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Impact of patient counseling on the safe practice of self-medication

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ABSTRACT: Self-Medication Practice (SMP) is the habit of consuming medication without a healthcare professional's prescription. The key intention of this study is to identify the impact of patient counseling in reducing the practice of self-medication. The present study was a cross-sectional study conducted in a community of 250 people in Eraviperoor Grama panchayath of Pathanamthitta District in Kerala for 6 months. From this study it was able to identify that self-medication is being practiced by all age groups irrespective of their educational qualification and the incidence is more among educated. It had been realized that even self-medication was used for diseases with symptoms that lasted for more than three days, Antimicrobials were used without the consultation and directions of a doctor, for diseases for which they had to seek advice from the doctor if the symptoms are not being cured, they use to alter the dose of medicine by their own. This had happened primarily due to their lack of knowledge, other contributing factors such as lack of time, difficulty in accessibility to the health care system, dissatisfaction towards the present health care system, and knowledge about drugs and disease from other sources also play a major role. Through structured and effective patient counseling, the public can be made aware of the consequences of self-medication, thus the practice of self-medication can be reduced which is evident from the current study.

Keywords: Self Medication Practice, Patient counseling, Pathanamthitta, Aleppy.

INTRODUCTION

Consumption of drugs/medicines without the direction/monitoring of a health care professional is referred to as SMP (self-medication practice). SMP is more popular with non-steroidal anti-inflammatory drugs, corticosteroids, antimicrobials, drugs for RTI, lifestyle diseases, and GI disorders. Many issues arise due to self-medication. Among these, the key issues associated are resistance to the drug, side effects, serious health hazards, and wastage of capital. untreated indications, wrong drug selection, drug duplication, unfitting dosage form, ADR, and contraindication are the main drug-related issues (Araia *et al.,* 2019). The perception of symptoms as minor, resemblance of the clinical presentations with former illness, need for speedy relief, lack of finance to afford and difficulty to access the present health care system, frustration on services rendered by the health care system, long waiting time, unauthorized and irrelevant information obtained from media or by reading materials and medical books, advice from /friends /traditional healers, own experience are the major reason for self-medication (Araia *et al.,* 2019). The main purpose of this study is to assess the prevalence of self-medication practice, its consequences, and the impact of patient counseling in reducing the practice of self-medication.

Self-medication which is also called OTC drugs is so called because they are available without a doctor's prescription through pharmacies mostly in less developed countries (Jain *et al.,* 2011). The recent developments which happened in the pharmaceutical industry sector have also contributed greatly to this widespread availability of OTC medicines. The most common drugs preferred for self-medication are antipyretics, analgesics, antiseptics, antibiotics, cough and cold medications (Afolabi, 2008; Awad *et al.,* 2005). Although these medications are considered risk-free and useful for the treatment of common health problems, their excessive use can also lead to serious side effects and unfavorable reactions. There is also the potential for misuse and abuse of such products. There are also increasing reports about misuse and abuse of such products (Davies, 1944; Nancy Medeiros dos Santos *et al.,* 2018; Pereira *et al.,* 2007; Saharan & Pandey 2015).

Self-medication is now a common practice worldwide because it is considered the first choice in the majority of illnesses. But the truth is that, if practiced rationally self-medication will reduce the load on medical services because it will reduce the time and cost. This is of great importance in economically deprived counties with limited health care resources. But it will also

increase the incidents of misdiagnosis, adverse drug reactions, drug resistance, and drug dependence if practiced irrationally. From the cases reported regarding self-medication practice all over the world, it is very clear that self-medication is the most preferred mode of self-care by patients in developing countries like India. This is because the lack of strictness in drug marketing regulation and aggressive marketing campaigns by pharmaceutical companies have promoted self-medication to such an extent that it has become a global health problem (Indermitte *et al.*, 2007).

In ensuring the safe and effective use of essential medicines, abuse of medicine has been a bane and major constraint. SMP of drugs obtained OTC, consumption of left-over medicines, sharing medicines with relatives or friends, or using left-over medicine stored at residential places are the major factors associated with drug abuse (Bennadi, 2013). Various studies conducted to investigate SMP among the public have revealed that it is common in women and students. Improper self-medication and non-adherence to drug regimes are leading factors of therapeutic failure and even death in rural areas (Goh *et al.*, 2009; Indermitte *et al.*, 2007). Lack of medication counseling and essential drug information are the causes for this (Bennadi, 2013).

A major threat produced by SM is the inappropriate use of antibiotics. Their inappropriate use lead to the emergence of drug resistance worldwide particularly in developing countries, where antibiotics are often available without a prescription (Ismail *et al.*, 2018; Rather *et al.*, 2017). Self-medication and over-the-counter drugs are significant problems resulting in irrational drug use (Galato *et al.*, 2009). People with higher education and economic level seem to tend to self-medication and irrational drug use, thus health education and health literacy should be emphasized and included in the curriculum in every education level, apart from formal education (Ismail *et al.*, 2018; Zeind & McCloskey 2006). The irrational use of drugs leads to multi-drug resistant bacterial infection, hypersensitivity, drug withdrawal symptoms, and of masking disease which can delay correct diagnosis (Tuyishimire *et al.*, 2019).

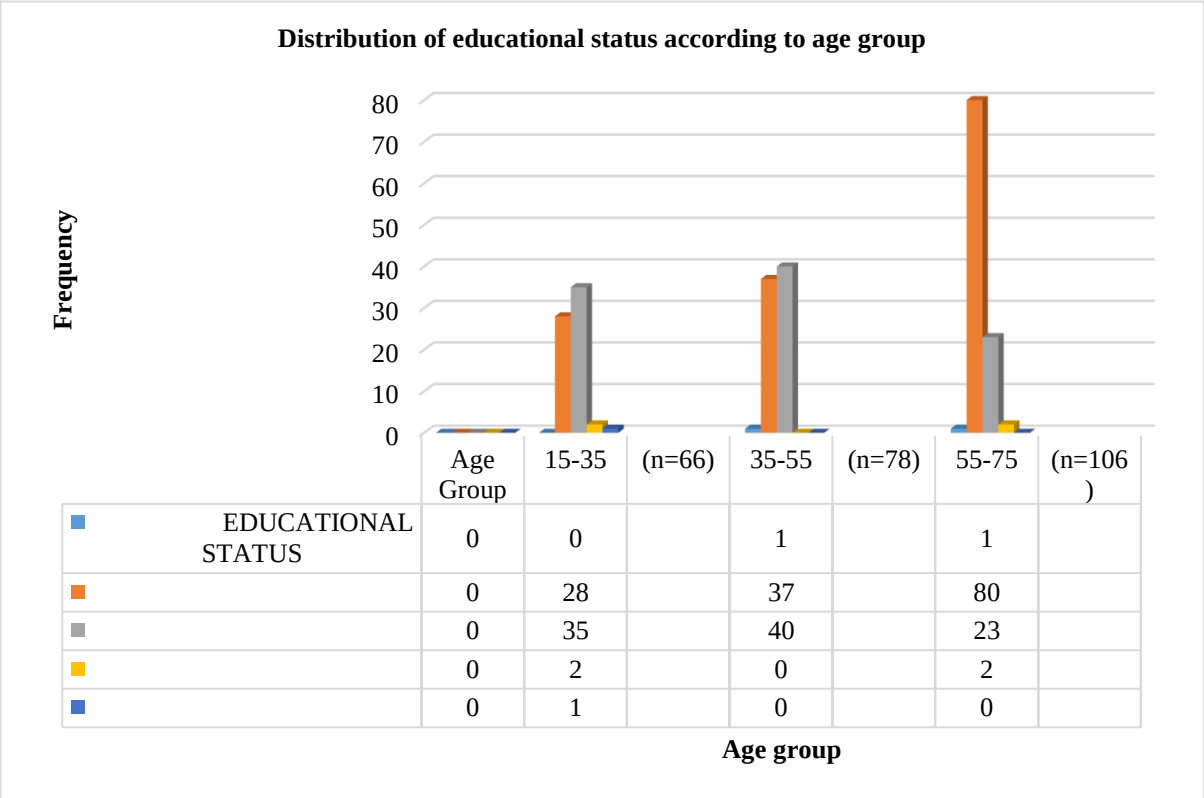
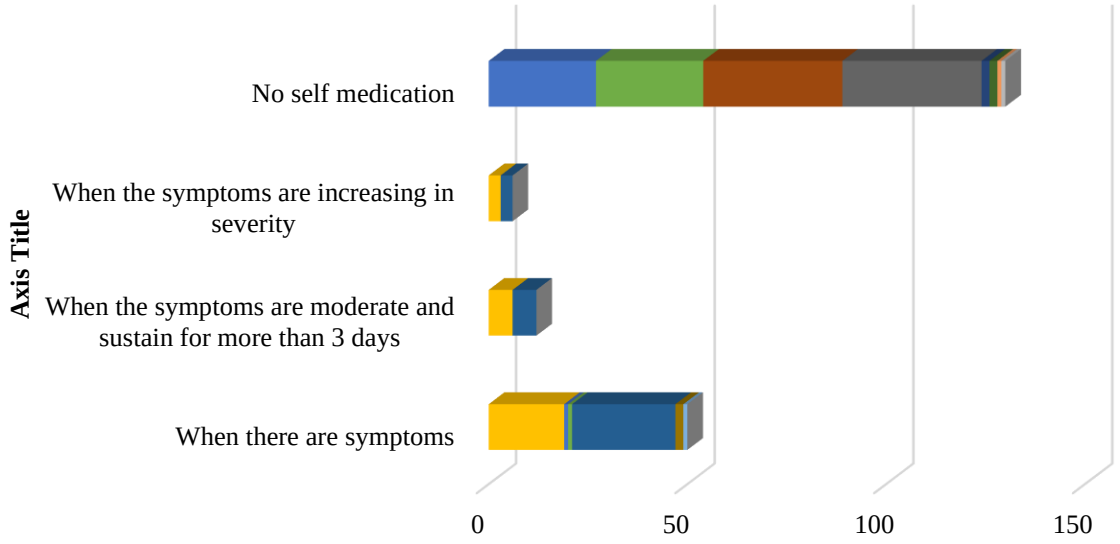


Fig. 1. Distribution of educational status.

The pharmacist is one of the key role players in educating his customers about the proper use of medicines, which are intended for self-medication. For that necessary steps have to be taken in his training and practice (Hernandez-Juyol & Job-Quesada 2002). Pharmacists play a valuable role in identifying, solving, and preventing drug-related problems to achieve optimal patient outcomes and quality of life. Ambulatory-based pharmacists have the opportunity and responsibility to foster safe, appropriate, effective, and economical use of all medications, especially those therapies patients are self-selecting (Pisk, 2011; Rutter, 2015). Pharmacists should guide their customers to consult the physician before taking any medication by self (Wilbur *et al.*, 2010).

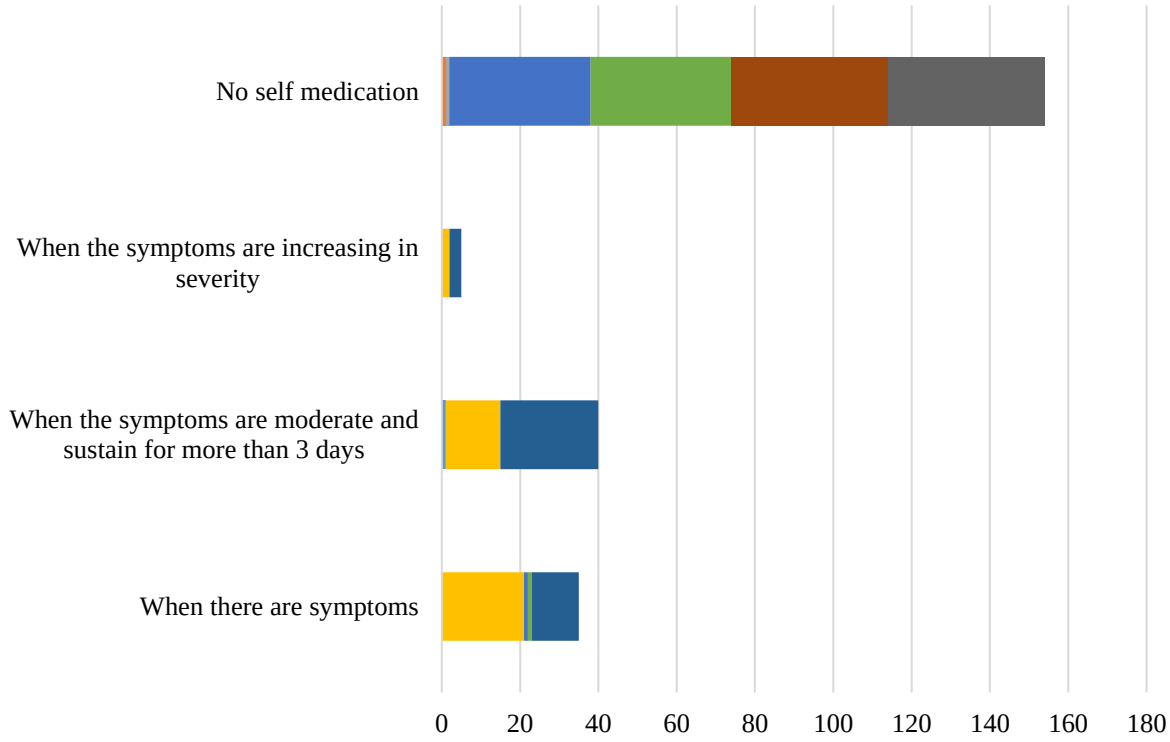
Patient counseling in minor health disorders aims at improving and/ or solving minor symptoms experienced by patients under SM. The pharmacist has a key role in selecting the most appropriate therapy and educating the patient about self-care in order to achieve positive

clinical outcomes, reduce healthcare costs, and prevent possible drug-related problems (Benrimoj *et al.*, 2007). There are three necessary stages in the pharmaceutical counseling process: ● Stage I - clinical interview of the patient ● Stage II - pharmaceutical intervention ● Stage III - assessing patient's clinical outcomes. The pharmacist intervention is important as the pharmacist is the main source of information for patients when they self-medicate so that SM is conducted in a safe, effective, and rational manner (Benrimoj *et al.*, 2007).



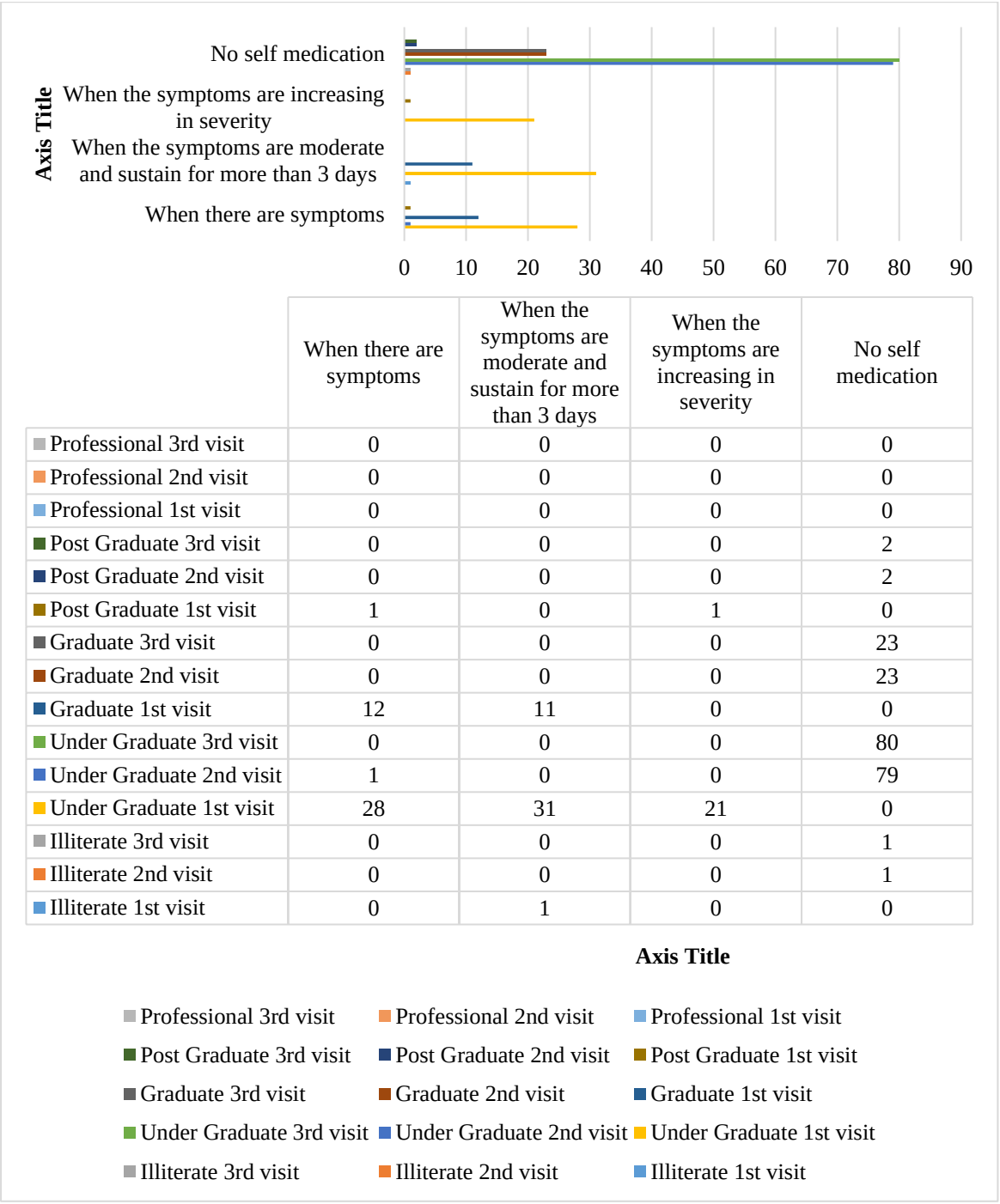
	When there are symptoms	When the symptoms are moderate and sustain for more than 3 days	When the symptoms are increasing in severity	No self medication
Illiterate 1st visit	0	0	0	0
Illiterate 2nd visit	0	0	0	0
Illiterate 3rd visit	0	0	0	0
Under Graduate 1st visit	19	6	3	0
Under Graduate 2nd visit	1	0	0	27
Under Graduate 3rd visit	1	0	0	27
Graduate 1st visit	26	6	3	0
Graduate 2nd visit	0	0	0	35
Graduate 3rd visit	0	0	0	35
Post Graduate 1st visit	2	0	0	0
Post Graduate 2nd visit	0	0	0	2
Post Graduate 3rd visit	0	0	0	2
Professional 1st visit	1	0	0	0
Professional 2nd visit	0	0	0	1
Professional 3rd visit	0	0	0	1

Fig. 2A. When do you take self-medication according to age group-15-35 yrs.



	When there are symptoms	When the symptoms are moderate and sustain for more than 3 days	When the symptoms are increasing in severity	No self medication
Illiterate 1st visit	0	1	0	0
Illiterate 2nd visit	0	0	0	1
Illiterate 3rd visit	0	0	0	1
Under Graduate 1st visit	21	14	2	0
Under Graduate 2nd visit	1	0	0	36
Under Graduate 3rd visit	1	0	0	36
Graduate 1st visit	12	25	3	0
Graduate 2nd visit	0	0	0	40
Graduate 3rd visit	0	0	0	40
Post Graduate 1st visit	0	0	0	0
Post Graduate 2nd visit	0	0	0	0
Post Graduate 3rd visit	0	0	0	0
Professional 1st visit	0	0	0	0
Professional 2nd visit	0	0	0	0
Professional 3rd visit	0	0	0	0

Fig. 2B. When do you take self-medication according to age group 35-55 Yrs.



	When there are symptoms	When the symptoms are moderate and sustain for more than 3 days	When the symptoms are increasing in severity	No self medication
Professional 3rd visit	0	0	0	0
Professional 2nd visit	0	0	0	0
Professional 1st visit	0	0	0	0
Post Graduate 3rd visit	0	0	0	2
Post Graduate 2nd visit	0	0	0	2
Post Graduate 1st visit	1	0	1	0
Graduate 3rd visit	0	0	0	23
Graduate 2nd visit	0	0	0	23
Graduate 1st visit	12	11	0	0
Under Graduate 3rd visit	0	0	0	80
Under Graduate 2nd visit	1	0	0	79
Under Graduate 1st visit	28	31	21	0
Illiterate 3rd visit	0	0	0	1
Illiterate 2nd visit	0	0	0	1
Illiterate 1st visit	0	1	0	0

Fig. 2C. When do you take self-medication according to age group 55-75.

MATERIAL AND METHODS

A cross-sectional study was conducted in a community of 250 population in Eraveiperoor panchayath of Pathanamthitta district in Kerala state for 6 months with objectives to identify the impact of patient counseling in the safe practice of self-medication. Patient selection was based on inclusion and exclusion criteria which includes individuals treating self-recognized illnesses and symptoms, patients with an age group above 18 years of age, and residents of the rural area of Eraviperoor Panchayath. Exclusion criteria are patients who underwent major surgeries and those with hepatic disease, lactating mothers and pregnant women, the residents who were absent on the day of the survey, and differently-abled people. Participants who had given the consent form were asked to fill out a data collection proforma to assess their drug use behavior, questionnaire was filled through direct interaction with the patients. Study variables were age, education, the attitude of patients when medication does not affect what they do when they take self-medication, and perception about refilling of antimicrobials. It also assessed the type of counseling required for them to

improve their knowledge of the hazards of irrational use of medicine.

Statistical Analysis: The response obtained was recorded in Microsoft Excel 2018. The obtained data were statistically analyzed by using Microsoft Excel 2018 and expressed in frequency and percentage.

RESULTS AND DISCUSSION

The study population consisted of 250 participants from three age classes (15 to 35 years, 36 to 55 years, and 56 to 75 years) these groups are further classified based on education status (illiterate, undergraduate, graduate, postgraduate, and professionals). Based on their age 66 participants from the age group 15 to 35 years among this no illiterates was there, 28 were undergraduates, 35 were graduates, 2 postgraduates, and one professional. From the age group, 36 to 55 years 78 participants were there in this class, there was 1 illiterate followed by 37 undergraduates, and 40 graduates. About 100 numbers of the population were from the age group of 56 to 75 years, among this no professionals were there, 1 illiterate, 2 postgraduates, 23 graduates, and 80 undergraduates participated in the study which is well-illustrated in Fig. 1.

To identify when they take self-medication few questions based on the symptoms were obtained and later patient counseling was given and further the response for the same was obtained. The response from all age group was obtained based on their educational status. In the age group of 15 to 35 years considering the 28 undergraduates during the 1st phase of the study, they use to take self-medication based on the prevalence of symptoms, but in phase 3 it was able to identify that all 27 except 1 stopped the practice of self-medication based on the prevalence of symptoms. Among the 35 graduates of this age group, they had the practice of self-medication due to various reasons during phase 1 of the study but during phases 2 and 3 of the study, it was possible to identify that all of them had stopped the practice of self-medication. The same is the outcome in postgraduates and professionals of this age group which is described in Table 2A. Among the age group of 36 to 55 years the practice of self-medication was seen in illiterates, undergraduates, and graduates during phase 1 of the study through proper patient counseling in phases 2 and 3 the concept of self-medication practice was immobilized which is described in Fig 2B.

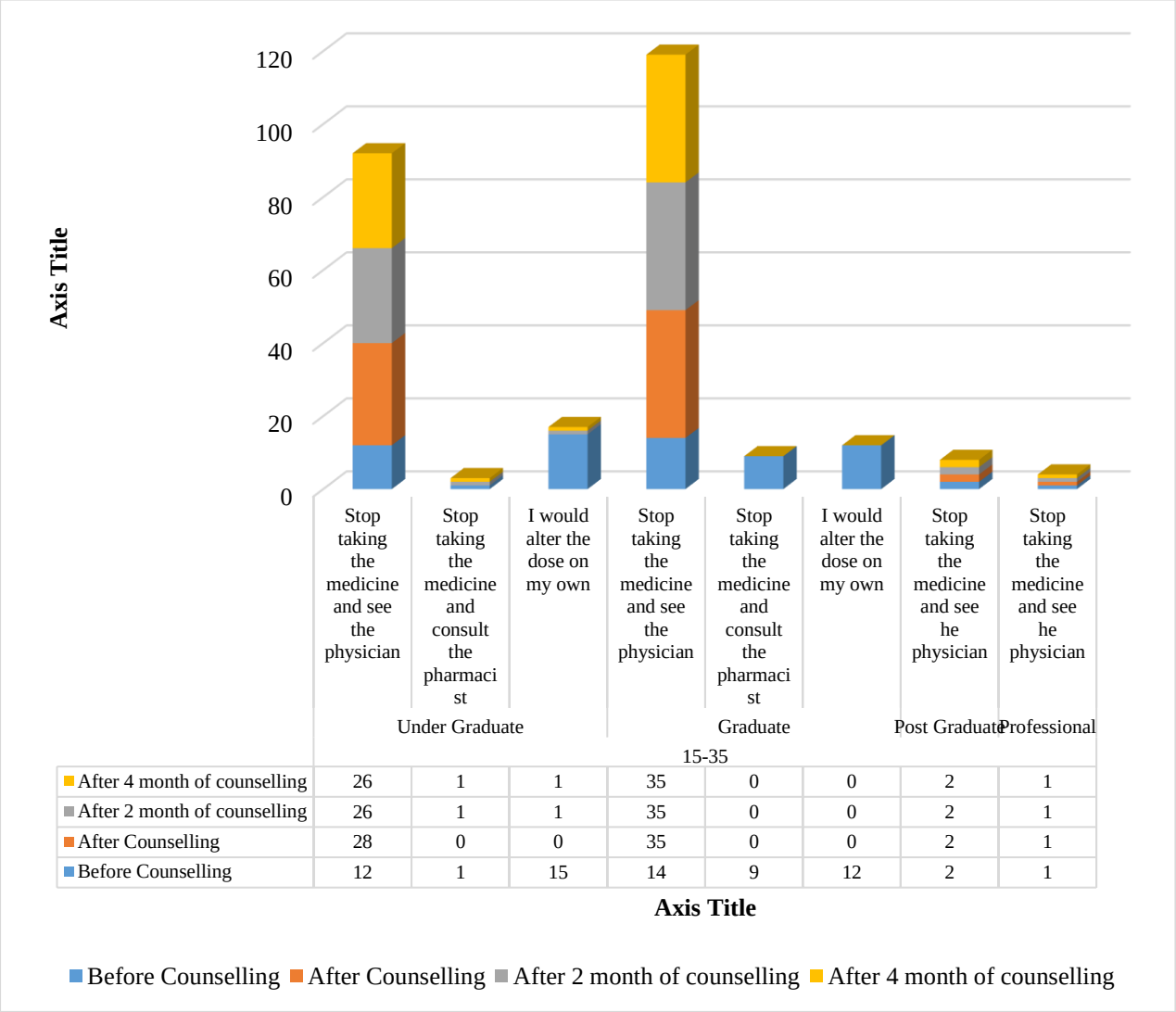


Fig 3A. When a medication has no effect, what do you do according to age group 15-35 Yrs.

Similar is the observation with geriatrics of the age group 56 to 75 years which is described in Fig. 2c.

To identify the study participants' practice when a drug is found to be ineffective the interview was done with the help of three insights (Q.1, stop taking medicine and see the physician. Q.2, stop taking medicine and consult the pharmacist. Q.3, I would alter the dose on my own). In the age group, 15 to 35 among undergraduates in 1st phase 15 of them was of the insight I would alter the dose on my own, one was of the opinion to stop taking medicine and consult a pharmacist, and 12 with the insight to stop taking medicine and see the physician but during phase three of the study except 2 all 26 is of with the insight stop taking medicine and see the physician. Among graduates during phase 1 of the study 14 was the insight to stop taking medicine and see the physician followed by 9 with the insight of stop taking medicine and consult a pharmacist and 12 with the insight of I would alter the dose on my own, during phase 2 of the study itself all have changed to the insight of stop taking medicine and see the physician. postgraduates and professionals visited the physician if the medication is found to be ineffective.

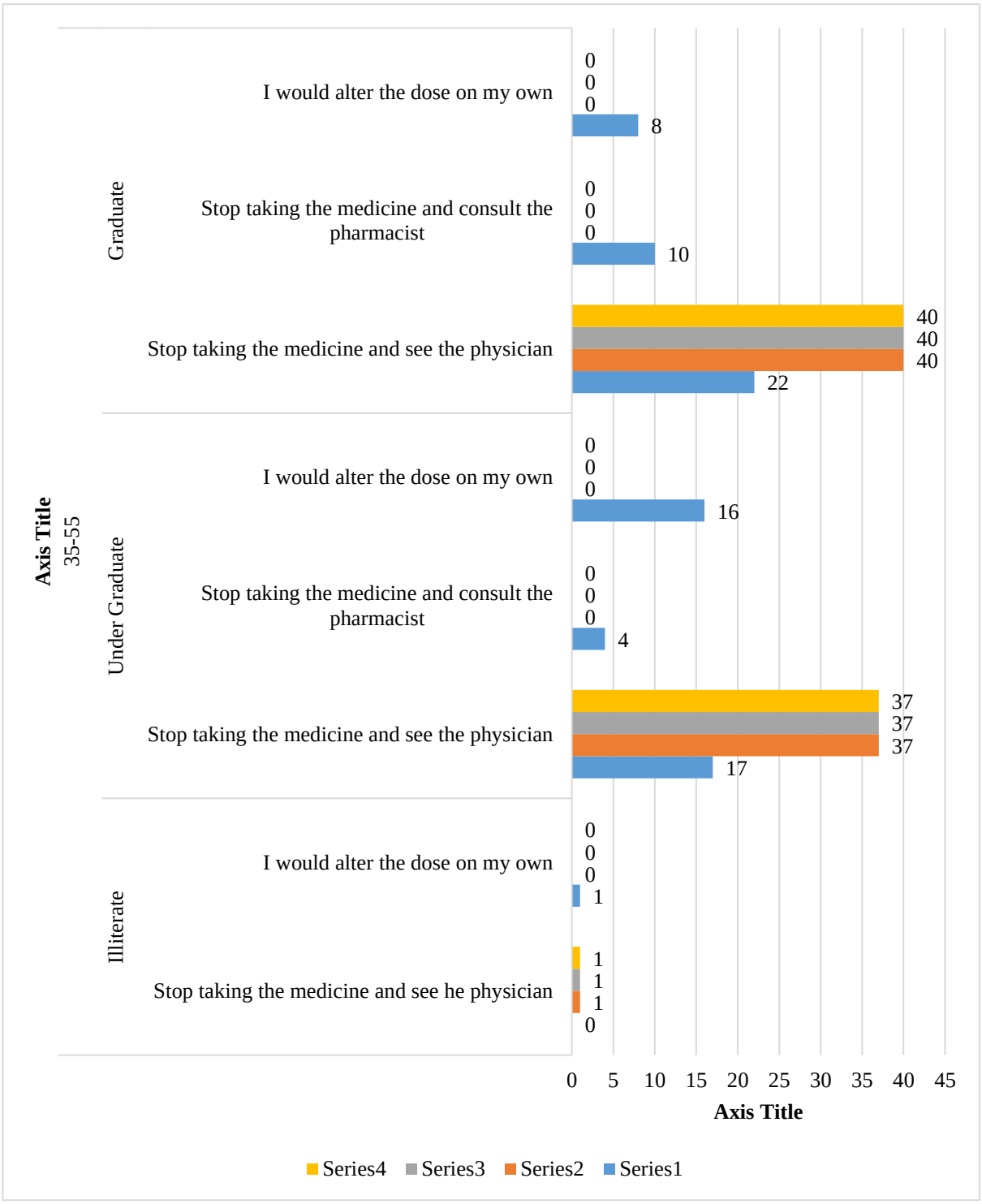


Fig 3B. When a medication has no effect, what do you do according to age group 35-55 Yrs.

Fig. 3A shows the above statements. In the age group 36 to 55 only one illiterate was there and he was of the insight I would alter the dose on my own and had changed to insight stop taking medicine and see the physician, during phase 2 of the study. with respect to undergraduates of 35 to 55yrs, 17 were the insight to stop taking medicine and see a physician, 4 to stop taking medicine and consult a pharmacist, and 16 with I would alter the dose on my own during phase 1 of the study, during phase 2 of the study all moved to stop taking medicine and see the physician. The same was with the status of graduates initially 22 were the insight to stop taking medicine and see the physician, 10 with the insight to stop taking medicine and consult a pharmacist, and 8 with I would alter the dose on my own during phase 2 of the study all had moved to insight stop taking medicine and see the physician Fig. 3B indicates about it. In the age group, 36 to 55 yrs 37 undergraduates were there, in this during 1st phase 17 were of the insight to stop taking medicine and see the physician followed by 4 to stop taking the medicine and consult a pharmacist and 16 with I would alter the dose of my own, during phase 2 itself those who had the insight other than stop taking medicine and see the physician had changed their insight to stop taking medicine and see the physician same is the observation with graduates of this group all these is described in Fig. 3C.

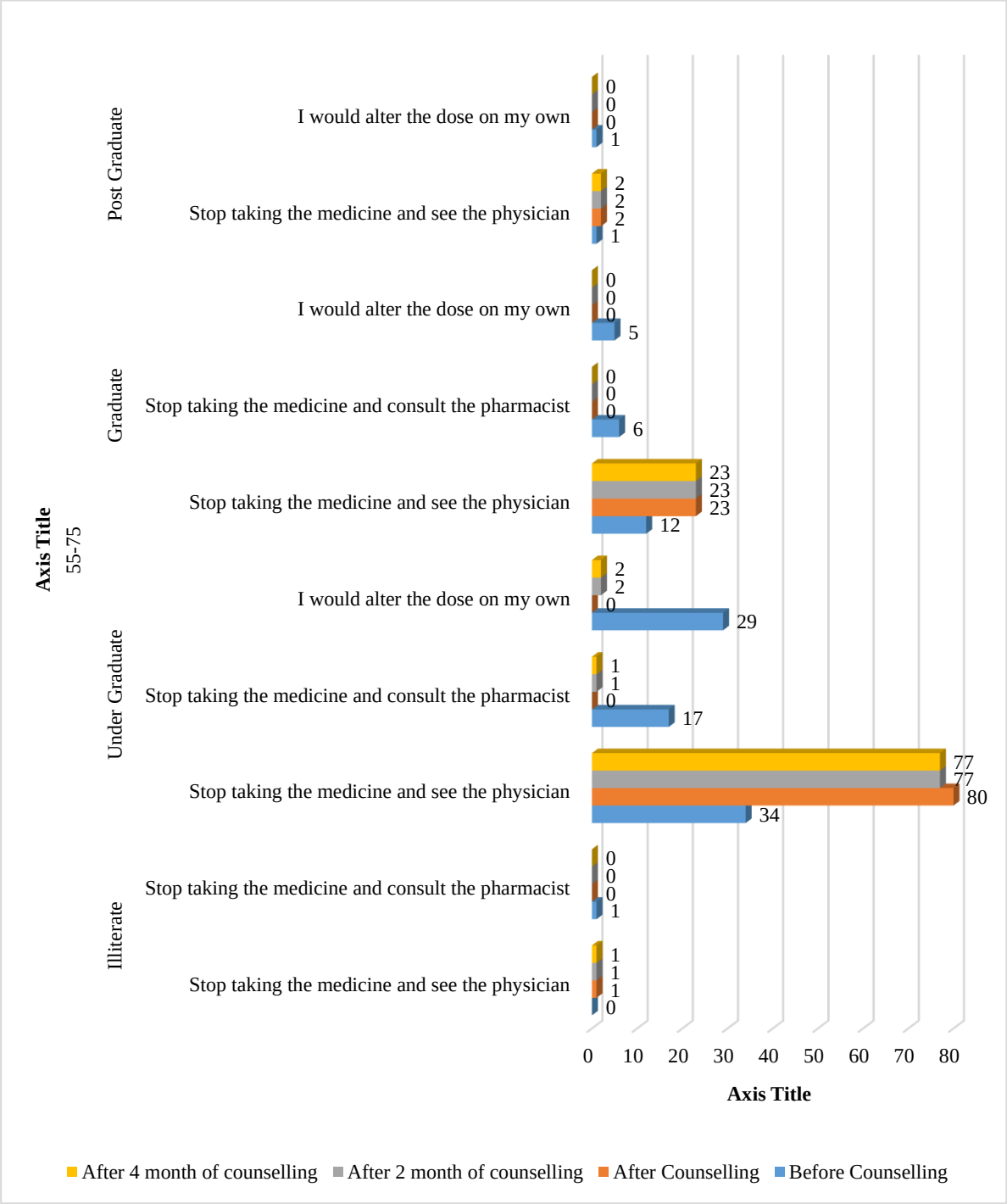


Fig. 3C. When a medication has no effect, what do you do according to Age group 55-75 Yrs.

The Perception of the study population about refilling prescriptions on antimicrobials was evaluated by collecting responses on three statements (S.1 Directly from pharmacy and periodic consultation with pharmacist, S.2 After periodic consultation with doctor, S.3 After periodic consultation with other health care professionals). The evaluation was carried out in all age groups and in all educational classes. Among the age group of 15 to 35 yrs of the 28 undergraduates during the first phase of evaluation, only 14 had refilled the prescription after periodic consultation with the doctor the rest 10 had refilled the prescription directly from the pharmacy after consultation with the pharmacist, and the remaining 4 after consultation with other health care professionals other than a doctor. During phase 2 of the study, it was able to identify that all have started the practice of refiling the prescription with periodic consultation with the doctor. Among graduates of 15 to 35 yrs during phase 1 of the study 16 had directly refilled the prescription from the pharmacy without consultation of a doctor, 17 after periodic consultation with the doctor during phase 2 of the study all 35 graduates had refilled the prescription from the pharmacy by periodic consultation with the doctor, but in phase 3 and 4 it was able to identify that 2 of them further had the practice of filling the prescription form the pharmacy without consultation of a doctor. Among postgraduates even though one had the practice of filling the prescription from a pharmacy without the consultation of a physician during phase 2 of the study it had changed, and the professionals in this group consumed the medication only after periodic consultation with the physician, mentioned in (Fig. 4A). In the age group, 35 to 55 yrs (Fig. 4B) only 1 illiterate was there and he had directly collected the medicine from a pharmacy without consulting a doctor, during phase 2 of the study this practice changed, and started collecting medicine after consultation with a doctor. In the cluster of undergraduates among the age group of 35 to 55 during phase 1 of the study 25 were collected directly from the pharmacy without consultation of a doctor and 5 after consultation with other health care professionals during phase 3 of the study except one the remaining 36 had changed the practice to refill the prescription after periodic consultation with the doctor. The practice e of refilling the prescription for antimicrobials among graduates was, during phase 1 of the study 21 directly from pharmacy without the consultation of a doctor, 12 after periodic consultation with the doctor. 7 periodic consultations with health care professionals other than a physician. During phase 2 of the study, it was able to identify that all 40 had the practice of refilling the prescription on antimicrobials after periodic consultations with a doctor. In the age group 56 to 75 yrs (Fig. 4C) among 80 undergraduates during the initial phase of the study 47 had the practice of refilling the prescription directly from the pharmacy by consultation with the pharmacist 23 after consultation with a physician and 10 after consultation with other health care professionals. During phase two of the study, all 80 participants collected the drug through periodic consultation with the physician. But during phases 3 and 4 of the study 2 of them had still the practice of refilling the prescription from the pharmacy and one after periodic consultation with other health care professionals. From the set of graduates of age group, 56 to 75 yrs 11 had the practice of refilling the prescription on antimicrobials directly from the pharmacy without consulting a physician. 3 after consulting with other health care professionals and 9 after consulting with a physician. During phase 2 of the study all 23 had started the practice of refilling the prescription after periodic consultation with a physician same is the practice with postgraduates.

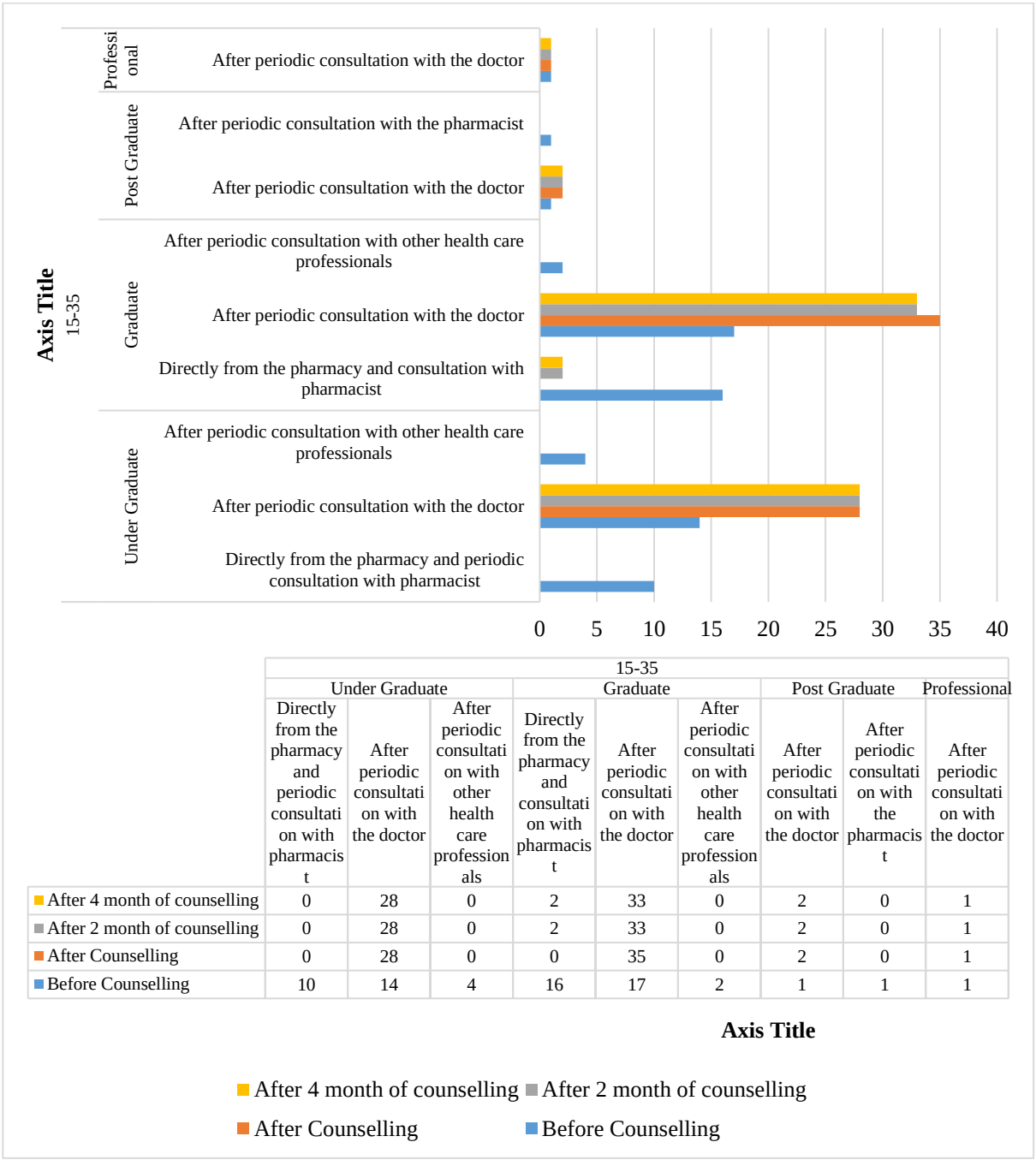
The primary objective of the study was to find out the impact of patient counseling on the safe use of self-medication. The study population consisted of 250 people which consisted of illiterates, UG, PG, and graduates of young, adult, and elderly age groups from provinces of Eraviperoor Gramapanchayath.

The study was a cross-sectional study. The data of patients were collected by personal interviews and then the data was entered into a predesigned data collection proforma.

Regarding the age distribution, a cross-sectional study conducted by Kumar *et al.* (2013) to study the prevalence and practice of SMP in an urban area by interviewing 236 persons using pretested questionnaire concluded that the prevalence of self-medication is more among adults' people (Kumar *et al.,* 2015). Our study also supports the fact that SMP is more among the adult population. This may be due to their decreased knowledge about the adverse effects and lack of time. Besides this, a study conducted by Oztora *et al* on the practice of self-medication in an urban population in Edirne City turkey concluded that SMP is more in those with higher education and economic level, and a study conducted by Johnson *et al* in Karnataka on self-medication practice among medical, pharmacy and nursing students concluded that the prevalence of self-medication practice is more among people with higher education (medical and pharmacy students) and economic level seem to have a tendency in self-medication and irrational drug use because of their increased knowledge related to drugs and diseases and lack of time (Johnson *et al.,* 2016; Oztora *et al.,* 2017). A study conducted by Soni *et al* to assess the Pattern and Prevalence of Self-Medication among Second Year Medical Students at All India Institute of Medical Sciences in Bihar reveals that medical undergraduates are more prone to self-medication practice (Soni *et al.,* 2019). In our study, the highest prevalence of self-medication use was seen among undergraduates of young adults, middle-aged adults, and graduates of elderly people. No SMP was seen more among graduates of middle-aged adults In our study SMP was found to be more among literate people than illiterate ones. This result was similar to a study conducted by Bigoniya in Bhopal with the aim to find the reason for self-medication and make the public aware of its effects concludes that the prevalence of self-medication is high in the educated class when compared to illiterate people (Bigoniya, 2011). This may be due to knowledge about the disease and drugs and lack of fear about the

consequence of self-treatment among the educated class. In our study most commonly, participants took self-medication on the occurrence of symptoms, when symptoms are moderate and sustained for more than 3 days, and when symptoms are increasing in severity. Among undergraduates, graduates, PGs, and professionals of young adults, most of them took self-medication when there are symptoms. Among middle-aged adults, most undergraduates practiced SMP when there are symptoms and graduated when the symptoms are moderate and sustained for more than 3 days.

Among elderly people, undergraduates took self-medication when the symptoms are moderate and sustained for more than 3 days, and graduates when there are symptoms. PGs of middle-aged people practiced SMP when there are symptoms and when the symptoms are increasing in severity. It was able to identify that in all age groups and all education classes, the practice of self-medication on the onset of symptoms is and even if the symptoms persist for more than 3 days they had the practice of self-medication and hesitated to visit a physician, this happens due to lack of knowledge about the hazards of self-medication, and previous experience with the disease and information obtained from social media's friends or relatives.



	15-35								
	Under Graduate			Graduate			Post Graduate		Professional
	Directly from the pharmacy and periodic consultation with pharmacist	After periodic consultation with the doctor	After periodic consultation with other health care professionals	Directly from the pharmacy and consultation with pharmacist	After periodic consultation with the doctor	After periodic consultation with other health care professionals	After periodic consultation with the doctor	After periodic consultation with the pharmacist	After periodic consultation with the doctor
After 4 month of counselling	0	28	0	2	33	0	2	0	1
After 2 month of counselling	0	28	0	2	33	0	2	0	1
After Counselling	0	28	0	0	35	0	2	0	1
Before Counselling	10	14	4	16	17	2	1	1	1

Fig. 4A. Perception about refilling prescription(antimicrobials) according to age group 15-35 Yrs.

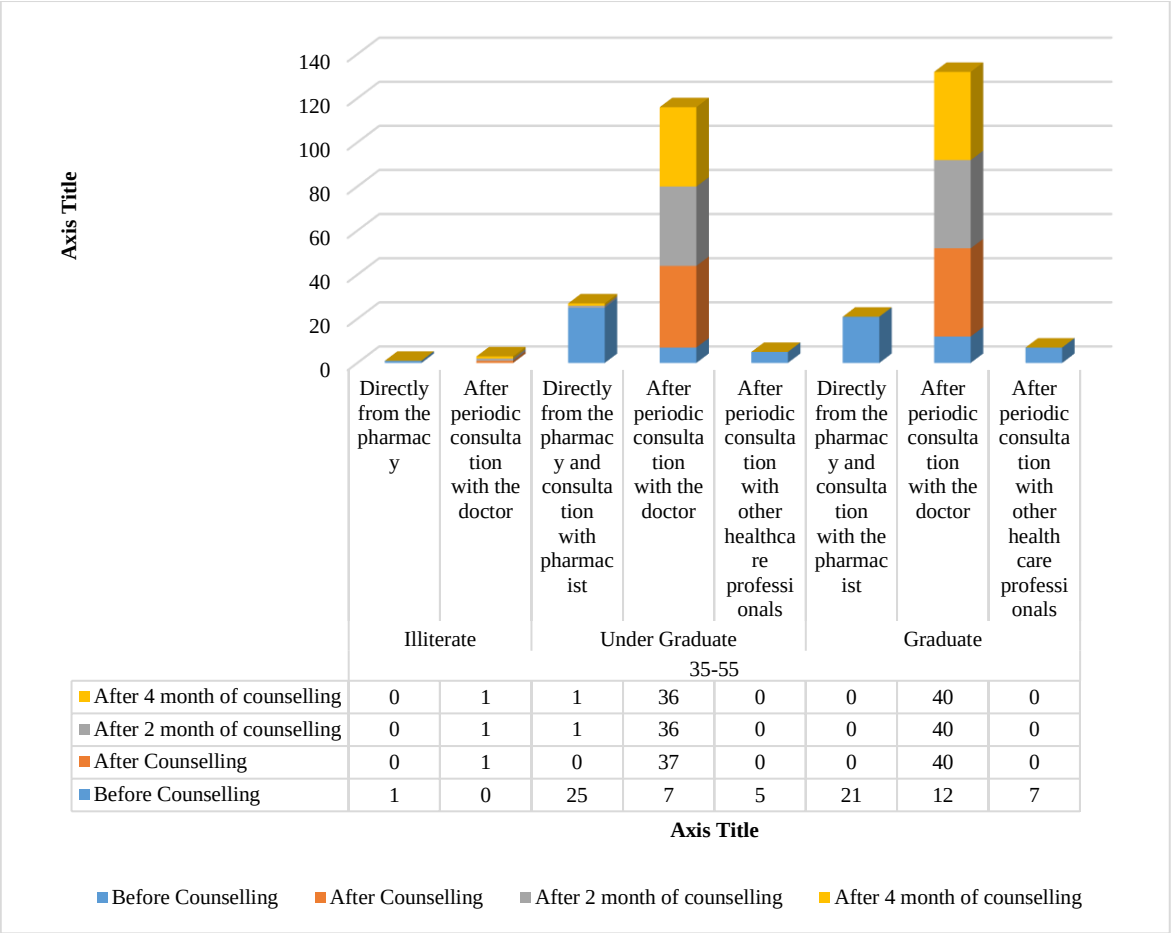


Fig. 4B. Perception about refilling prescription(antimicrobials) according to age group 35-55 Yrs.

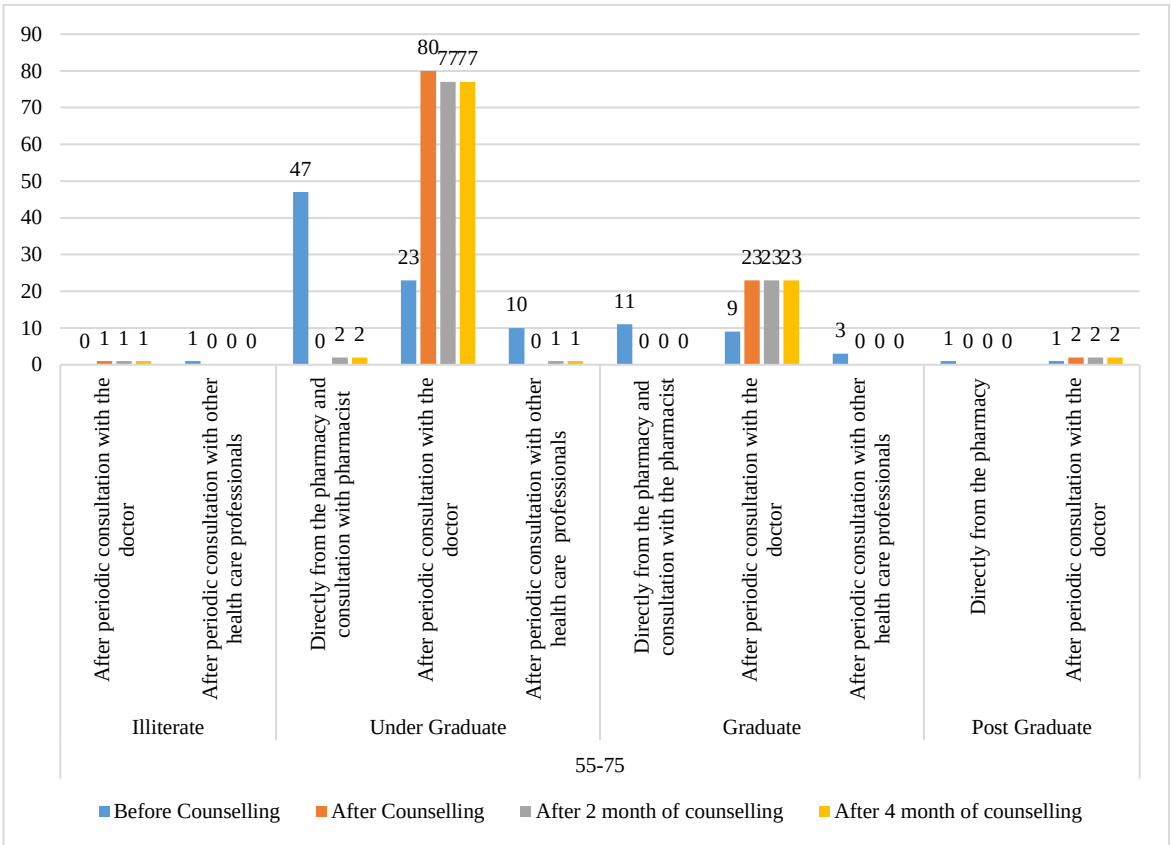


Fig. 4C. Perception about refilling prescription(antimicrobials) according to age group 55-75 Yrs.

In our study, among young groups, and all the educational classes (undergraduates, graduates, Postgraduates, and professionals) when medications had no effect more than half of the population either altered the dose on their own or visited the pharmacy instead of visiting the physician, but through proper patient counseling it was able to identify and reveal that they stopped altering the medicine/dose by their own and visited the physician. From this outcome, it's clear that the practice of self-medication happens because of their lack of knowledge about the hazards of self-medication. Through proper patient counselling and monitoring the practice of self-medication can be put to an end.

A multistage graded clustered sampling study directed by Awad *et al* in Sudan to estimate the incidence of self-medication with antibiotics resolved that the frequency of self-medication was terrifyingly high (Awad *et al.,* 2005). It was found that numerous aspects play a role in the progress of antibiotic resistance such as inappropriate use, overuse of antibiotics, not completing the course of antibiotics, and use of antibiotics in food production. A cross-sectional survey conducted by Mason *et al* showed that a better awareness towards careful antibiotic usage developed due to community pharmacist counseling on antibiotic prescription (Mason *et al.,* 2018). In our study, it was found that among young adults: undergraduates, graduates, and professionals used antimicrobials after periodic consultation with the doctor while PGs used antimicrobials either after consultation with the doctor or pharmacist. Among middle-aged adults: graduates and undergraduates used antimicrobials either after periodic consultation with a pharmacist or directly from the pharmacy while the illiterate participant used to directly buy the antimicrobial from the pharmacy. Among elderly people: graduates and undergraduates used antimicrobials either after periodic consultation with a pharmacist or directly from the pharmacy, PGs used antimicrobials either after periodic consultation with a doctor or directly from the pharmacy and the illiterate participant used to consult other health care professionals before antimicrobials use. This practice in concern with the use of antimicrobials should have to be stopped. Because inappropriate selection of antimicrobials for an infectious disease can lead to worsening of the condition and sub-therapeutic dose and incomplete duration of the therapy can lead to drug resistance. This practice of refilling the prescription of antimicrobials without the direction of a physician happens due to unawareness of the public about its consequences, which is clear from our study because the practice of self-medication on antimicrobials was popular in all age groups of the study population during the phase 1 of the study, but consequently, in phase 2 and 3 of the study we were able to identify that no one practiced SMP on antimicrobials. This happened due to their increase in knowledge about the irrational use of antimicrobials.

CONCLUSIONS

Insecure use and consumption of drugs can lead to harmful effects such as adverse drug reactions, drug resistance, and unwanted financial expenditure. It was able to identify that the practice of self-medication is popular in all age groups beneath their educational qualification. This happens due to their lack of knowledge about the hazards due to the irrational use of drugs even if it happens in the case of antimicrobials. Structured patient counseling had reduced the practice of self-medication. which proved that patient counseling had an impact on reducing the practice of self-medication. Pharmacists in all sectors of practice should have to be brought aware of the importance of proper counseling to patients about the use of drugs. Thus, the practice of self-medication and hazards that happens due to the same can be rectified.

FUTURE SCOPE

The promising results of the study may extended to other distrcits of Kerala and then to South ern parts of the country to create the awareness on self medication among the population.

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Conflict of interest. None.

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