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GLOBAL SCENARIO OF SELF MEDICATION: A REVIEW OF LITERATURE

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ABSTRACT

Self-medication can be defined as obtaining and consuming drugs without the advice of a physician for diagnosis, prescription or surveillance of treatment. Self-medication is widely practiced with varying dimensions in India and globally. A review of literature was conducted on various studies conducted in different geographies that focused on the practices of self-medication based on different factors like demography, gender, occupation, standard of living. To review the literature on self-medication practise globally and understand all the factors that is directly or indirectly related to the practice of self-medication. This paper helps in understanding various factors that affect self-medication practices like income, age, prior knowledge, education, occupation, gender, etc. Finally the study throws a light on practices of self-medication in India and in few other countries, explaining different causes, sources and reasons of self-medication.

An extensive review of literature was undertaken in which 46 Studies conducted on self-medication practices and factors affecting self-medication were selected for the review purpose. The most common ailments for which self-medication are practiced are cold, fever and body & head ache. Analgesics, paracetamol and antibiotics are most prevalent drugs used for self-medication. . The most common source of information regarding self-medication is personal experience and information from the credible source like chemist, friends and family. Information through commercial sources like health magazines and advertisements are not much relied on for self-medication. Also, the practice of self-medication is not related with the educational level of patients. Affordability, quick relief and less time consumption is the main reasons for which self-medication are practiced.

Keywords*: Self-Medication; Self-Medication Practices; Global Scenario; OTC; Prescription drugs; Antibiotics; Literature Review.*

Introduction:

Self-medication is a practice of treating any self - diagnosed disorder or symptom with the use of un-prescribed drug or home remedies on patient's initiative without consulting a doctor (Darshana, 2013). It has been argued that self-medication empowers patients by giving them independence to choose in minor illness in case of over the counter (OTC) drugs. Factors like increase in availability of drug, costlier healthcare services and avoiding visiting doctors increase the practice self-medication. Like each and every practice has pros and cons, similar is the case with self-medication. On one hand self-medication helps various health care facilities by decreasing the load on them and helps patients to save their time and money, on the other hand there are many studies that highlights the ill effect of self-medication like increase in drug resistance, adverse drug reactions, wrong diagnosis and dosage. Self-medication may vary among different population and can be influenced by factors like age, gender, income, expenditure, education, medical knowledge and satisfaction perception of illness. (Dawooda, Hassalia, & Saleem, 2017). Researchers have argued that self-medication is often practiced by people as self- care of the health which is an unnecessary practice. Over the past decades there are many studies conducted in the area of self-medication that highlights the effect of self-medication and its impact on the overall health of people practicing self-medication. It is quite evident that researchers have argued many pros and cons of self-medication, but their findings has been largely limited to the geographic and demographic span of their research and there is no one study that gives a comprehensive view of researches done in the area of self-medication. Hence, it is important to conduct a detailed review of studies done in self-medication practices and factors affecting self-medication.

Self-Medication:

Self-medication can be considered as the potential capability of individuals to take medications on their own, based on the preventive, diagnostic and therapeutic activities that concern them (JR & JM, 1992). According to guidelines of national drug policies, World Health Organization promotes the practice of self-medication for effective and quick relief of symptoms without medical consultations and reduce burden on health care services, which are often understaffed and inaccessible in rural and remote areas (Albany, 1988) . Researchers have argued that self-medication may resolve the issue without seeing a doctor or consultant and that to with minimum cost. Self-medication vary according to the person's personal situation, it can also be associated with the fear of medical diagnosis. However, self-medication comes with many risks such as misdiagnose/ misguidance, inappropriate use of drug for self-medication can also have many other ill-effects like excessive use of drug dosage, prolonged usage, interaction of medicines and poly-pharmacy. (CM, JC, & GF, 2001) (Osama, Mustafa, & Rohra, 2017).

There are many studies that highlight various risks associated with self-medication like mixing of drugs which may lead to serious health concerns. In the worst case scenario, self-medication may lead to serious health issues or even death (Ruiz, 2010), (Dayton & Tian, 2013). The effects of self-medication might be harmful and life threatening. Hence, promoters of self-medication due to affordability and inaccessibility of health services should also consider its adverse effects. (Phalke, Phalke, & Durgawale, 2006).

Self-medication is largely found in lower educated people as it results in less awareness about the negative outcome of repeating prescribed drugs for same symptoms/disease or for another symptom/disease (Sheppard & P., 2016) (Darshana, 2013). The type, extent and reason of self-medication may vary from country to country. The knowledge and drug information obtained by the patient from family and friends or other sources can possibly lead to misinformation (Pharm & D, 2005).

To avoid the adverse effect of self-medication it is important to promote dispensing of exact number of tablets/drugs, patient education and by alerting the doctors not to prescribe drugs with minor ailments which can lead to self-medication. Preventing left over drugs can be a major way to avoid self-medication. To promote self-care and self-medication patient must be properly educated by the pharmacist. (Al-Azzam & Sayer, 2007) (Pharm & D, 2005).

Self-Medication in Over the Counter and Prescription Drugs:

Drugs that are legally allowed to be sold without any consent of registered medical practitioner's prescription are known as Over the Counter (OTC drugs). (Drugs @ FDA Glossary of Terms., 2011). As OTC drugs can be procured without any prescription they are easily accessible and contributes majorly in self-medication. Habitual OTC drugs that are easily available are painkillers, cold and flu, anti-allergy medicine, vitamins and energy tonics. The most common reasons of self-medications were found to be fever, cold & cough and headache. (Ghosh, Biswas, Mondal, Haldar, & Biswas, 2015)

World Health Organization considers self medication as a part of the self care that helps efficient use of the troubled healthcare awareness system. (World Health Organization, 2011) with all legal aspects taken into considerations for use of drugs for self medication. Enlarging the list of OTC drugs and increasing availability of controlled drugs gives the people freedom of choosing the type of treatment they want

to undergo. In spite of being useful in treating common ailments, surplus use of OTC drug can lead to undesired effects and reactions. Strict measures are needed to monitor advertisements of medicines both in print and electronic media. The possibility of having access to medicines not listed as OTC drugs should be minimized by taking appropriate monitoring measures including implementing effective legislation (Hussain & Khanum, 2008). James H. in his study done among first-year medical students of the Arabian Gulf University, Bahrain found that knowledge about appropriate self-medication was usually poor, attitude towards self-medication was positive, and the practice of self-medication was common and often inappropriate (H, et al., 2006).

There are many studies that highlights the practice of self-medication not only in case of OTC but also in prescription drugs. People usually see self -medication or self- administration an easy and safe mode of consuming drugs. People mostly prefer self-administration when they experience headache, fever, cough, acidity or mild pain conditions. Thus the common drugs they consume mainly includes non-steroid anti-inflammatory drugs such as aspirin, ibuprofen. For fever, paracetamol (analgesics) are used and for allergy, cough anti-histamines are used such as cetirizine, diphenylhydramine. A study conducted on medical students concluded that in spite of knowing the ill effects, medical students still prefer to practice self-medication. Antipyretic, analgesics and antacids are most commonly used drugs for self-medication. (Kasulkar & Gupta, 2015) (Parakh, Sharma, Kothari, Parakh, & Parakh, 2013) (Marak, Borah, Bhattacharyya, & Talukdar, 2016).

The study conducted in Kathmandu Valley, Nepal showed that non-steroidal analgesic, anti-inflammatory and antipyretic drugs were mostly preferred for the treatment of fever and headaches. Community pharmacies and pharmacist recommendation were main sources of obtaining and selecting particular medicine and its dose while friends and family were the main source of information Majority of the respondents always checked up the information on package label or insert, mainly date of manufacturing and also checked the expiry date before medicating. Significant proportion of respondents perceived it as unacceptable practice. Allopathic system was preferred over other systems for self-medication. (Bhattarai, Basyal, & Bhattarai, 2014).

A study on reproductive age women was conducted to understand severity of self-medication. The study concluded that mostly women practice self-medication when they suffer from headache, dyspnea, leg pain, cold, fever, indigestion and their primary source of information about medicines are health magazines, advertisements along with information by friends. Analgesia and antipyretics were most frequently used drugs. (Nair, Rajmohanan, & Kumaran, 2013).

The most common self -administrated medicine is antibiotics. Antibiotics are usually used to prevent bacteria from spreading or reproducing. It doesn't act on viral infection such as cold flu, cough and throat infection. Study conducted in Greece to understand self-medication behaviour of students of medicine and dentistry towards antibiotics revelled that 22.4 % of respondents self-medicated with antibiotics the last 6 months for ailments like pain, cough and fever. Out of which majority of the students were from medicine. Moreover, only half of self-medicated students completed the full course, in fact many of them were taking wrong dosages during the treatment period and few also reported adverse events related to antibiotics. The main reason reported for not visiting a medical doctor, was the use of the same antibiotic in the past. (Pourzitaki, et al., 2017). Antibiotic consumption has been strongly linked with the development of resistance as specific antibiotics are developed to cure specific bacteria. Hence, taking antibiotics of previous prescription for different condition might built resistant bacteria that will make it hard for curing (SL, et al., 2002). (Bilal, et al., 2016) (X, et al., January 2016) (Pourzitaki, et al., 2017) (Al-Azzam & Sayer, 2007) (Dawooda, Hassalia, & Saleem, 2017) (Porteous, Bond, Hannaford, Sinclair, & Hazel, 2005).

The major problem highlighted in studies related to self-medication of antibiotics was that patients were not aware about how much dose was to be administrated and when to stop taking medicines and consult doctor. Patients were also not fully aware about the ill effects of self-medication such as adverse drug reaction, drug-drug interactions, and other side effects. (Parakh, Sharma, Kothari, Parakh, & Parakh, 2013) (Marak, Borah, Bhattacharyya, & Talukdar, 2016) (Nair, Rajmohanan, & Kumaran, 2013).

Self-Medication Practices in different Geographies:

India:

There was a study carried out in Barabanki in the state of Uttar Pradesh with an aim of studying practices of self-medication in rural areas. It was observed that the practice of self-medication was considerably high among uneducated people as compared to those who were educated. It was also noted that the use of allopathic system of medicine was much higher in the Barabanki area as compared to traditional once. Recurring used drugs of self-medication were mostly paracetamol, analgesics, antimicrobials, cold remedies and GIT drugs. The information obtained by the respondents was from sources like previous prescriptions, neighbours, relatives, chemists and advertisements. Respondents practiced self-medication because it was time saving, cost saver as they did not prefer to visit doctors for minor illness because of high

consultation fees and also it was very time consuming. (Keshari, Kesarwani, & Mishra, 2014).

Another study was conducted in the Bastar (Chattisgarh) among the nursing students which suggests that frequently used drugs were for fever, sore throat, headache, common cold and diarrhea, simultaneous it was brought to notice that the drugs used for these symptoms were branded and not generics. The main sources of information were books, chemist and seniors. Majority of the students were aware about the content of the drug, some were aware about the content of the drug and the dosage but only few were aware about the therapy along with content of the drug and dosage (Ali, et al., 2015) .

In Kerala, there was a study conducted on the practices of self-medication among the medical students. The students were categorized according to the year they study in and it was noted that practice of self-medication was high among the final year students as compared to their juniors. The symptoms for which the students adopted self-medication were headache, fever, common cold, gastritis, nausea, vomiting and diarrhoea. For such symptoms the students used drugs like antipyretics, analgesics, antihistamines and antibiotics. They also consumed some hazardous medicines like sleeping pills, steroids and stimulants. The common reason of consuming drugs was stress and exam pressure. This is an alarming condition as significant number of students were unaware of the adverse reaction of self-medication which could be life threatening. (Badiger, Kundapur, Jain, & Pattanshetty, 2012).

There was another study conducted among the medical students in Nagpur according to this study the frequency of students practicing self-medication was very high among the final year students as compared to their junior. Self-medication was majorly adopted for symptoms like fever and headache at the top of list followed by cough, acidity, nausea, skin problems and lastly eye problems. It was also found that the drugs used for self-medication were antipyretics, antibiotics, antihistamines, antacids etc. the information for this was obtained from books, seniors, friends and relatives, previous prescriptions and pharmacists. The reasons for practicing self-medication were that it was economic, helpful during emergencies, quick relief and respondent's confidence in self-diagnosis. It was seen that the students lacked in awareness regarding dose and adverse effects but had a fair knowledge about expiry date and importance of completing the course of medicines. (Kasulkar & Gupta, 2015)

In a study carried out in the northern part of India (Uttar Pradesh) among the students of U.P Technical University 87% of the respondents agreed that they were involved with self-medication in various diseases like headache, fever, cough, cold, G.I infection, ulcer and throat infection the drugs commonly used to treat these aliments were crocin, disprin, combiflam, D-cold, metrogyl, smile gel, etc. The reason behind this practice was lack of knowledge; they considered it time saving and less expensive. This descriptive survey showed that the majority of professional students had a poor knowledge about appropriate Self-medication. Thus to avoid dangers of Self-medication the students must be educated about the indiscriminate use of drug (Verma, Mohan, & Pandey, 2010).

Middle East Countries:

Many incidences of self-medications have been reported in the Middle East countries. Self-medication was mainly seen in the therapeutic class of antibiotic drugs. Various socio-cultural and economic factors have incorporated the beliefs in people that consumption of antibiotics can speed up the recovery and also helps in the treatment of various infections regardless of its origin or the guidelines given for the use of antibiotics. Major types of antibiotics used for self-medication in the Middle-East were penicillin, followed by macrolides, cephalosporin, fluoroquinones and tetracycline. Main indications for which self-medication was adhered to included fever, respiratory problems like cough, cold, sore throat, oral, ear, skin and gastrointestinal tract infections and problems. Among various classes of antibiotics used for self-medication, drugs from the class of Penicillin like Amoxicillin, and Amoxicillin-Clavulanic acid combination was majorly used by people. This is because, they had a notion that these drugs are available at a low cost and do not have disturbing side effects as compared to other classes of antibiotics (Alhomoud, et al., 2017). Among medical students in the King Abdulaziz University in Saudi Arabia, analgesics were most commonly used drug followed by antipyretics, antihistaminic and antibiotics. Also, age group played a major role in self-medication among the medical students and students aged more than 21 years showed increased use of analgesics in comparison to students of lower age groups. Rate of self-medication was also seen to increase with an increase in the academic year of the students. The studies reported that the symptoms for which the analgesics were used by the medical students included headache, followed by common cold, dysmenorrhea and bone and joints pain. The most common medication used by students under analgesics was found to be acetaminophen (Ibrahim, Alamoudi, Baamer, & Al-Raddadi, 2015). Studies in Riyadh-Kingdom of Saudi Arabia among adolescents between the age group of 13 to 18 years showed that analgesics were the most commonly used medication and hormones were the least. It was also seen that the pharmacy stores were the major source of information for the medications used by the people and parents as a source of information for self-medication was second in line and the least utilized source was social media (Albatti, Alawwad, Aldueb, Alhoqail, &

Almutairi, 2017). In the university students in the country of Oman, analgesics and antipyretics were the most commonly used classes of self-medication. It was also seen that the use of gastrointestinal drugs for self-medication was more in females and on the other hand, males self- medicated more on antimicrobial drugs (Flaiti, Badi, Hakami, & Khan, 2014). In the studies carried out within the ambulatory care setting within the Euro-Mediterranean region comprising countries like Egypt, Jordan, Lebanon, Libya, Tunisia, Turkey, Cyprus with respect to antibiotics, the respondents claimed that most of them made use of the antibiotics for the Upper Respiratory Tract Disorders, and the most commonly used antibiotics were Ampicillin and Amoxicillin. In Lebanon, association of age with self-medication was seen wherein people above the age of 36 years showed increase in self-medication. A statistical significant association was seen between antibiotic hoarding and self-medication in each of the countries researched except for Cyprus (Scicluna, et al., 2009).

Brazil:

Self-Medication was seen in a rise in adolescents and especially in girls as per certain studies undertaken in Brazil with reference to the Birth Cohort Study of 1993 in Pelotas. This increase in self-medication among the female population could be attributed to the use of analgesics and contraceptives due to menarche. Also self-medication was seen more in individuals who were educated, with poor or very poor self-rated health and also those who showed physical inactivity. Self-Medication was mostly done to treat acute conditions and analgesics for which OTC were used and thus it was seen that most of the self-medication done by adolescents were of OTC drugs which were relatively safer. Most of the adolescents did self-medication to treat headaches and pain and the drugs which were most frequently used were Dipyrone and Paracetamol (Andréa Dâmaso Bertoldi, et al., 2014). Self-Medication among children aged between 0 to 14 years of age mainly composed of paracetamol, dipyrone and cold medicine. In the age group of 0-14 years, not much statistical significance was seen in self-medication with respect to gender, family income, age and access to healthcare services (Cruz, Dourado, Bodevan, Andrade, & Santos, 2014). Self-Medication in university students in Rio Grande city of Brazil showed use of paracetamol, dipyrone, aspirin, and certain phytotherapic compounds. Reasons for self-medication included sore throat, fever, cold, menstrual cramps, muscle pain, heart burn, allergy. Poor knowledge of medicines among certain students led to less self-medication. Most of the students used illicit drugs and Marijuana was the most frequently used drug. Also the students studying healthcare sought more to self-medication as compared to other students (Silva, Soares, & Muccillo-Baisch, 2012).

African Countries:

Among female graduate and undergraduate students in universities of South Nigeria, self-medication was done for menstrual symptoms. Ampicillin, Tetracycline, Ciprofloxacin, Metronidazole were the antibiotic drugs which were commonly used for treating menstrual symptoms. Level of education was found to be the most significant factor for the self-medication among the females whereas the age was the least significant. Thus, more educated the female was, lesser self-medication was seen (Sapkota, et al., 2010).

In case of pregnant women attending antenatal care at health centres in Bukavu, Eastern DR Congo, and self-medication was mostly seen with the drugs like Amoxicillin, Papaverin and paracetamol. The ailments for which the pregnant women self-medicated were Urinary Tract Infection, common cold and cough. Thus, analgesics were the most commonly used OTC medication. Prior experience about the drug, easy access to the drugs without prescriptions and less severity of the disease were the major factors contributing to the self-medication among the pregnant women (Mbarambara, et al., 2016).

Mongolia:

Self-Medication was carried out for children in urban communities of Mongolia mainly for the symptoms of nasal discharge, fever, sore throat, cough; and Amoxicillin was the most preferred antibiotic for the treatment. Prior knowledge about antibiotics and past experience of their use paved way for self-medication (Togoobaatar, et al., 2010).

Malaysia:

In the country of Malaysia there was a research study conducted regarding attitude and awareness about self-medication among urban population. The primary objective of the study was to understand the level of awareness and the view point of population about the OTC medication while the secondary objective was to study the effect of various factors responsible for self-medication. From the study it was found that half of the people adopting the practices of self-medication were students while other half being the employed public. From the study it was also noticed that practices of self-medication among the Malaysian population was very common. Commonly used OTC medications were vitamins, painkillers, cough or flu remedies, sore throat products. Minor illness was the most recurrent reason that was given for consumption of OTC medication. Almost half of the population believed that consulting the doctors was time consuming and unnecessary. It was observed that the knowledge about self-medication among the population was moderate to low. Some participants were of the view that they would stop using the OTC medicines if they did not provide relief with a

particular time frame while some participants increase or decrease the dosage. (Azhar, et al., 2013)

Ethiopia:

A study was conducted to understand the practices and factors associated with self-medication in Mekelle, Tigray region, Ethiopia. The study was conducted among 270 respondents having average age group of 28.65 years. It was found that the most frequently reported illnesses that prompted self-medication were headache and fever followed by gastrointestinal diseases and respiratory tract infections. Cost effectiveness and prior experience were the main reasons of self-medication. Another reason was that that patients were able to get drugs easily from pharmacist by describing symptoms of illness or mentioning drug name from old prescriptions. Analgesics/antipyretics, gastrointestinal drugs, respiratory drugs and oral rehydration salt were the most frequently requested categories of drugs. Pharmacists followed by other healthcare providers were the most frequently reported source of drug information for self-medication. (Eticha & Mesfin, 2014).

Discussion:

Based on the review of 46 studies, the most common illness for which self-medication is practiced are cold, fever and body & head ache followed by allergy, nausea across different geographies. In females menstrual cramps is also one of the most common ailments for which self-medication is practiced. Self-medication has been practiced in various therapeutics segments of which analgesics which is pain relievers occupy the majority with paracetamol and antipyretics. Self-medication was much expected in OTC as these medicines can be procured without prescription but to our surprise it was seen that self-medication is a common practice in prescription drugs as well. Antibiotics are the most commonly used drugs for self-medication in prescription category, most commonly used antibiotics are amoxicillin, ampicillin and tetrocyclin. The main source of information regarding same are left over dosages and old prescription. It can be concluded that pharmacist provide medicines on old prescription or even without prescription that drastically increases the practice of self-medication even in prescription category. This calls for some serious steps in dispensing prescription drugs.

Lack of affordability was the most common reason of self-medication; people also preferred self-medication as it saved a lot of time. Accessibility, quick relief and patients' confidence in their ability to self-cure also played a major role in self-medication. The advantages of self-medication are faster relief, no wasting time in line at doctor's clinic in case of minor ailments. The practice of self- medication in OTC products can help people in rural and remote areas where there is less frequency of doctors. Another major advantage of self- medication through OTC drugs for pharmaceutical companies is that patient becomes aware about the products and helps to increase their sales.

Information from reliable source like chemist, family, friends, relatives and neighbours are the most prominent source of information regarding self-medication along with prior experience and old prescriptions related to ailments and its medication. It was also found that other sources like health magazines, advertisements, internet and social media were very low on the source of information. Hence, it can be interpreted that patients rely mostly on personal experience and known credible source for information regarding self-medication.

It was also seen that self-medication was most prominent in students practicing medicine which is quite expected as their knowledge about drugs is more than other students with no medical knowledge. But the alarming fact regarding self-medication among medical students was that they practice self-medication also in prescription and hazardous drug to cope up with stress and exam pressure. Hence, it can be seen as a quick fix approach rather than well informed decision. There were mixed findings regarding relation between education level of patients and their self-medication practices. According to few studies well educated people practice more self-medication as compare to less educated people whereas few studies concluded opposite. Hence, it can be inferred that self-medication is a common practice among all regardless of their education level. In order to prevent patients from self-medication there is need to increase awareness regarding ill effects of self-medication among general public regardless of their education level.

It can be concluded from the above literature review that self-medication is practiced for more or less common symptoms and reasons in various geographies and demographics. The following conclusions and recommendations are provided on the basis of our analyses. First, Policies can be made on the restricted use of certain medication that can create hazardous effects due to self-medication. Also, there is need to understand the reason for self-medication are mostly due to inaccessibility and lack of affordability. Hence, there is need to provide better infrastructure and affordable health care services. Second, this review also provides sound theoretical basis for pharmaceutical companies to understand self-medication practices of consumers and enable them to develop marketwise strategies for OTC and prescription drugs. Finally, mass educational efforts should be directed by healthcare professional organizations and healthcare practitioners like doctors and pharmacist towards consumers to make them more aware and increase their knowledge towards self-medication. Educational efforts should be directed

in such a manner that it empowers consumers to take more informed decision regarding their health conditions.

This review also presents various gap in the literature that can serve as a basis of future research in this area. First, research on self-medication with respect to specific factors affecting self-medication from the view point of other stakeholders like doctors and pharmacist needs to be conducted to develop a holistic understanding of self-medication. Also, there is a need to understand specific communication model that is most effective in educating consumers and other stakeholders to create awareness about self-medication. It has been observed that most of the studies concentrated on the self-medication are on young adults and adults. There is no specific study that concentrates on the self-medication practices of elderly population. Also, a comparative study of self-medication practices of different demography like self-medication practices of students practicing medicine or having pharmacy knowledge in comparison to students having no medical or pharmacy background, or a comparative study of self-medication practices in different age groups can also bring a lot of insights in this area.

Hence, there is need to conduct a study that can help different stakeholders like pharmaceutical companies, doctors, patients, pharmacist and academicians to understand a holistic view of self-medication.

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