

## Self-Medication With Antibiotics In Karachi

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### Abstract

**Background:** The antibiotic resistance has become more common and worst due to the use of non-prescribed antibiotics and self-medication. Many countries are experiencing this dilemma as in Pakistan especially in Karachi antibiotic are purchased and used without prescription.

**Objective:** We investigated how commonly antibiotics are used in Karachi by the survey to describe the reason of self-medication and the frequency of non-prescribed use of antibiotics.

**Methodology:** A cross sectional study was made by conducting the survey in the year 2019 targeting the common people of Karachi regardless of age, gender and profession. 400 respondents have taken part in survey from different areas of Karachi. A random survey in form of paper-based questionnaire was made possible by the help of 12volunteers.

**Result:** Our study shows that almost half of the respondent 49% take antibiotics without prescription. The most commonly used antibiotic was Augmentin (69.5%). The common reason of non-prescribed use of antibiotics were effectiveness 39%, convenient 23.5% and cheap cost were 13.5%. The condition for which people do self-medication is of mostly viral origin- runny nose (31.5%).

**Conclusion:** Self-medication either to sell or purchase is low forbidden and may result in the worst consequences of health if it is longer continued without the authorized prescriber. It may form the resistant of antibiotics and side effects. Awareness campaign should be started to show worst side of using non prescribed antibiotics. Strong restriction & monitoring should be applied in sell & purchase of antibiotics without prescription.

**Keywords:** Antibiotics, Antimicrobial, Prescription, Self-medication, Resistance, Survey.

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## **Introduction**

Antibiotics are defined as the agents that are used to destroy or hinder bacteria.<sup>[Error! Reference source not found.]</sup>As the first effective antibiotic was introduced in 1937, since long there has been relentless growth and out-spread of drug-resistant bacteria, commonly introduced as antimicrobial resistance (AMR).<sup>[1]</sup> Antimicrobial resistance is interpreting as; when bacteria can endure the antibiotics which would traditionally kill or inhibit their growth.<sup>[3]</sup>

The progress of AMR is a major public health concern in the world.<sup>[4]</sup> The major cause of antimicrobial resistance is use of antibiotics without prescription (self-medication). Self-medication is defined as the use of medication without the medical practitioner or physician advice or by own initiative.<sup>[5]</sup> Self-medication further possibly increases the probability of incorrect selection, may detain medical treatment, misdiagnosis.<sup>[Error! Reference source not found.]</sup>

The frequency of self-medication can be varied according to area or country but it is a serious global health issue. A study reports that 50 % of total antibiotics are given as OTC worldwide.<sup>[7][8]</sup>

The unsafe use of antibiotics can cause adverse effects like clostridium difficile colitis which is the bacterial normal flora disturbance.<sup>[9]</sup>The health complication of AMR are immense, not only affecting treatment of a primary bacterial infection, but also target the prophylactic practice of antibiotics in routine surgical procedures, such as caesareans and hip replacements, Cataract surgery.<sup>[10]</sup>Most of pharmacies are selling drugs without prescription in Pakistan. The resistance can be reduced if control the sale of non-prescribed drugs. Like other countries people of Pakistan are also self-medicating, especially youth.<sup>[11]</sup>

Therefore, the target of this study is to investigate the awareness of antibiotics use and antibiotics resistance among common people of Karachi and to detect potential associated factors. This study could be served as a baseline survey for further interventions to promote the proper use of antibiotics in this population.

## **Material & Method**

### **Study design:**

A cross sectional survey was conducted in Karachi to investigate the self-medication of antibiotics in 2019. Karachi is the largest city of Pakistan having population of approximately 15 million. The study was conducted in different areas of Karachi either highly developed societies/posh areas or under developed areas. Twelve volunteers of different areas were selected to make the questionnaire fill from their specific areas in which they were resident. Volunteers were pre guided for assisting the participant to fill questionnaire in both verbal & written form.

### **Sample size:**

A sample of 400 random participants from different areas was made regardless of age, gender, education & profession.

### **Questionnaire:**

The questions were adapted from the previous studies <sup>[12] [13] [14][15][16]</sup> to make the survey. All of those studies were published in English language this made our work feasible.

Our questionnaire was based upon 5 parts of different questions.

1. Demographic data such as age, gender, occupation, education level.
2. Frequency of use and name of antibiotic used.
3. Reasons for self-medication.
4. Who recommended taking antibiotic without prescription?
5. The availability of antibiotics at home.

This questionnaire was pre-tested on 15 individuals in order to know it's easy to understand and to check volunteer excellence too. Pre-testing is usually preferred in many of studies to make smooth survey.<sup>[17][18]</sup>

#### **Data collection & analysis:**

Each volunteer submitted the questionnaires to main researcher for further analysis and no difficulty was faced or reported by both volunteer & participant during the data collection.

#### **Result**

400 people responded in this survey. Majority of respondents (89%) were female and (11%) were male. Most of them are in 16-30s (90%) and are student (83.5%). This study shows that almost half of respondent (49%) including male and female uses antibiotics without prescription as self-treatment. Very less people think that taking antibiotics without prescription is safe (15.5%). Table 1

The large ratio of self-medication is due to its effectiveness (39%), more convenient (23.5%), cheap cost (13.5%), quick relief (2%). Figure 1.

The antibiotics most usually used for self-medication were Augmentin (69.5%), penicillin (16.5%), cephalosporin (2.5%) and erythromycin (6%). Figure 2

The condition for which antibiotics are being used came out as vomiting and diarrhea (21%), runny nose (31.5%), congestion (11.5%) and skin wounds (11.5%). Table 2

Many people agreed to the fact that antibiotics cause adverse effect (84%) and some people stored antibiotics at home for future use (25%). Table 2.

The major source of self-prescription is because doctor recommended previously (63%), pharmacist (9.5%), family (10%) or friends (3.5%) and their own experience (14%). Table 3

#### **Table 1 Distribution of demographic information of respondents (N=400)**

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Variables	Frequency	Percentage
Age (in years)		
Less than 16	10	2.5%
16-30	360	90%
30-45	24	6%
45 and older	06	1.5%
Gender		
Male	44	11%
Female	356	89%
Occupation		
Employee	48	12%
Non-Employee	18	4.5%
Student	334	83.5%
Self-medicated	196	49%
Never self-medicated	204	51%
Thinking of self-medication is safe	62	15.5%
Thinking of self-medication is unsafe	338	84.5%

Figure 1. Reasons for self-medication with Antibiotics:

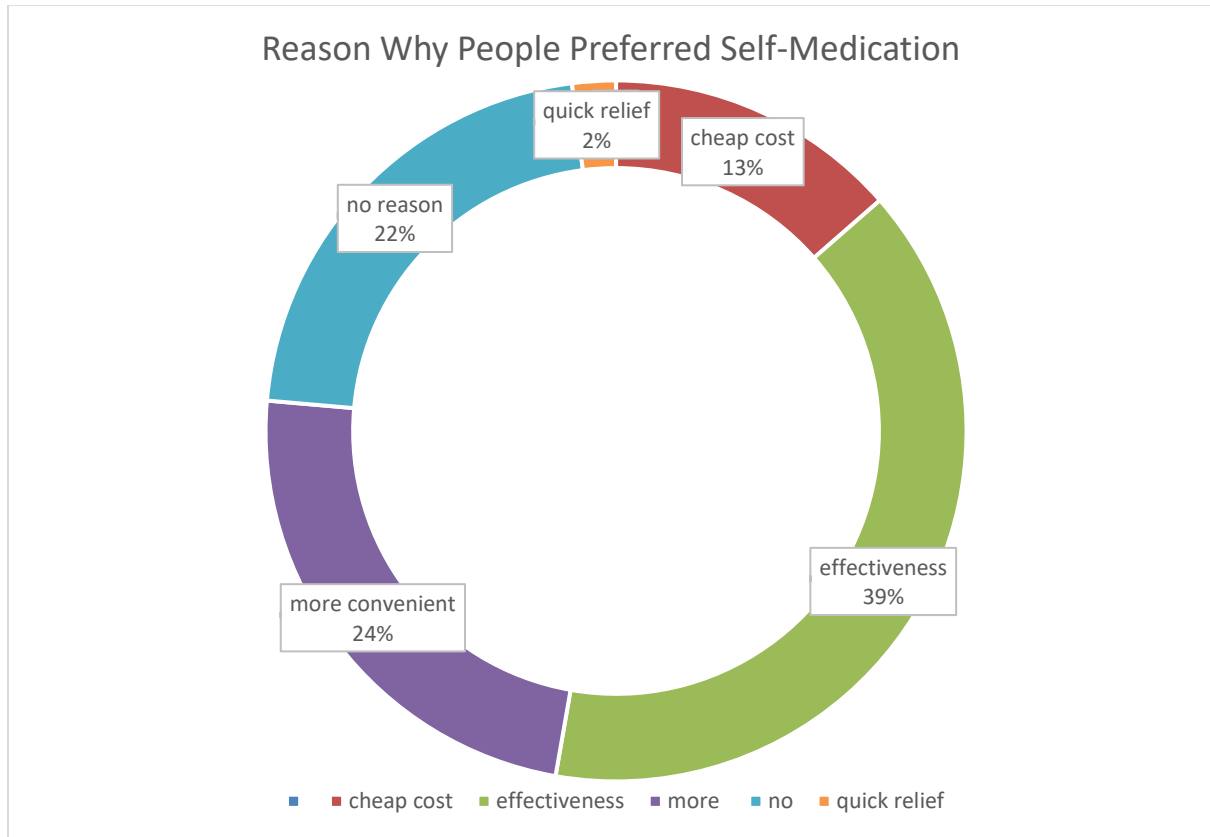
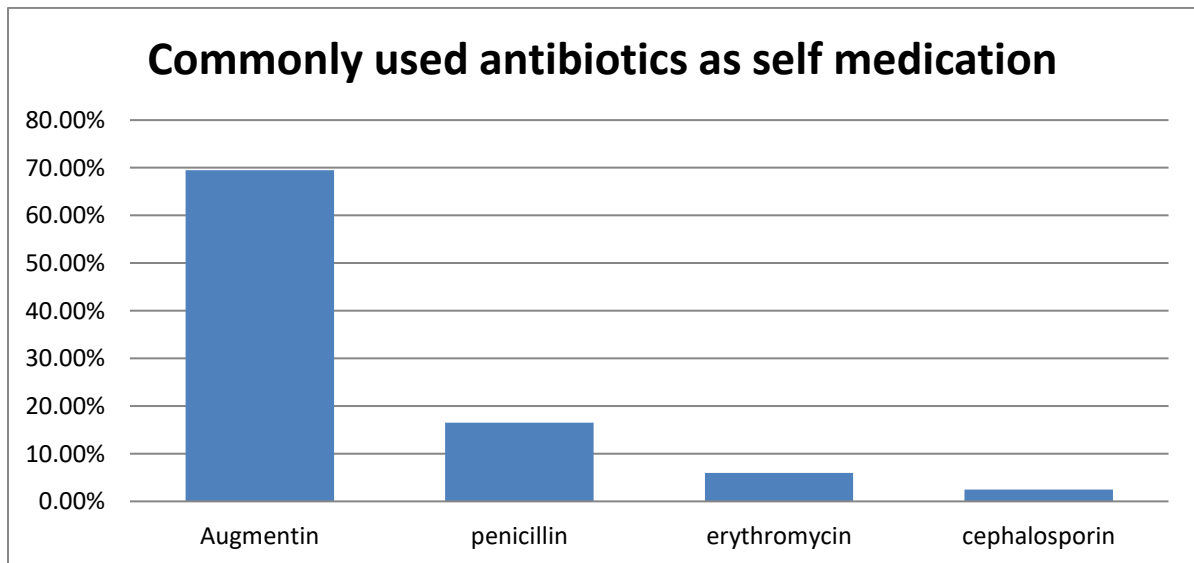


Figure 2. Percentage of antibiotics used in self-medication



**Table 2: Reasons and conditions of self-medication with antibiotics**

Variables	Frequency	Percentage	
Conditions for self-medication with antibiotics	Skin wounds	46	11.5%
	Congestion	46	11.5%
	Runny nose	126	31.5%
	Vomiting and diarrhea	84	21%
	None	98	24.5%
Do you have an idea of the possible harmful Effects of using antibiotics?	Yes	336	84%
	No	64	16%
Most common antibiotics they used?	Augmentin	278	69.5%
	Penicillin	66	16.5%
	cephalosporin	10	2.5%
	erythromycin	24	6%
	None	22	5.5%
Do you have a pharmacy at home or do you keep some of old medicines at home?	Yes	100	25%
	No	300	75%

**Table 3 Source of information of self-medication with antibiotics**

Variables	Frequency	Percent
Friends	14	3.5%
Family	40	10%
Pharmacist advice	38	9.5%
Previous doctor's prescription	252	63%
Own experience	56	14%

S. Alghadeer et al. in 2018 reported 43.4% of people do self-medication of antibiotic occasionally, 51.5% never self-medicated of antibiotic and 5% population replied to always do self-medication of antibiotic.<sup>[14]</sup> Another study by Minna Haleena in 2006 reported 41% of responders use antibiotics without prescription in Europe<sup>[19]</sup> while our presented study shows that 49% of population is self-medicated with antibiotics and 51% of did not use antibiotics without prescription. Result of our study shows practice of self-medication with antibiotic more occur in Karachi and more alarming to develop resistance.

Lithuania, women tended to use more antibiotics than men in contrast our study shows 49% self-medicated<sup>[20]</sup>, while 51% not to do which is almost similar to S. Alghadeer et al.'s study<sup>[14]</sup>.

Friends, relatives and family-previous prescription by physician, and a pharmacist recommendation are the most frequent source of self-medication worldwide (Shaghghi et al., 2014)<sup>[21]</sup>.

Shaghghi et al., 2014 focused the source of self-medication to Friends, relatives, previous prescription and suggestion of pharmacist<sup>[21]</sup> and our study highlighted the more or less similar reasons (Table 3) and 63%, the highest source of information for self-medication was previous doctor's prescription.

In concurrence by means of previous reported studies Jordan, Greece and Sudan (Awad A; 2005,<sup>[22]</sup> AndrajatiR; 2005<sup>[23]</sup> and Saradamma RD; 2000<sup>[24]</sup> shows amoxicillin used mainly for self-medication and additional were used such as macrolides, amoxicillin-clavulanate, tetracycline and quinolones. Our results shows' augmentin was most commonly used (Figure 2).

Minna Haleena's study stated 45% antibiotic were used for common cold, 17% in sore throat<sup>[19]</sup> other study reported by Awad A; 2005<sup>[22]</sup> as cough (13.9) and common cold (11.9) were indications of self-medication while our study revealed that runny nose and vomiting and diarrhea were major indication of self-medication with antibiotic (Table 2). The %age of self-medication is higher in our result with respect to indication. Our research also focuses that 25% keeps antibiotics at home for self-medication and 16% not aware with harmful effects of antibiotics (Table 2).

### **Conclusion**

Study results revealed that the prevalence of self-medication with antibiotics in Karachi is not too high. The majority of illness for which people are seeking self-medication with antibiotics could be probably of viral origin and unnecessary use of antibiotics promote the emergence of new-strains of resistant pathogens and the incidence of unwanted adverse effects. Health concern authorities should start counseling camps and seminar where they aware people with worst consequences of using antibiotics without prescription. These campaigns should not be restricted to health care facilities, and should be conducted in public areas such as malls and shopping areas. The consistent approaches of awareness regarding self-medication of antibiotics in developed countries has created the positive attitude in general population (78%) that might help to reduce antimicrobial resistance globally.<sup>[25]</sup> Moreover there should be close monitoring of antibiotic sell & purchase. Strong restriction should be applied in sell & purchase of antibiotics without prescription.

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