PREVALENCE AND PREDICTORS OF SELF-MEDICATION PRACTICE WITH ANTIMICROBIALS IN PATIENTS VISITING PUBLIC SECTOR AT HOSPITAL KHAIRABAD DISTRICT NOWSHERA

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ABSTRACT

Objective: *To determine the prevalence and patterns of self-medication with antimicrobial drugs among patients visiting public hospital in District Nowshera Northwestern Pakistan.*

Materials and Methods: *This cross-sectional study was conducted on patients attending Rural Health Center Khairabad District Nowshera from July to December 2019. The including criteria were: Males and females (non-doctors) attending the clinics aged between 18 and 60 years old, literate enough to read and write. Information regarding demographic characteristics, antimicrobial drugs use in past six months prior to the study were collected through self-administered questionnaires. The questionnaires written in Urdu and English language, were pretested and validated on a sample of 100 participants to determine the application time and to clarify possible questions from the study population. If antimicrobial drugs use was confirmed in the previous six months, supplementary information was asked: the name antimicrobial drug, the person who recommended the treatment and the disease treated with antimicrobial drugs. The collected data were registered in a database and analyzed using Spss.*

Results: *Response rate of 99.4 %(750/746) was observed, out of 746 participants 43.70% were females and 56.30% were males. 39.81% participants had used antimicrobials prior to the survey in which 33.33% were from rural and 66.67% urban areas. Most common users were of middle education level. Oral and dental problems were leading cause of inappropriate antimicrobials use. Self- medication was most common in age group of 38 years to 47 years old. The most abused drug was Amoxicillin clavulanate. Maximal use was by personal judgment.*

Conclusion: *The results of this study confirm that self-medication with antimicrobial drugs is a relatively common practice among populace of north western District Nowshera Pakistan.*

Keywords: *Antibiotics, Self- Medication, Antibiotic Resistance*

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INTRODUCTION

Antimicrobials play an indispensable role in the treatment of infectious diseases and are amoungst the most commonly purchased drugs in the world. The emergence of super bacteria has made people around

the world aware of the graveness of bacterial resistance. Antimicrobial resistance is one of the world's most serious public health dilemma, which not only affects human health, but also increases healthcare costs worldwide. Risk analysis of antimicrobials resistance has revealed higher risk of morbidity and mortality, more resource utilization and cost, and lower flexibility of therapeutic regimens.[1]

A review reported that number of deaths attributable to antimicrobial resistance is expected to rise to 10 million by 2050, if no effective preventive measures are adopted to reduce irrational use of antimicrobials. In low and middle-income countries like Pakistan where population growth in 2 percent per annum and economic growth rate for 2020 is expected to be 5.40 percent, this issue is exacerbated. Inappropriate and irrational use of antimicrobials is considered as the central cause of antimicrobial resistance.[2]

Self-medication with antimicrobials has highly variable prevalence across the globe. Self-medication is defined as human behavior in which an individual uses a substance or any exogenous influence to self-administer treatment for physical or psychological ailments without professional advice, prescriptions, or medical supervision. Change of antimicrobial dosage during the course of treatment or discontinuation of antimicrobial are most common examples of inappropriate use. Generally, the sources for antimicrobials mainly include getting hold of antimicrobial from retail pharmacy (without a prescription), sharing antimicrobials with others, and using leftover antimicrobials.[3, 4.]

It is estimated that over 50% of antimicrobials worldwide are commonly purchased without a prescription. The possible consequences of self-medication include not only the emergence of antimicrobial resistance, but also masking symptoms, treatment failure, drug toxicity, adverse drug events, and even death.[5, 6, 7.]

Medication behavior of antimicrobials has become mainstay in the developed countries. High risk for self-medication due to low education level, younger age, and poor social and economic background; in developing countries demands attention (especially in rural areas).There is a need to provide evidence from well-designed studies on the use of antimicrobials in rural areas to help adopting specific and effective interventions and promote proper development of global public health. These studies will be far-reaching for solving regional public health problems. Therefore, we carried out observational study to investigate the prevalence of self-medication in north western region of Pakistan (district nowshera), to explore differences of self-medication in different regions and trends of self- medication.[8, 9.]

METHODOLOGY

This cross-sectional study was conducted on patients attending Rural Health Center Khairabad District Nowshera from July to December 2019.Written consent was obtained from each participant after briefing on the objectives of the study. The including criteria were: Males and females (non-doctors) attending the clinics aged between 18 and 60 years old, literate enough to read and write. Information regarding demographic characteristics, antimicrobial drugs use in past six months prior to the study were collected through anonymous, self-administered questionnaires. The questionnaires written in Urdu and English language, were pretested and validated on a sample of 100 participants to determine the application time and to clarify possible questions from the study population. If antimicrobial drugs use was confirmed in the previous six months, supplementary information was asked: the name antimicrobial drug, duration of the treatment, the person who recommended the treatment and the disease treated with antimicrobial drugs. The collected data were registered in a database and analyzed using Spss,

RESULTS

Response rate of 99.4% (750/746) was observed, out of 746 participants 43.70 % (326) were females and 56.30 % (420) were males. 39.81 % (297) participants had used antimicrobials prior to the survey out of which 33.33% (99) users were from rural and 66.67% (198) urban setting. Most common users 51% (150) were of middle education level followed by Primary, Secondary, Higher Secondary, Graduate, and Post Graduate levels. Oral and dental problems 42% (125) was leading cause of inappropriate antimicrobials use followed by urinary tract problems 30% (90), respiratory tract problems 10% (30), dermatological problems 10% (29) and gastrointestinal problems 7%(22). Self-Medication was most common 38% (114) in age group between 38 years to 47 years old. The most abused drug 42% (125) was

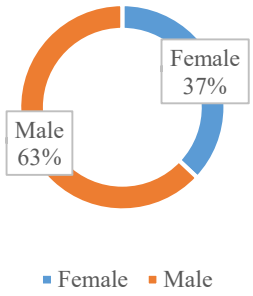

Figure 1: Distribution of male and female respondents.

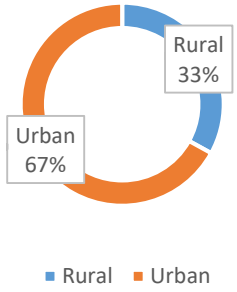

Figure 2: Percentage of Rural and Urban Participants.

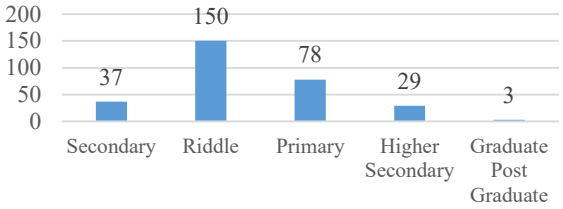

Figure 3: Incidence of Self Medication by Level of Education.

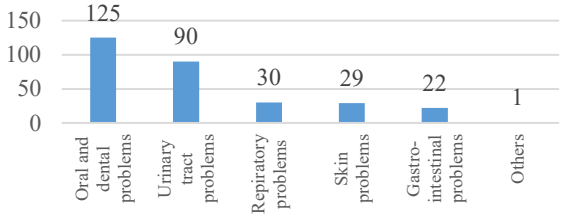

Figure 4: Reasons for Self Medication.

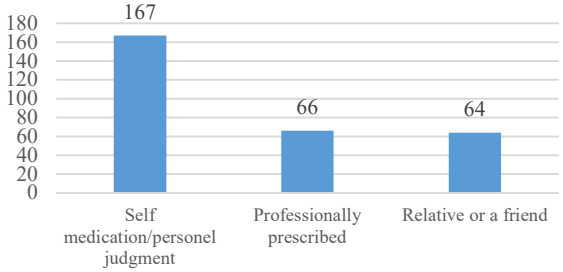

Figure 5: Prescribed vs Self-Medication.

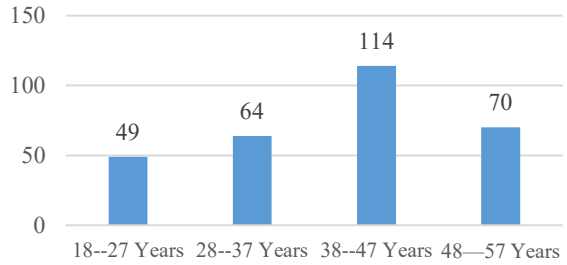

Figure 6: Self Medication vs Age Groups

amoxicillin clavulanate. Maximal use was by personal judgment followed by professional prescription and recommendation by a relative or a friend.

DISCUSSION

Despite the national regulations that restrict the dispensation of antimicrobial drugs without prescription, our study indicates a relatively high prevalence of irrational self-medication with antimicrobial drugs in north-west frontier region (District Nowshera) of Pakistan.

Out of the 750 questionnaires distributed, 746 respondents completed and returned the questionnaires, with a response rate of 99.4%. Out of 746 respondents 43.70% were females and 56.30% were males (figure 1).

In the present study 39.81% of respondents had used at least one antimicrobial in the last six months which lies in between those reported by studies globally.[10, 11, and 12.] Antimicrobial drugs were used without medical advice (irrational self-medication) by 33.33% of rural participants and 66.67%of urban participants (figure 2). Irrational antimicrobial drugs use was most common in middle education level followed by primary, secondary, higher secondary, and graduate levels of education. It was seen minimal in participants having post graduate level of education (figure 3).

Oral and dental problems were the leading cause for self- medication followed by urinary tract problems, respiratory tract problems, dermatological problems, gastrointestinal problems and others (figure 4). Age group between 38 to 47 years old had maximum irrational antimicrobials usage followed by 48years to 57 years, 28years to 37years and 18 years to 27 years age group. These results were found to be harmonious with some studies[10, 11, 12], and contradicts with other studies[13, 14.] Some studies

showed no significant association of socio-demographic factors with the practice of self-medication[11,13,15] and other studies showed educational level, age, and socioeconomic status to have statistically significantly associated with self-medication with antimicrobials.[14, 15 and 16.]

The most commonly abused antimicrobial was amoxicillin and cluvalonic acid followed by amoxicillin, penicillin, cefixime and ciprofloxacin. This might be explained by the fact that it is a well-known antimicrobial to the community compared to other antimicrobials and its ease of accessibility. The pharmacy retail outlets were found to be the main source for obtaining the antimicrobials, targeted intervention is therefore recommended to halt the sale of antimicrobials without prescription. During the conduction of this study, scheduling of medicines was not in place in Nowshera and thus, the public had easy access to medicines without prescription. To overcome the problem, strict regulation, and continuous public sensitization on rational use of antimicrobials should be enforced. Maximal use was by personal judgment followed by professional judgment and recommendation by a friend or a relative (figure 5)

CONCLUSION

The results of this study confirm that self-medication with antimicrobial drugs is a relatively common practice among populace of north western district nowshera pakistan. Self-medication with antimicrobial drugs is associated with serious risks such as emergence of microorganism resistance, drug interactions and toxicity, wastage of medical resources and increase in morbidity-mortality. There is need for national education programs regarding the risks of irrational self-medication with antimicrobial drugs. Furthermore, we consider that there is need for a stronger enforcement of the regulations regarding the sale of antimicrobial drugs and the pharmaceutical publicity.

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