ORIGINAL ARTICLE

A Prospective Study on Prevalence of Self-Medication of Antibiotics and their Dispensing Patterns in Community of Bengaluru North

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ABSTRACT

Aim: This study is aimed identify, assess, relate the prevalence of self-medication of antibiotics among people and dispensing pattern in community pharmacies in Bengaluru North.

Methodology: It is a prospective observational study conducted for a period of half years in the Department of Pharmacy Practice, Karnataka College of Pharmacy, Bangalore Baptist Hospital. A questionnaire form was developed from literature review and expert input for the purpose of data collection. Section-1 of the questionnaire evaluate the self-medication assessment of patients such as demographics details, reasons and pathological condition involved for self-medication and section-2 was to know antibiotics dispensing pattern from community pharmacies to patients.

Result: A total of 150 patients for self-medication and 70 community pharmacies were involved in the study. A total of 99 (66%) out of 150 total patients experienced self- medication with antibiotics and the rest percentage with drugs other than antibiotics. Among those who only self-medicated for antibiotics, 61% accounted for males whereas 39% females. The highest percentage of patient (26.26%) aged between 21-30 years purchased antibiotics without prescription. whereas 51-60 years (11.11%) aged group purchased least amount of antibiotics. Similarly, for qualification, no degree accounted for the highest percentage of 46%, following under diploma 28%. Whereas both bachelors & masters accounted least percentage of self-medicated with 16% and 10%. For key reason for self-medication economic aspect that accounted for a 37%, reference by others 26%, pre experience factor 24%, and other factors accounted for 13%. For pathological factors Cold, cough and fever occupied highest percentage of 32%. Amoxicillin and clavulanic acid (28%) was highly prescribed drug for self-medication to treat Cold, cough and fever, Acne, Inflammatory bowel disease and Respiratory tract infection. For 70 community pharmacies visited, 40 pharmacies dispensed antibiotics with prescription while 30 pharmacies without prescription. An average of top ten most dispensed antibiotics without a prescription was then noted where Amoxicillin (33%) has found most dispensed antibiotics whereas Levofloxacin (2%), and Cefadroxil (1%) were the least dispensed antibiotics. 28 pharmacies claimed that they make a sale of antibiotics around (40–60) percentage per day. forty-two (60%) of pharmacies mentioned that most patients purchase only half course of antibiotics, while twenty-eight (40%) claimed complete course of antibiotics by patients

Conclusion: The results of this study show that the antibiotics prescribing and dispensing practices in pharmacies of Bengaluru, North are not in complete accordance to the indicators laid by the World Health Organization. Antibiotics are dispensed frequently from pharmacies without official medical prescriptions. The majority of the antibiotics are dispensed according to the prescriptions with a significantly higher percentage of antibiotics per prescriptions. All these findings highlighted the need for complete enforcement of pharmacy laws.

Key words: Self-Medication, Antibiotics, Prevalence, Prescription

INTRODUCTION

Antibiotics are considered among the most commonly sold drug classes in the developing countries. The irrational and abuse of antibiotics results not just in the development of safe bacterial strains yet in addition in unfavorable responses and financial weight on national wellbeing framework. This nonsensical use emerges from the financial elements, wellbeing arrangements concerning therapeutic protection, absence of doctors' worries about long haul opposition and impact as opposed to treating current side effects, pharmaceutical promoting and the clearance of antibiotics without medicine in certain nations. Improper use incorporates pointless utilization of antibiotics to treat non-responsive conditions alongside problematic utilization of antibiotics to treat anti-toxin responsive conditions including abuse of expansive range antibiotics, off base tranquilize portions and terms. It is evaluated that antimicrobial remedies are wrong in around 33% of the out-patients as per the National Center for Disease Control and Prevention. World Health Organization (WHO) assessed that 80% of antibiotics is utilized in the network, of which around 20–half is utilized improperly. Subsequently, WHO suggested association of the network in handling of anti-microbial obstruction through improving access to therapeutic administrations, decreasing pointless utilization of antibiotics, taking a full course of treatment, not imparting prescriptions to other individuals, and not keeping some portion of the course for another event. There is variety in anti-toxin use among and inside districts related with a few elements. Therefore, to draw compelling mediation requires investigation of factor related with wrong anti-infection use in the network. (Rather, I. A., Kim, B. C., Bajpai, V. K., & Park, Y. H. (2017), Biswas, M., Roy, M. N., Manik, M. I. N., Hossain, M. S., Tapu, S. T. A., Moniruzzaman, M., & Sultana, S. (2014)

Self-medication can be characterized as the utilization of medications to treat self-analyzed clutters or side effects, or the discontinuous or proceeded with utilization of a recommended medication for ceaseless or repetitive infection or side effects. Self-medication has likewise

generally been characterized as "the taking of medications, herbs or home cures individually activity, or on the counsel of someone else, without counseling a specialist (Hernandez-Juyol and Job-Quesada, 2002). Self-medication incorporate treatment of relatives and wards, specifically youngsters/minors and the older. Numerous studies had indicated that self-medication builds the weight in individual's life higher in creating nations than in created nations. The investigation directed by Jordan featured about self-medication referenced through world Health Organization (WHO) that whenever managed suitably and mindfully can help forestall and treat maladies financially and without restorative meeting. There is critical fluctuation in the commonness of self-medication among created and creating nations on account of natural contrasts in socio statistic and social variables, varieties in medicinal services frameworks for instance repayment strategies, access to wellbeing offices Consequently, Self-medication utilizing anti-microbial are to a great extent rehearsed in nations where anti-microbial are anything but difficult to access and patients are affected by their family members, loved ones to pick a particular anti-toxin for treatment purposes. Essentially, Antibiotics are remedy just medication in India and can't be sold as Over the Counter Medication however absence of mindfulness, costly social insurance administrations, broad promoting of medications and inadequacy of wellbeing focused administrations are a few purposes for self-medication and studies indicated that it is drilled consistently, especially in monetarily denied networks. (Shah, S. J., Ahmad, H., Rehan, R. B., Najeeb, S., Mumtaz, M., Jilani, M. H., & Kadir, M. M. (2014), World Health Organization. (2016)

In most countries pharmacies are conveniently accessible and, in them, pharmacists are available for a considerable period during each working day and no appointment to see them is necessary. In countries where pharmacies are not well distributed, the aim of governments should be to ensure that the vast majority of the public have convenient access to a pharmacy. Pharmacists have a professional responsibility to provide sound, unbiased advice and to ensure that self- medication is resorted to only when it is safe and appropriate to do so. Pharmacists have the necessary knowledge to advice on safe storage of medicines in the home and on safe disposal of medicines once a course of treatment has been completed or, in the case of a medicine, which is obtained for occasional use, when the expiry date has been reached. Pharmacists can also advise that medicines prescribed for one individual or purchased for the treatment of a specific medical condition should not be used by another person without professional advice first being sought (International Pharmaceutical Federation,

1996).

MATERIALS AND METHODS

This study was conducted at Bangalore Baptist Hospital. For sample Self-medication prevalence (150) + Antibiotics dispensing pattern (70) collected. The study is a patient based, prospective observational study conducted in the north part of Bengaluru. Initially, for the collection of patient based information, two standard documentation forms as questionnaires were prepared by sources from articles and literatures that were previously performed on the same study in various countries in South Asia.

Self-medication prevalence: Self-medication was characterized as utilization of any medication, in recent months with one's own understanding, which was not recommended by a doctor. The first standard documentation form mainly contained information on some basic variables like age and sex of the patient, the types of antibiotics commonly purchased, the reason for which people involve in self-medication of antibiotics, the common pathological conditions for which the antibiotics were used and the duration of usage of antibiotics as well as patient compliance regarding self-medication of antibiotics. This information come under the objective of self-medication prevalence for which we went to rural and urban parts of the north site to reach a total of 150 sample size in the period of 6 months. The written consent was taken from each patient during this study. A convenient sampling method was used to complete the required sample size. A concise portrayal of the meaning of self-medication to the patients continued the beginning of this session. Patients were subsequently gotten some information about self-medication in the previous 6 months by and large and afterward as for anti-toxins alone. The information was gathered the patient at any age group selected randomly by direct interviewing them who are under self-medication recorded written and verbally. Both literate and illiterate patients involving in self-medication of antibiotics were assessed and their data from the documentation form were analyzed individually and the report was then prepared. In this regard, descriptive statistics were applied to the collected data using Microsoft excel software and results were finally demonstrated graphically in percentages.

Antibiotics dispensing pattern: This objective out of the study includes identify dispensing of antibiotics by community pharmacists either on remedy or on self-request. Drug stores on which drug specialists were missing because of any explanation and drug stores joined to emergency clinics were avoided from the investigation. Informed verbal consent was obtained after explaining aim and objectives to the participant. For this purpose, a second standard documentation form was designed suitably such that it included aspects like most dispensed antibiotics per week from the pharmacy with and without presentation of prescription for the purchase of antibiotics by the patient, approximate value sale per day from antibiotics only, completion of course of antibiotics by the patients and sell of high end antibiotics per week respectively. A visit to seventy community pharmacies was made in the north part of Bengaluru and the response rate was 100%. The pharmacists were distributed with the form and the information were recorded both written and verbally. At baseline, information was collected and pharmacists were asked with respect to anti-microbial recommending and administering design on drug stores, measurement structures apportioned, apportioning as indicated by doctors or self-medication. Most of them stated that people purchase antibiotics without a prescription from a registered physician and the reason they cited was people calling themselves qualified enough to self-medicate with an antibiotic. This also accounts

inappropriate regulations and protocols regarding dispensing antibiotics.

RESULT AND DISCUSSION

Self-medication prevalence of antibiotics: This study is an attempt to report the self-medication of antibiotics in Bangalore north of Karnataka, India. It was found that 99 (66%) out of 150 total patients experienced self-medication with antibiotics and the rest percentage of total patients were involved in self-medication with drugs other than antibiotics.

Antibiotics were self-medicated by 66% of the total study population. This rate was found to be drastically high when compared with results of similar studies conducted previously in Jordan (23.0%), Mongolia (21%) and Viet Nam (12%). This is additionally in sharp appear differently in relation to reports from Turkey, where 19.1% pervasiveness was revealed in anti-microbial self-medication among essential consideration chaperons. In different investigations, in European nations, antimicrobial self-medication was seen as a lot of lower than 10% in every one of 19 European nations spread crosswise over east, west, north and southern Europe. These discoveries recommend how much should be done in handling the issues of medication organization, appropriation and control in quickly creating nations like India. In our study, male (61%) tended to use more antibiotics than female (39%). The high incidence of self-medication by male participants could be explained by a number of factors. Most of the places where study visit was made belong to rural areas of north side of Bengaluru, where we observed that males were the only working gender in that family. In this sense, they become more independent and they have more desire to self-medicate whenever ill. This could also be explained by the fact that females are more cautious and sensible to their lives rather than males. While considering the age group factor on self-medication, we interpreted that adults self-medicate themselves more that geriatrics do. While no self-medicated antibiotics were found in the age bunch between 0–10 years since they are subject to their parental figures. We also interpreted that people with no degree involve in higher incidence of self-medication (46%) than those who are under diplomas (28%), bachelors (16%) and masters (10%) respectively. While finding various reasons for self-medication with antibiotics, we found out that the main reason for most of the participants to self-medicate themselves with antibiotics is the factor that there is drastic reduction in doctor fees, an economic factor (37%), for which they just consult with the dispensing pharmacists who have least knowledge on antibiotics. This followed with the second main reason for self-medication to be reference by others that accounted for 26%. %. Similarly, pre experience factor was associated with 24% of the total self-medication in a sense that if antibiotics were previously prescribed for an infection and treated successfully again after which the later developed similar symptoms, then the users were more likely to use the same antibiotics (Fig 1).

This factor of no confidence with doctor's medication was associated with 13% of the total self-medication of the antibiotics. Concentrates from American, Asian and European nations demonstrate that among 22% and 70% of guardians have misguided judgments about the suitable applications and viability of anti-infection agents and frequently use them without a solution (Bi P, Tong SL, Parton, 2000). However, our findings run in concordance to findings from other developing countries, where relatively lower costs, the economic factor, has been given as the main reason for self-medication of antibiotics. (Larsson M, Kronvall G, Chuc NTK, Karlsson, 2000). The highest purchased self-medicated antibiotics were Amoxicillin and clavulanic acid (28%) followed by Azithromycin (21%), Metronidazole (12%), Ciprofloxacin (9%), Ceftriaxone (6%) and Erythromycin (6%). In a similar study in Mongolia, Arab Emirates and Nigeria, penicillins, particularly Amoxicillin was most commonly used for a variety of conditions by people who engaged in self-medication. (Togoobaatar G et. al, 2010). The antibiotics which were purchased in least percentage were Ofloxacin, Doxycycline, Cefixime, Cotrimoxazole, Cefotaxime and Fluconazole each of them having self-medication prevalence of 3%. Cold, cough and fever (32%) establish the sickness manifestations/conditions for which anti-toxins were most generally utilized in this investigation while 22% of reacting patients utilized anti-toxins for Amoebic diarrhea, diarrhea and food poisoning and the third and fourth pathologies being Infections (16%) and Tooth ache and dental carries (11%) respectively (Fig.2)

In contrast to our study, Contamination was the condition related most as often as possible with nonprescription anti-microbial use, an outcome which substantiates discoveries from other Asian nations (Okumura J, Wakai S, Umenai T, 2002). The finding of our investigation is in reliable not the same as those of a comparative report led in Bangladesh (Chowdhury N, Rashedul Islam M, Hasan M, Rouf M, 2013) and supports the assertion of (Tamuno, I ,2011), that in developing countries, antibiotics are viewed as wonder drugs capable of healing a wide variety of illnesses ranging from gastro intestinal disorders to headaches. As expressed by the members of our examination, Amoebic loose bowels, looseness of the bowels and nourishment harming was simply the subsequent significant purpose behind treatment with self-sedated antibiotics.This finding, however is steady with consequences of recently directed examinations (Mitsi G,Jelastopulu E, Basiaris H, Skoutelis A, Gogos C, 2005), it likewise demonstrates the conviction of the network that anti-infection agents can treat and destroy any contaminations independent of their cause (Fig.3).

Antibiotics dispensing pattern in community pharmacies: During this study, antibiotics dispensing practices were observed in seventy community pharmacies of Bengaluru North. The outcomes expressed above demonstrated that a greater part of the anti-toxins were administered on authentic therapeutic solution (58%) yet an extensive number of anti-toxins (about 42%) were apportioned either on patient's interest or on self-medication. Moreover, not all anti-microbials administered by a drug specialist, however experts or sales reps apportioned an extensive extent of anti-infection agents to respondents. In India anti-infection agents are not over the counter medications as per Drug and Cosmetic Act 1940 and they ought to be administered on authentic restorative

solutions and by law they ought not be legitimately accessible to patients without remedies from drug stores, yet on in opposition to this, practically speaking they are uninhibitedly accessible and self-medication is very much common. Also, the approximate value sale per day from antibiotics for each pharmacy was noted. Twenty-eight pharmacies out of the total seventy pharmacies claimed that they make a sale of around 40–60 percentage per day from antibiotics, followed after which eighteen pharmacies claimed that a sale of around 60–80 percentage is made from antibiotics alone. Remaining twelve, eight and four pharmacies claimed their sale per day of antibiotics to be 20-40 percentage, 0-20 percentage and 80-100 percentage respectively. Table 1

Similarly, among the total of seventy pharmacists interviewed, forty-two (60%) of them mentioned that most patients in their pharmacy purchase only half course of antibiotics, while twenty-eight (40%) of other pharmacists stated that patients pursue complete course of antibiotics. In spite of the fact that the non-solution clearance of anti-infection agents is unlawful in India, our outcomes repeat discoveries from different examinations in settings where drug stores were simply the principle wellspring of anti-microbials medication (Parimi N, Pinto Pereira LM, Prabhakar P, 2004). Conversely, nations where over-the-counter anti-infection agents deals are carefully controlled have a lot of lower predominance paces of self-medication with anti-toxins, extending from 1% to 4%(Grigoryan L, Haaijer Ruskamp FM, Burgerhof JGM, Mechtler R, Deschepper R,Tambic-Andrasevic, 2006).The uncontrolled utilization of anti-microbials can be unsafe in view of unfavorable medication reactions,masking of manifestations of contamination, the improvement of incessant ailment and superinfection. It is additionally connected with the development and spread of antimicrobial obstruction. These issues require suitable measures by strategy producers to create appropriate arrangements just as to guarantee their usage.

Table 1: Percentage sale of antibiotics in community pharmacies

Sale of antibiotics (%)	Number of pharmacies
0-20	8
20-40	12
40-60	28
60-80	18
80-100	4

Fig 1: Column chart representation; Key reasons for self-medication of antibiotics

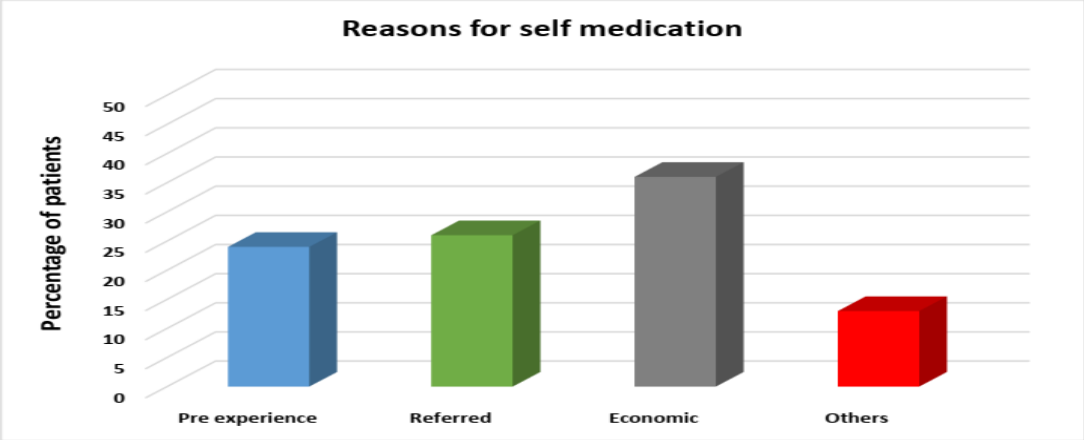


Fig 2: Bar graph representation on pathological reasons for self-medication of antibiotics

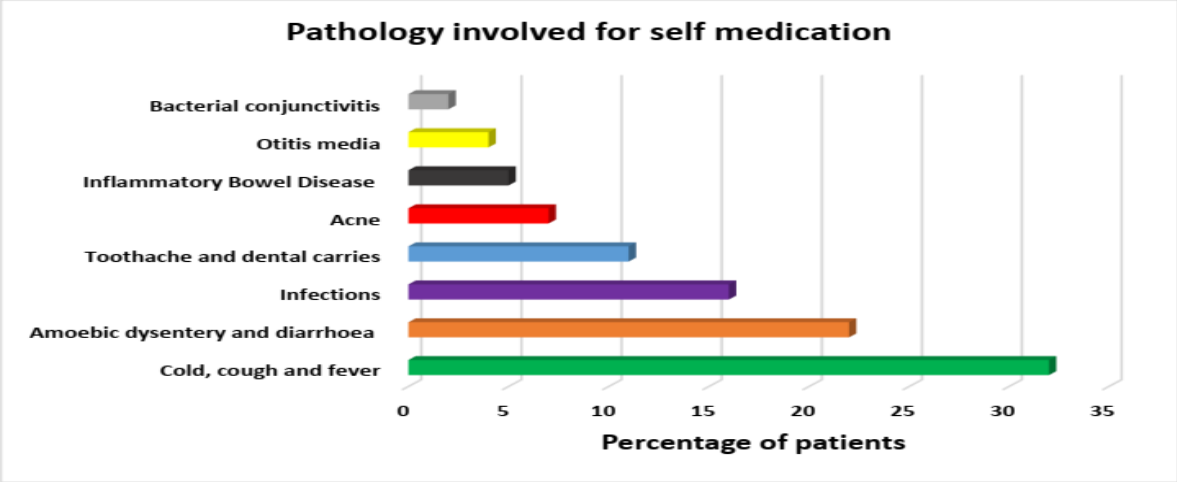
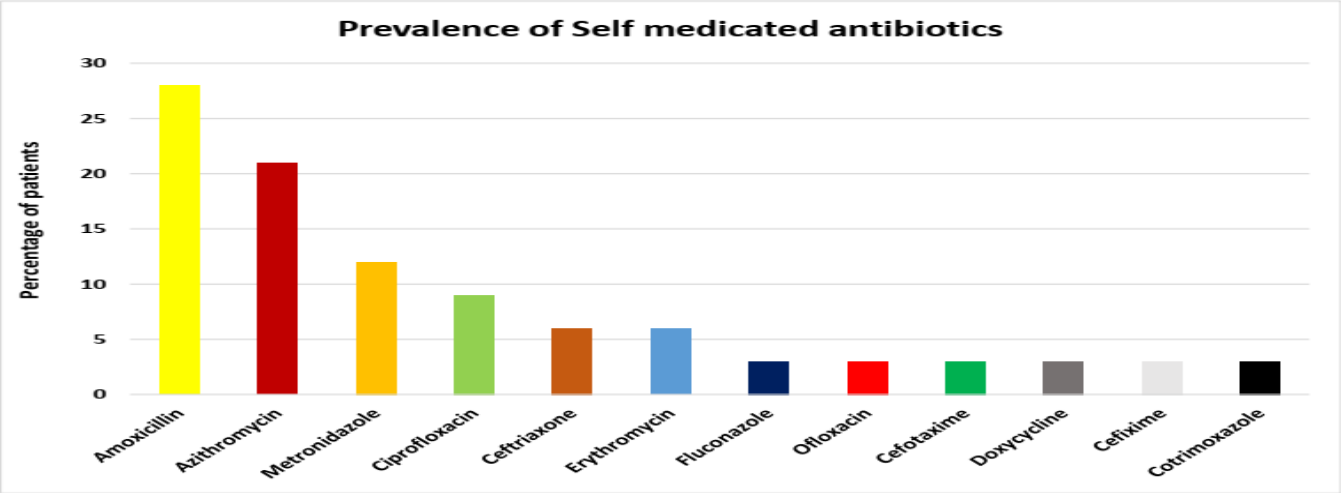


Fig 3: Column chart representation of prevalence of self-medication of antibiotics



CONCLUSION

This study is an effort to outline the prevalence of self-medication of antibiotics in the north part of the city and make an awareness among the public and national authorities on the consequences of the same. The uncontrolled utilization of antibiotics can be destructive on account of unfriendly medication responses, veiling of indications of contamination, the advancement of interminable malady and super disease. It is additionally connected with the rise and spread of antimicrobial resistance. Thus, these issues require fitting measures by approach creators to create appropriate arrangements just as. Thus, these problems require appropriate measures by policy makers to develop pertinent policies as well as to ensure their implementation. The results of this study show that the antibiotics prescribing and dispensing practices in pharmacies of Bengaluru, North are not in complete accordance to the indicators laid by the World Health Organization. Antibiotics are dispensed frequently from pharmacies without official medical prescriptions. The majority of the antibiotics are dispensed according to the prescriptions with a significantly higher percentage of antibiotics per prescriptions.

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