▼ Journal of Research (Science), Vol. 32, No. 1-2, October 2021, pp. 14-21
ISSN 1021-1012

Study the Effects and Complications of Antitussive Medicines to the Population of Pakistan

Rashid Raza* and Aqsa Fahim Taji

Department of Food Science and Technology, Jinnah University for Women, Karachi, Pakistan

Abstract

Cough is the utmost common medical problem in Pakistan, affecting at least one of every tenth. Antitussive medicines are the most widely used medications after analgesics. Antitussive medicines are generally used for soothing in mild, intense, dry or sputum conditions of cough. The current study was conducted among the population of Pakistan to check awareness regarding effects of antitussive drugs and its complications. 562 participants of various demographic details were included in this study. To reduce the effects of cough, 80.78% participants were found to be using antitussive drugs whereas 19.21% were not using any. 77.94% were found to be aware of side effects of the antitussive drugs. It was established that daily routine of 46.79% participant was not found to be affected by the use of antitussive medicines. The findings of the current study indicate that the main antitussive drugs used by the citizens of Pakistan are aminophylline and Dextromethorphan. 41.63% of the participant use antitussive medicines for moderate conditions of cough, 35.02% for intense and 20.04% for sputum cough. 287 participants have taken up antitussive medicines as over-the-counter (OTC) while 151 of the participants have taken up as a prescription drug. The results of current study clearly indicate the participants of the this study have enough awaredness about using antitussive medicine for the relief of various type of cough. The participants of the current study are also found to be aware of the effects of increasing dose as well alternatives of the antitussive drugs. The participants were also found to have enough knowledge about the management of antitussive drugs alongwith other disease.

Keywords: Awareness, Cough, Antitussive, Aminophylline and Dextromethorphan

Introduction

Cough is believed to be a general medical issue. It is also considered one of basic symptom leading to other conditions such as COPD, asthma, GERD, and chronic cough (Dicpinigaitis, Morice *et al.* 2014). Cough is the utmost common medical problem in Pakistan, affecting at least one of every tenth. The cough reflex serves to clear the airways of excessive secretions and foreign matter and can also be voluntarily evoked. It has a protective role, but can sometimes become excessive, non-productive and troublesome to patients. Cough is one of the most common reasons why individuals seek medical attention (Birring, de Blasio *et al.* 2019).

Antitussive medicines have been used as OTC AND as prescription medicine in the world (Choudry and Fuller 1992). Based on the site of action, antitussive medicines have been classified into two major groups. One of the major type i.e. peripheral antitussive medicine acts quickly and positively to suppress the activity of sensory nerves producing cough (Adcock 1991, Adcock, Schneider *et al.* 1988, Bolser 1996). Central antitussive drugs act within the CNS at the level of the brain stem, where the basic neural circuitry responsible for cough is located (Bolser, Hey *et al.* 1999, Shannon, Baekey *et al.* 1996). Cough is a multiphasic motor task which consists of sequential large increases in motor drive to inspiratory and expiratory muscles. This cough motor pattern has both spatial and temporal characteristics. The spatial characteristics of cough include the magnitude of motor drive to different muscles. The temporal characteristics of cough consist of the duration of each cough (the cough cycle) and its

Received 30 August 2021; Revised 28 September 2021; Accepted 10 October 2021

component phases (inspiration, compression, expulsion) (Shannon, Baekey *et al.* 1996, Shannon, Boiser *et al.* 2019).

Self-medication is one of the way to maintain health problems of the patients by themselves. Self-medication make the patients competent for diagnosing short term and long term symptoms of illness with an occasional advice. Most of the patients are unwilling to visit a doctor for a common medical problem try to manage it by themselves, even not having enough required information (Worku 2003, Phalke, Phalke *et al.* 2006). Urge of self-care, feeling of sympathy toward family members in sickness, lack of time, lack of health services, financial constraint, ignorance, misbelieves, extensive advertisement and availability of drugs in other than drug shops are responsible for growing trend of self-medication (Phalke, Phalke *et al.* 2006).

The study is aimed to assess the awareness, knowledge, and practice regarding use and effects of antitussive medicine among the residents of Pakistan. This may help to estimate the level of awareness towards the usage of the drugs and accordingly enable us to make efforts to improve the same. The study will also provide information about of the antitussive medicine taken up by OTC.

Methodology

A cross sectional study was conducted using an electronic questionnaire that was distributed among the citizens of Pakistan to assess their knowledge, attitude and practice regarding use and awareness of antitussive drugs. The questionnaire distributed among the students and working men/women's through social media site.

Questionnaire:

The questionnaire, comprising of 12 free hand questions, was related to the choice of the antitussive drugs prescribed, knowledge about their common side effects and clinical guidelines, choice and usage of these drugs in various age groups, and finally information about their dosage and availability. The questions are listed below.

1. For the relief of cough have you taken any antitussive medicine?
2. Which antitussive medicine you use?
3. Please mention the conditions of cough you use antitussive medicines?
4. Whether the antitussive medicine you purchased was prescribed by the doctor or you purchased yourself over the counter (OTC)?
5. What was the dose of the OTC antitussive medicine?
6. What is the routine timing of taking antitussive medicine?
7. Antitussive medicines generally impose drowsiness or sedation. Please mention those effects on your daily routine?
8. What have you done if you did not get relief from cough by using antitussive medicine?
9. In your opinion increasing the dose of antitussive medicine has side effect?
10. Is there any disease you have rather than cough?
11. If yes, so mention the name.
12. How could you manage dose of antitussive medicines with your routine medicines?

Statistical Analysis:

Data was recorded, and analyzed statistically via Microsoft excel. Description data were presented in frequencies and percentages in Bar chart form for better understanding.

Result& Discussion:

Demographic details of participants:

The number of participants in this study were 562 from different areas of Pakistan. The age range of the most participants was between 25 to 50 years. The percentage of female participants is 81.8% while that of male participants are 18.2%. Majority of the participants are office going while few were housewives and students (Table:1).

Table 1: Background Characteristics

Variable		Percentage
Age groups	Less than 25years	17%
	25-35	60%
	36-50	23%
Gender	Male	18.2%
	Female	81.8%
Residency	Pakistan	99.2%

Figure-1 shows the awareness and practice regarding antitussive drug. The question "for the relief of cough have you taken any antitussive medicine?" was replied YES by 80.78% and 19.21% responded "NO". The reply of question about the effect of antitussive medicines on the daily routine life was responded NO by 46.79%, YES by 21.53% and 31.67% replied May be/No effects. The next question asked to the participant was about the knowledge of side effects of increasing the dose of antitussive medicines, most of the participant (77.94%) replied YES while 22.06% replied NO. This indicates that participants have enough knowledge about increasing dose effects and its side effects. The participants were also inquired about any other disease they were having at the time of taking antitussive medicine. 96.97% of the participants do not facing any of the disease and 3.02% were found to be managing other diseases.

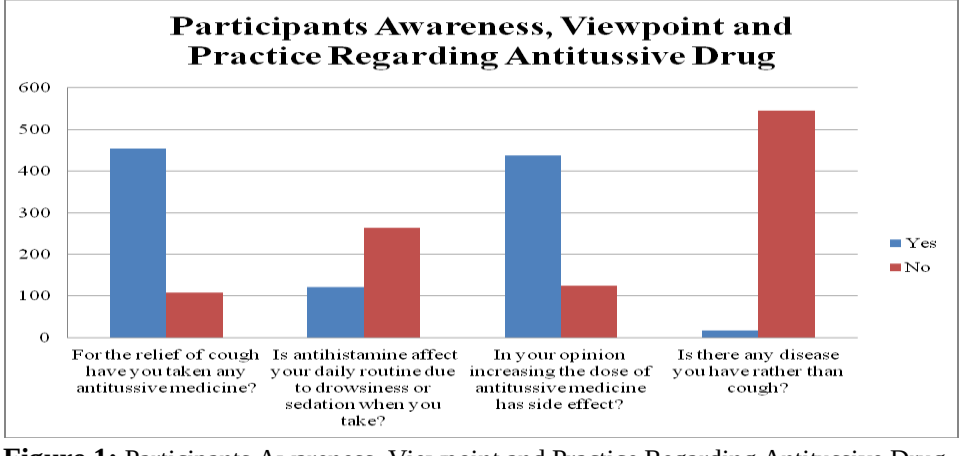

Figure 1: Participants Awareness, Viewpoint and Practice Regarding Antitussive Drug

Figure-2 concludes the varied answers received from the participant about name

of antitussive medicine. The findings of the current study indicate that the main antitussive drugs used by the citizens of Pakistan are aminophylline and Dextromethorphan.

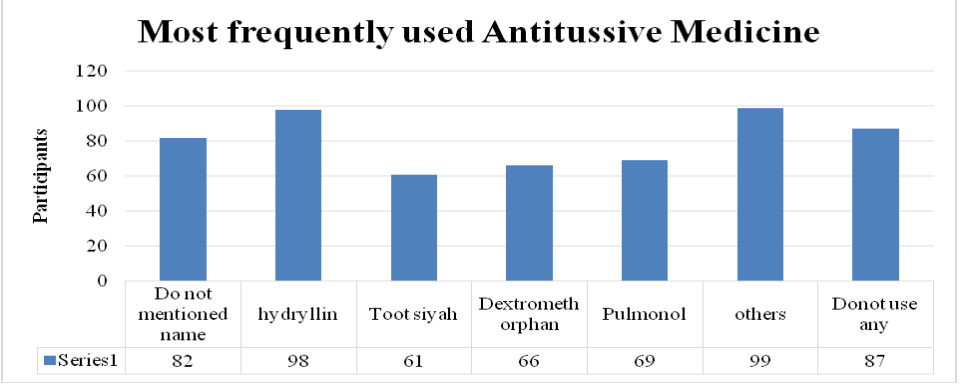

Figure 1: Most frequently used Antitussive Medicine

Figure-3 indicates the state of diseases that participants were managing other than cough. 17 participants were having other diseases such as asthma (5 participants), diabetes (9 participants) and other diseases (3 participants).

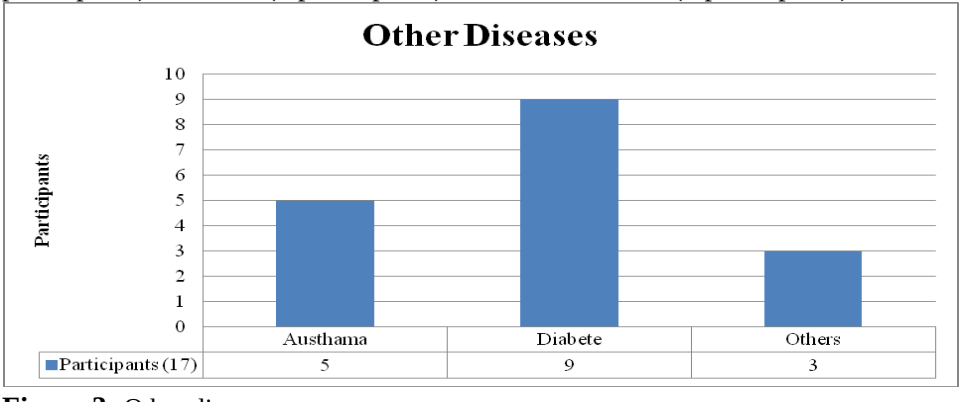

Figure 3: Other diseases

Most of the participants have been found to manage the use of other medicines along-with antitussive by time management. The detail is shown in Figure-4.

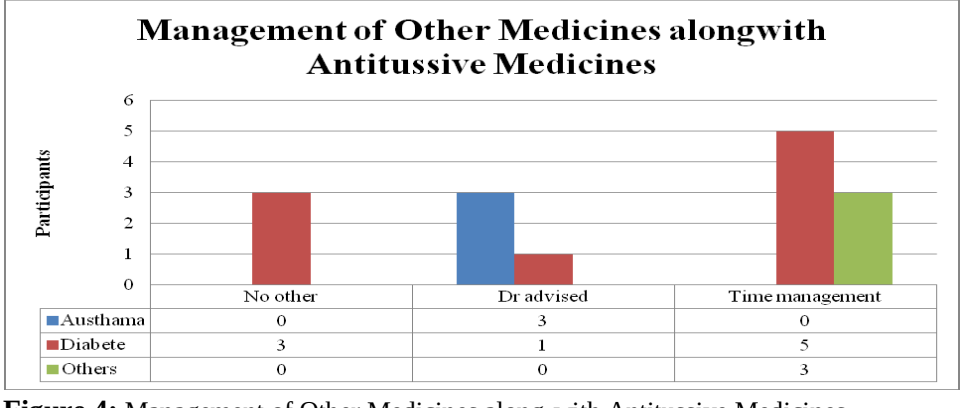

Figure 4: Management of Other Medicines along-with Antitussive Medicines

Figure-5 shows the conditions of cough for using antitussive medicines described by the participants. A varied reply was received from the participants. Most of the participant (41.63%) use antitussive medicines for moderate conditions of cough, 35.02% for intense and 20.04% for sputum cough; but 3.30% of the participants do not use any medicines under whatsoever conditions.

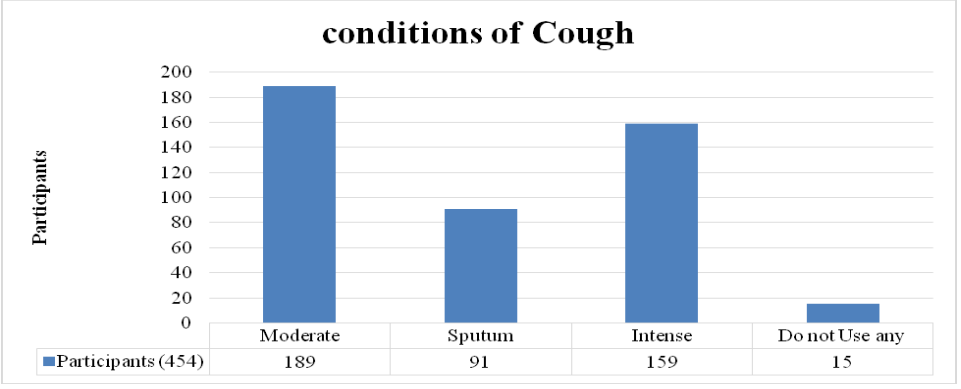

Figure 5: Conditions of Cough

Figure-6 indicates the behavior of participants towards use of OTC medicines. 287 participants found to be taking up antitussive medicine as an OTC while 151 of the participants have taken up as a prescription drug.

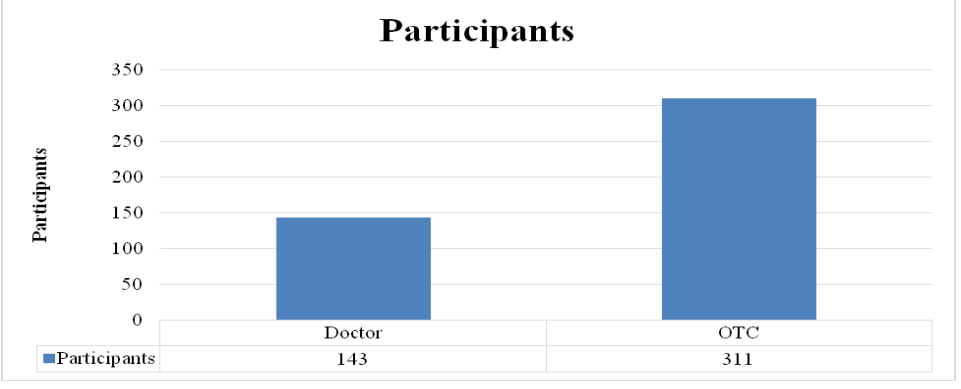

Figure 6: Behavior of Participants towards use of OTC Medicines

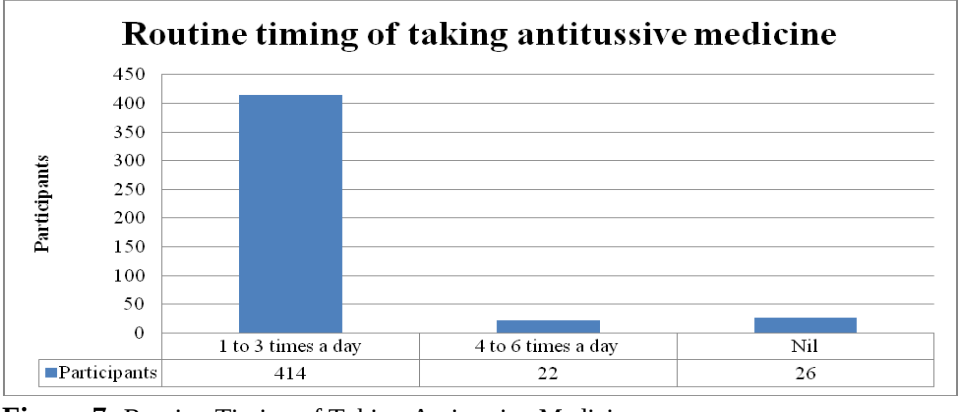

Figure 7: Routine Timing of Taking Antitussive Medicine

The participants were also asked about the routine timings of taking antitussive medicines (Figure-7). The reply of the participants concluded that 414 participants have been using antitussive medicines 1-3 times a day, while the 22 participants were using 4-6 time and 26 did not mentioned the routine timings.

Figure-8 concludes the alternatives of antitussive medicine used by the participant. 285 participant have switched to other medicines, 105 of the participant have decided to consult doctor and 172 of the particpant were in the favor of using the same medicines.

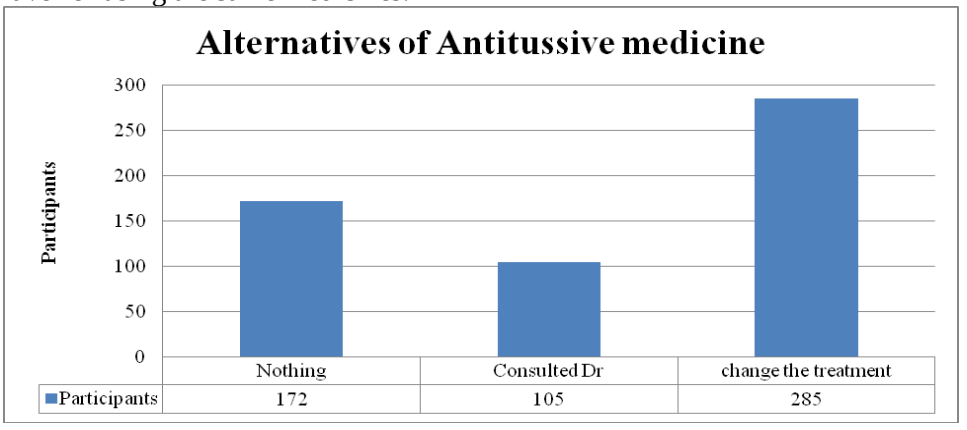

Figure 8: The Alternatives of Antitussive Medicine

The results clearly indicate the participants of the this study have enough awareness about using antitussive medicine for the relief of cough. They are also found to be aware of the effects of increasing dose as well alternatives of the antitussive medicines. The participants were also found to have enough knowledge about the management of antitussive medicnes alongwith other disease. The use of OTC medicines shows the participants' behaviour towards self medication. Self-medication with over-the-counter (OTC) drugs is considered as economical choice to treat self-recognized or self-diagnosed conditions or symptoms. Several benefits have been linked to appropriate self-medication, among them: increased access to medication and relief for the patient, the active role of the patient in his or her own health care, better use of physicians and pharmacists' skills and reduced (or at least optimized) burden of governments due to health expenditure linked to the treatment of minor health conditions. However, self-medication is far from being a completely safe practice, in particular in the case of non-responsible self-medication. Potential risks of self-medication practices include: incorrect self-diagnosis, delays in seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease and risk of dependence and abuse (Ruiz 2010, Beitz, Dören *et al.* 2004, Amoako, Richardson-Campbell *et al.* 2003). The result of current study concludes that there is no any risk of using OTC medicine has been reported by the participants.

The present study deals with the citizen of Pakistan to check the awareness and knowledge about the use of antitussive drugs.

Conclusion

Cough is the utmost common medical problem in Pakistan, affecting at least one of every tenth. Antitussive drugs are effective against cough symptoms and have use to treat cough, chest congestion, and stuffy nose symptoms caused by the common cold, flu, allergies, hay fever, or other breathing illnesses.

In the current study in terms of knowledge, attitude, and practice regarding the use of antitussive medicine, it has been found that nearly all participants are well aware about the effects of medicine and its complication. They also have an awareness regarding the dose, side effects and contraindications of antitussive medicines. The antitussive drugs cause drowsiness but medicines such as dextromethorphan and phenylephrine *are best in cough and flu remedy due to the fact that it provides superior relief without leaving one drowsy.* This may be due to the reason that cough and flue have become common medical problems in Pakistan and antitussive medicines have frequently been utilized. In this study, it is also observed that the majority of the people of Pakistan have been utilizing OTC medications.

Reference

Adcock, J (1991). "Peripheral opioid receptors and the cough reflex." Respiratory medicine **85**: 43-46.

Adcock, J, *et al.* (1988). "Effects of codeine, morphine and a novel opioid pentapeptide BW443C, on cough, nociception and ventilation in the unanaesthetized guinea-pig." British journal of pharmacology **93**(1): 93-100.

Amoako, EP, *et al.* (2003). Self-medication with over-the-counter drugs among elderly adults, SLACK Incorporated Thorofare, NJ

Beitz, R, *et al.* (2004). "Selbstmedikation mit Over-the-Counter-(OTC-) Präparaten in Deutschland." Bundesgesundheitsblatt-Gesundheitsforschung-Gesundheitsschutz **47**(11): 1043-1050.

Birring, S, *et al.* (2019). "Antitussive therapy: a role for levodropropizine." Pulmonary pharmacology & therapeutics **56**: 79-85.

Bolser, DC (1996). "Mechanisms of action of central and peripheral antitussive drugs." Pulmonary pharmacology **9**(5-6): 357-364.

Bolser, DC, *et al.* (1999). "Influence of central antitussive drugs on the cough motor pattern." Journal of applied physiology **86**(3): 1017-1024.

Choudry, N and Fuller, R (1992). "Sensitivity of the cough reflex in patients with chronic cough." European Respiratory Journal **5**(3): 296-300.

Dicpinigaitis, P, *et al.* (2014). "Antitussive drugs—past, present, and future." Pharmacological reviews **66**(2): 468-512.

Phalke, V, *et al.* (2006). "Self-medication practices in rural Maharashtra." Indian journal of community medicine **31**(1): 34.

Ruiz, ME (2010). "Risks of self-medication practices." Current drug safety **5**(4): 315-323.

Shannon, R, *et al.* (1996). "Brainstem respiratory networks and cough." Pulmonary pharmacology **9**(5-6): 343-347.

Shannon, R, *et al.* (2019). Neural control of coughing and sneezing. Neural control of the respiratory muscles, CRC press**:** 213-222.

Worku, S (2003). "Practice of self-medication in Jimma Town." Ethiopian Journal of Health Development **17**(2): 111-116.