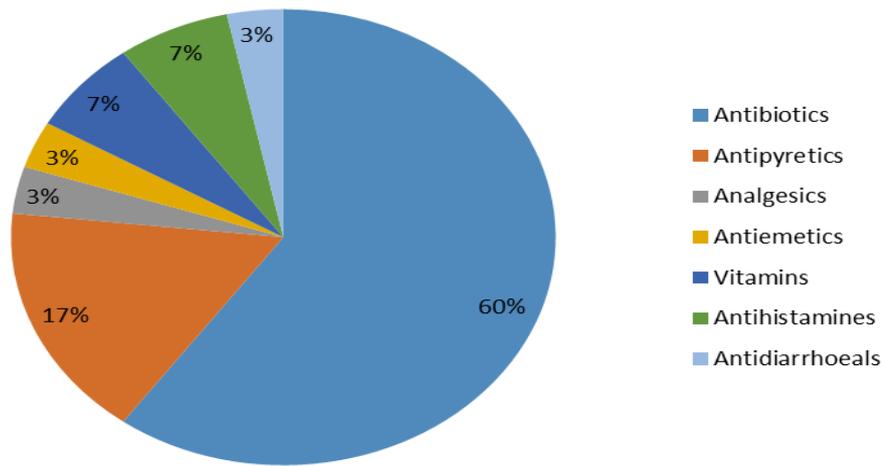**Figure 2: Common morbidities for which students use self medication**
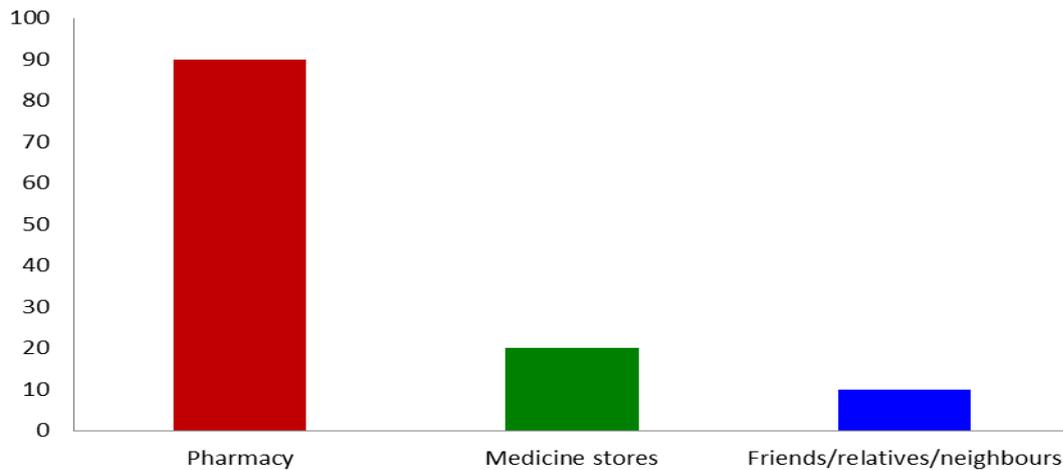

Figure 3: Common drugs used as self medication
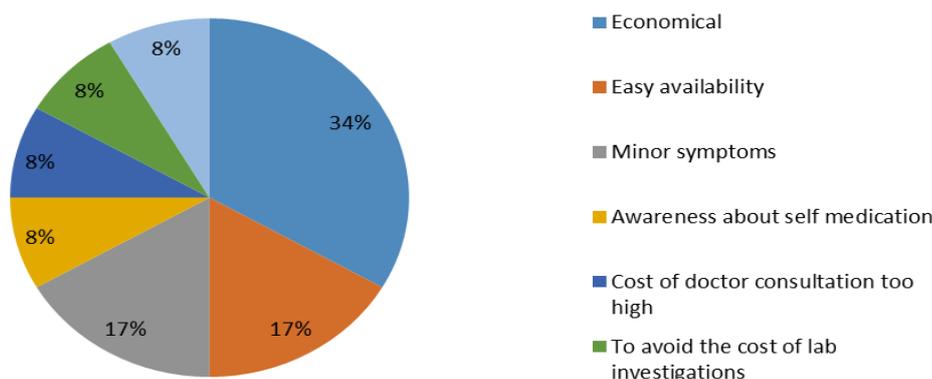

Figure 4: Source of purchase of self medication

Economical
Easy availability
Minor symptoms
Awareness about self medication
Cost of doctor consultation too high
To avoid the cost of lab investigations

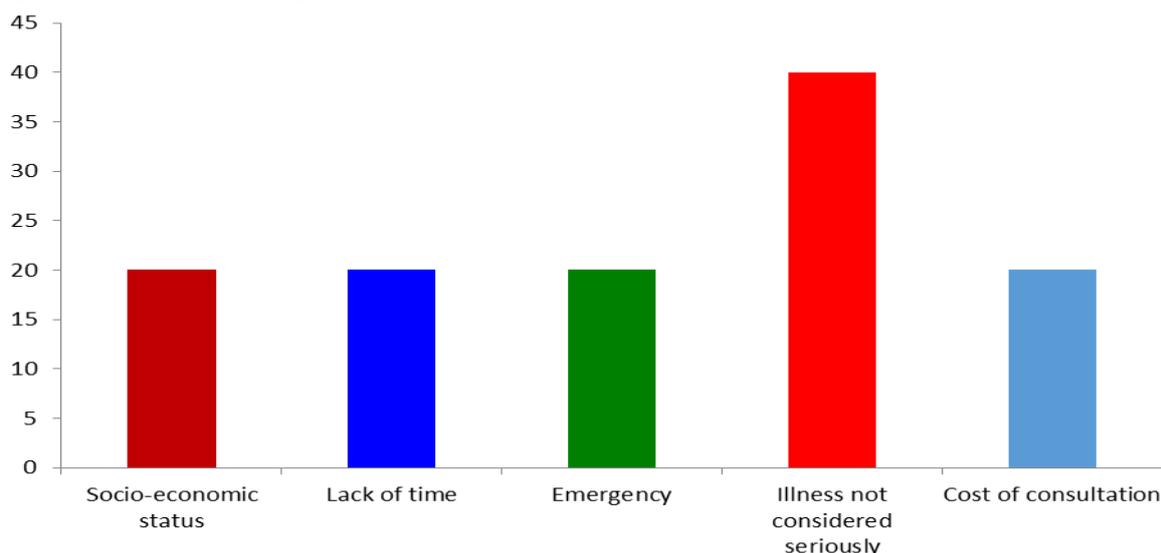**Figure 5: Reasons for using self medication**

Figure 6: Reasons for not consulting a doctor

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