



International Journal of KIU

Journal home page : <https://ij.kiu.ac.lk/>
DOI: <https://doi.org/10.37966/ijkiu2021021013>



Original Article

Counselling Patterns of Community Pharmacies when Dispensing Antibiotics in Galle DS Division, Sri Lanka

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Abstract

Article history:

Received 07th April 2021

Received in revised form

20th August 2021

Accepted 07th September 2021

Cite as:

Nayanathara, R. K. A. B., Jayasinghe, B. G. V. A. N. S., (2021).
Counselling Patterns of Community Pharmacies when Dispensing Antibiotics in Galle AGA Division, Sri Lanka.
International Journal of KIU. 2 (2). 41 – 50.
<https://doi.org/10.37966/ijkiu2021021013>

Antibiotic resistance has been identified as a significant health issue across the world. Inappropriate antibiotics prescribing by physicians, dispensing antibiotics without prescription and counseling by pharmacists, and the misuse of antibiotics by patients make them chief parties responsible for this global problem. Community pharmacists have a major responsibility to counsel the patients before dispensing antibiotics. The objectives of this study was to investigate the counselling patterns of community pharmacies when dispensing antibiotics and to examine whether the community pharmacists demand a prescription when dispensing antibiotics in Galle, Sri Lanka. This was a simulated patient study involving community pharmacists/ pharmacy assistants who work in community pharmacies in the Galle DS division (Divisional Secretary Division), Sri Lanka. Case scenarios of specific product requests (Erythromycin tablets, Ciprofloxacin tablets, Amoxicillin syrup) were presented by a simulated patient, and data were recorded after purchasing each product. Most of the pharmacists/ pharmacy assistants (72%) didn't demand a prescription for antibiotic dispensing. About 82% of the visited pharmacies had dispensed antibiotics without a prescription. Only 14% of community pharmacies in the area had taken medical and lifestyle history of simulated patients (investigators) before dispensing. Advice or counselling regarding antibiotics were given only by 24% of the community pharmacies. Counselling patterns of community pharmacies in the area were unsatisfactory. Major issues of dispensing antibiotics and, not demanding a prescription were common. These issues need to be addressed by health authorities and policymakers to safeguard patients.

Keywords: Antibiotics, Counselling, Dispensing, Pharmacy

Introduction

The medicines that are used to treat and prevent bacterial infections are called antibiotics (WHO, 2016). Antibiotics are molecules that inhibit the growth of bacterial cells or kill microorganisms.

Development of antibiotics is indeed a great achievement of modern medicine (Aminov, 2010). In the pre antibiotic era several , thousands of people were killed by serious diseases caused by bacteria However antibiotic use has to be done with uttermost care. Antibiotics at the right time, for the right indication, can cure many serious and life-threatening illnesses (Aminov, 2010). Although antibiotics are beneficial discoveries of science, their use carries risks and can affect patients adversely by causing direct toxicity, hypersensitivity, altering of normal bacterial flora, and development of antibacterial resistance (Emeka, Al-omar, & Khan, 2012).

The use of non-prescription-based antibiotics for self - limiting infections and inappropriate usage of antibiotics; drug - associated adverse drug reactions, and development of antimicrobial resistance have increased medical cost. (Shet et al., 2015).

Antibiotic resistance is one of the biggest threats to global health. It can affect anyone, of any age in any country (WHO, 2016). When bacteria changes, the response towards antimicrobial , antibiotic resistance occurs (WHO, 2016). Further, bacteria are becoming increasingly resistant to conventional antibacterial agents globally. New resistance mechanisms by bacteria are arising and spreading globally, reducing the ability to treat common infectious microbial diseases. Antibiotic resistance leads to a prolonged hospital stay, higher medical costs as well as an economic burden on societies, and increased mortality. Antimicrobial resistance is a natural process, which is accelerated by misuse of antibiotics. Thus there is an urgent need to intervene to ensure correct prescribing,

dispensing of prescribed drugs and to stop misuse of antibiotics (Emeka et al., 2012).

In order to control the spread of antibiotic resistance, healthcare professionals should follow certain steps such as, only prescribe and dispense antibacterial agents according to the current guidelines, when they are needed, report information about antibiotic-resistant infections and adverse drug reactions, advice patients about dangers of misuse, how to take antibiotics correctly and advice patients on how to prevent infections (WHO, 2016) Pharmacists play a wider role in communicating with patients regarding health, as health educators and counsellors than only as dispensing chemists. Further most countries in the world have adopted regulations to counsel all consumers and thus protect them (Coleman, 2003).

Pharmacists have a responsibility to provide health information and resources to patients, healthcare providers, and others who need that. Hence the working habits, education, attitudes, and knowledge about antibiotic resistance are very important (Coleman, 2003). Patient counselling regarding their medicines is an important part of pharmaceutical care and pharmacy practice. Pharmacists have a major responsibility to educate/counsel patients before dispensing the medication (Poudel, et al., 2009)

Around the world, millions of people visit community pharmacies, every day, for their healthcare needs. Currently, community pharmacists are much focused in their new role in developed countries such as United States, United Kingdom, and Australia (Poudel, et al., 2009). However the role in developing countries are sparse.

Many research reports from community pharmacists in other countries related to counselling patterns when dispensing antibiotics are available. However to date studies from Sri Lanka are scarce. Therefore, this study was

undertaken for future recommendation implementation of correct practices in relation to counselling patterns on antibiotics among community pharmacists in Sri Lanka. This study is aimed to investigate the counselling patterns of community pharmacies in Galle area when dispensing antibiotics.

Further the findings of this study would be beneficial to get an idea of counselling patterns of community pharmacies when dispensing antibiotics in a geographic location in Sri Lanka and to promote rational use of antibiotics among the general public.

Methodology

A cross-sectional study was conducted from 12th April to 17th October, 2019, to investigate counselling patterns of community pharmacies in the Galle DS division Sri Lanka, when dispensing antibiotics after obtaining ethical approval from the Ethical Review Committee of Faculty of Medicine, University of Ruhuna (Ref.No. 14.12.2017:3.6). A convenient sampling technique was used in this study. Five pharmacies among community pharmacies available in the Galle town area were selected randomly per day. Likewise, research was conducted for 15 days. A simulated client methodology was used. One investigator, who was a pharmacy student of the Faculty of Allied Health Science, University of Ruhuna visited the selected pharmacies. The investigators were simulated under three case scenarios.

Case Scenario 1- The sick sister was at home, and her sibling visited the pharmacy asking for ciprofloxacin 500mg five tablets for the sick sister. In the case, the pharmacist asked specific questions, and additional information was provided.

Case Scenario 2- The investigator having a sore throat visited the pharmacy asking for two tablets of erythromycin. In the case, the pharmacist asked

specific questions, and additional information was provided.

Case Scenario 3- The investigators' niece having a productive cough, runny nose, and fever visited the pharmacies asking for amoxicillin dry syrup 125 mg per 5 ml suspension. In the case, the pharmacist asked specific questions, and the investigator gave additional information.

In all three scenarios, if antibiotics were dispensed, it was checked whether they provide information on duration, direction for use, and other relevant information. If refused to dispense, did they suggest referring to a doctor were checked. After leaving the pharmacy, the investigator recorded whether the pharmacist/pharmacy assistant dispensed antibiotics without prescription or not. Also the type of antibiotic, and if the required information provided was recorded. Pharmacists and pharmacy assistants were identified according to the pharmacy license which had been displayed in the pharmacy. Each pharmacy was visited only once, and the investigators visited approximately 50 pharmacies according to the sample calculation.

Results

Participation of pharmacists in community pharmacy practice

The descriptive statistics of participation of pharmacists in community pharmacy practice is shown in Table 1. According to the details collected 38 (76%) pharmacies were functioning without pharmacists at the time of visit. Only 24 (12%) pharmacists were present in the pharmacies at the time of visit. Among the persons who served the simulated patients in this study, most were pharmacy staff 46 (86%) and the rest were pharmacists 7 (14%). More than half of the respondents (52%) were female.

Variable	Frequency (%)
Pharmacist was present in the pharmacy at the time of visit	N= 50
No	38 (76.0)
Yes	12 (24.0)
Who served	N= 50
Pharmacist	7 (14.0)
Pharmacy staff	43 (86.0)
Gender of the pharmacist/ pharmacy staff who served	N= 50
Male	24 (48.0)
Female	26 (52.0)

Table 1: Participation of pharmacists in community pharmacy practice

Dispensing antibiotics without prescription

The descriptive statistics about dispensing antibiotics with or without prescription is described in Table 2. Among them, most pharmacists/ pharmacy staff 36 (72%) didn't demand a prescription for antibiotic dispensing. Almost all the pharmacies 41 (82%) dispensed antibiotics without a prescription. Only 9 (18%) pharmacies rejected dispensing antibiotics without prescription.

Variable	Frequency (%)
A prescription was demanded by the pharmacist/ staff	N= 50
No	36 (72.0)
Yes	14 (28)
Was an antibiotic dispensed	N= 50
No	9 (18%)
Yes	41 (82%)

Table 2: Dispensing antibiotics without prescription

Asking questions about the health issue by the pharmacist/ pharmacy staff, before dispensing antibiotics

Descriptive statistics of the questions asked by pharmacists/pharmacy staff, in relation to the condition are shown in Table 3. According to findings, 35 (70%) respondents didn't ask for whom the medicine is purchased. Almost all pharmacists/ pharmacy workers didn't ask about

the symptoms. Further 40 (80%) respondents didn't ask what the symptoms were and 48 (96%) respondents didn't ask about the period of the symptoms. According to the results, only 2 (4%) pharmacists/pharmacy staff asked about the action that had already been taken. Also no one asked about any other medicines, the patient was currently using before dispensing the antibiotic.

Variable	Frequency (%)
For whom is the medicine?	N=50
No	35 (70.0%)
Yes	15 (30.0%)
What are the symptoms?	N=50
No	40 (80.0%)
Yes	10 (20.0%)
How long have you had the symptoms?	N=50
No	48 (96.0%)
Yes	2 (4.0)
What action has already been taken?	N=50
No	48 (96.0%)
Yes	2 (4.0%)
Are you taking any other medicines?	N=50
No	50 (100%)

Table 3: Asking questions about the condition by respondents

Medical and lifestyle history taking

According to the descriptive statistics of medical and lifestyle history taking, 43 (86%) respondents did not take the medical and lifestyle history. Only 7 (14%) community pharmacies in the Galle area took the medical and lifestyle history of simulated patients. The descriptive statistics of questions regarding medical and lifestyle history, asked by pharmacists or assistances is reported in Table 4.

Only 7 pharmacists or assistants out of 50 took medical and lifestyle history during this simulated study. Out of that 7 respondents who had taken history by simulated patients, only 1 respondent had asked the gender of the patient and the allergies of the patient, before dispensing antibiotics without prescription. However none of

the respondents inquired about other diseases and medical conditions that the patient may have from past.

Variable	Frequency (%)
Medical and lifestyle history taking	N= 50
No	43 (86.0%)
Yes	7 (14.0%)
Under the lifestyle history, asking questions about,	
Age of the patient	N=7
Yes	7
Gender of the patient	N= 7
No	6
Yes	1
Allergies	N= 7
No	6
Yes	1
About other diseases	N=7
No	7

Table 4: Medical and lifestyle history taking

Advice or counselling upon dispensing

The descriptive statistics of giving advice or counselling upon dispensing antibiotics without prescriptions in the Galle area is described in Table 5. According to the data, advice or counselling regarding antibiotics was given by 12 (24%) community pharmacies in the Galle area during dispensing. However 38 (76%) community pharmacies didn't give any advice or counselling upon dispensing antibiotics without prescription. According to table 5, any kind of advice and counselling regarding antibiotics dispensing was given by 12 pharmacies out of 50 community pharmacies. Out of those 12 pharmacies, information on "how to take" was provided by 9 pharmacies. It was given verbally by 8 pharmacies and only one pharmacist gave both written and verbal. Information on "how often antibiotic should be taken" was given by 7 community pharmacies and almost all gave that verbally. Information on "when to stop taking antibiotics" was provided by 5 community pharmacies. It was provided verbally by 4 community pharmacies and only one provided as written information. Out of those 12 community pharmacies that were provided advice or counseling upon dispensing, 8 pharmacies recommended seeing a physician, rather than taking antibiotics without prescription.

None of the respondents informed about the side effects of the antibiotics when dispensing during this simulated study.

Variable	Frequency (%)
Received any advice or counselling upon dispensing	N= 50
No	38 (76.0%)
Yes	12 (24.0%)
Under the advice and counselling, the information was provided on,	
How to take the antibiotic	N = 12
Verbally	8
Both (verbally and written)	1
Non	3
How often should it be taken	N = 12
Verbally	7
Non	5
When to stop taking antibiotics	N = 12
Verbally	4
Written	1
Non	7
Recommended to see a physician	N = 12
No	4
Yes	8
Informed about the side effects of the antibiotic	N = 12
No	12

Table 5: Advice or counseling upon dispensing

According to the results, only 12 (24%) pharmacies were working with professional pharmacists at visit time. Further only 7 (14%) pharmacists served as respondents to this study out of a total of 50 community pharmacies in the Galle area and only 14 (28%) pharmacies demanded a prescription to dispense an antibiotic.

Cross - tabulation between whether the responder was a pharmacist or pharmacy staff vs. whether they demanded a prescription or not

There was a significant association ($P = 0.014$) between whether the respondent was a pharmacist or pharmacy staff vs. whether they demanded a prescription or not. When a pharmacist served as the respondent, the prescription was demanded by 5 (71.4%) pharmacists out of 7 pharmacists who served as respondents. However prescription was demanded by only 9 (20.9%) pharmacy staff when dispensing antibiotics without a prescription. Further 34 (79.1%) pharmacy staff didn't demand a prescription.

Cross-tabulation between who served as the respondent vs. giving advice or counselling upon dispensing of antibiotics

There is a significant association ($P = 0.006$) between who served as the respondent (pharmacist/ or pharmacy staff) and giving advice or counselling upon dispensing of antibiotics. When dispensing antibiotics without prescription, counselling, and advice were given by 5 pharmacists (71.4%) among 7 pharmacists who served as respondents. However only 7 pharmacy assistants (16.3%) gave advice and counselling regarding antibiotics when dispensing antibiotics during this study among 43 pharmacy assistants who served as respondents.

Discussion

This is the first known study to be conducted in the Galle area to investigate counselling patterns of community pharmacies when dispensing antibiotics and also to investigate whether the community pharmacists demand prescription when dispensing antibiotics. This simulated patient study was used to assess community pharmacies regarding counselling patterns related to antibiotics.

At the time of visit, 76% of community pharmacies were functioning without pharmacists. Only 12% of pharmacies were working with pharmacists. Hence majority of pharmacies dispensed medicines without the supervision of a qualified pharmacist. A similar type of study done in Nepal, reported that 61% of dispensers who dispense medicines in community pharmacies, had only the orientation training regarding dispensing. In this study 30% of workers had orientation training followed by other qualifications. Only 9% of workers were pharmacists with B pharm or D pharm (Poudel, et al., 2009). This is an alarming finding and may be seen more commonly in developed countries as opposed to developed countries.

Among the persons who served simulated patients, most of them were pharmacy staff (86%)

and the rest were pharmacists (14%). More than half of the respondents (52%) were female. But according to a study conducted in Nepal, 88.33% of pharmacy staff were males and 11.66% were females (Poudel, et al., 2009). Hence as seen in the current study it is seen that increasingly pharmacies are using staff in dispensing drugs especially so in the developing areas of the world. The staff in pharmacies are not trained and thus are not aware of the consequences in misuse of antibiotics. These factors when not addressed will result in increased antibiotic resistance among other drastic consequence of misuse of antibiotics.

Among respondents (pharmacists/ pharmacy staff) in this report, 72% didn't demand a prescription for antibiotic dispensing. Only 18% of pharmacies rejected dispensing antibiotics without prescription. Alarmingly almost all the pharmacies (82%) included in this study dispensed antibiotics without prescription. According to the findings of the similar types of studies done in India, Indonesia, and also Al Ahsa, Abidjan like Arabic and African countries, the majority of pharmacies (91%-45%) have dispensed antibiotics without prescriptions. Also in a study in Syria, 87% of the pharmacies agreed to sell antibiotics without prescription (Al-Faham, Habboub, & Takriti, 2011). However in developed countries such as New Zealand, Malaysia, and Greece which were at a higher socio economic state had a low rate of dispensing antibiotics without prescription (Puspitasari et al., 2011b; Soumya et al., 2016; Emeka et al., 2012; Hounsa et al., 2010; Fatokun, 2014; Dameh et al., 2012; Contopoulos-Ioannidis et al., 2001).

Similar to results observed in the current study several other studies including the study from Indonesia said, in case of purchase of antibiotic without prescription, the clients were never questioned (Hadi et al., 2010). Only about half, the pharmacy staff asked for information about the symptoms, frequency of symptoms, and age of the patient, while questions about medicines that had already been taken, feeding, and health status were rarely asked (10%) in studies done in Vietnam as

well as Thailand (Duong et al., 1997; Chalker, Ratanawijitrasin, Chuc, Petzold, & Tomson, 2005).

The purpose of purchase of antibiotics was asked by only 26% of pharmacists/ pharmacy staff from simulated patients during this study. According to the results of the study, the overall counselling process was not at a good level. One of the studies in Indonesia said no information leaflets or oral instructions were given. In case of purchase without prescription, the clients were never questioned or referred to a physician (Hadi et al., 2010). Further no one was informed about the side effects of the antibiotics when dispensing during this simulated study. When considering the results, pharmacists/ pharmacy staff in community pharmacies in Galle didn't engage in the counselling process properly. Further among the few community pharmacies who gave counselling, almost all gave it verbally. A similar study done in Vietnam also reported that, the advice given by pharmacy staff to purchasers was poor (Duong et al., 1997). In contrast findings of an Indonesian study report that, medicine information on the indication, dosing duration, and direction for use were provided more frequently in all cases (Puspitasari et al., 2011a).

There was a significant association between whether the respondent was a pharmacist or pharmacy staff vs. whether they demanded a prescription or not. When a pharmacist served as the responder, a prescription was demanded by 5 (71.4%) pharmacists from 7 pharmacists who served as respondents. This highlights that when qualified persons are engaging in dispensing drugs a better service is given as opposed to when pharmacy staff dispense drugs in pharmacies which results in inadequate counselling and services rendered to the general public. Further as seen in this report services rendered by unqualified pharmacy staff where prescription was demanded by only 9 (20.9%) pharmacy staff when dispensing antibiotics without a prescription highlights that lack of training and knowledge and mainly lack of education regarding the consequences of antibiotic misuse are reasons for

the results seen. This highlights an important issue as to whether pharmacies employ unqualified people to dispense medicine looking for financial benefits and higher profits subjecting the public to danger. Interestingly this pattern on employment of non pharmacist to dispense drugs and thus leading to lack of standard services when dispensing antibiotics are seen also in other developing nations. A similar type of study done in Nepal reported that, only 31% of pharmacy assistants considered counselling as their duty (Poudel, et al., 2009). Similarly, the same kind of simulated patient study done in India reported that none advised on potential side effects or possible drug allergies, during dispensing antibiotics without prescription (Shet et al., 2015). However in contrast in the developed countries and those with a higher socio economy follow rules and regulations in dispensing drugs very strictly. Hence current study highlights alarming practices being carried out in dispensing antibiotics in Sri Lanka

Conclusion

The counselling pattern of the community pharmacies in the area was very unsatisfactory. There was a significant association between who served as the respondent (pharmacist/ or pharmacy staff) and giving advice or counselling upon dispensing of antibiotics. When the pharmacist was the respondent, it increased the rate of demanding prescriptions as well as the rate of giving advice and counselling. Also, almost all community pharmacies didn't take the patient's medical and lifestyle history. Major issues of dispensing antibiotics such as not demanding a prescription were common and these issues need to be addressed by health authorities and policymakers to safeguard the patients. Community pharmacy service related to counselling on antibiotics is low in the Galle DS Division, Sri Lanka.

Limitations

During this patient-simulated study, one community pharmacy was visited only once.

Acknowledgments

The assistance provided by the academic and non-academic staff of the Faculty of Allied health sciences, University of Ruhuna, is greatly appreciated.

Ethical Statement

Ethical approval was granted from the Ethics Review Committees of the Faculty of Medicine, University of Ruhuna, in 2017 (Ref.No. 14.12.2017:3.6).

References

- Al-Faham, Z., Habboub, G., & Takriti, F. (2011). The sale of antibiotics without prescription in pharmacies in Damascus, Syria. *The Journal of Infection in Developing Countries*, 5(5), 396–399. <https://doi.org/10.3855/jidc.1248>
- Aminov, R. I. (2010). A Brief History of the Antibiotic Era: Lessons Learned and Challenges for the Future. *Frontiers in Microbiology*, 1. <https://doi.org/10.3389/fmicb.2010.00134>
- Chalker, J., Ratanawijitrasin, S., Chuc, N. T. ., Petzold, M., & Tomson, G. (2005). Effectiveness of a multi-component intervention on dispensing practices at private pharmacies in Vietnam and Thailand—a randomized controlled trial. *Social Science & Medicine*, 60(1), 131–141. <https://doi.org/10.1016/J.SOCSCIMED.2004.04.019>
- Coleman C. L. (2003). Examining influences of pharmacists' communication with consumers about antibiotics. *Health communication*, 15(1), 79–99. https://doi.org/10.1207/S15327027HC1501_4
- Costa, S., Santos, C., & Silveira, J. (2006). Community Pharmacy Services in Portugal. *Annals of Pharmacotherapy*, 40(12), 2228–2234. <https://doi.org/10.1345/aph.1H129>
- Dameh, M., Norris, P., & Green, J. (2012). New Zealand pharmacists' experiences, practices and views regarding antibiotic use without prescription. *Journal of Primary Health Care*, 4(2), 131–140. <https://doi.org/10.1071/HC12131>
- Egorova, S. N., & Akhmetova, T. (2015). Pharmaceutical counseling: Between evidence-based medicine and profits. *International Journal of Risk & Safety in Medicine*, 27(s1), S87–S88. <https://doi.org/10.3233/JRS-150701>
- Emeka, P. M., Al-omar, M. J., & Khan, T. M. (2012). prescription Antibiotics In Al Ahsa. *US National Library of Medicine National Institutes of Health*, 9(4), 230–234.
- Goel, P., Ross-Degnan, I. D., Berman, I. P., & Soumerai, S. (1996). 0277-gs3c~gs)00388.~ Retail Pharmacies In Developing Countries: A Behavior And Intervention Framework*. *Soc. Sci. Med* (Vol. 42)
- Hounsa, A., Kouadio, L., & De Mol, P. (2009). Self-medication with antibiotics obtained from private pharmacies in Abidjan, Ivory Coast. *Médecine et maladies infectieuses*, 40(6), 333-340.
- Méndez-Vilas, A. (2013). Microbial pathogens and strategies for combating them science, technology and education. Formatex Research Center. Retrieved from <http://bdigital.ipg.pt/dspace/handle/10314/2487>
- Poudel, A., Khanal, S., Alam, K. A. D. I. R., & Palaian, S. (2009). Perception of Nepalese community pharmacists towards patient counseling and continuing pharmacy education program: a multicentric study. *Journal of Clinical and Diagnostic Research*, 3(2), 1408-1413.

Pankey, G. A., & Sabath, L. D. (2017). Clinical Relevance of Bacteriostatic versus Bactericidal Mechanisms of Action in the Treatment of Gram-Positive Bacterial Infections, 38(September).

Shet, A., Sundaresan, S., & Forsberg, B. C. (2015). Pharmacy-based dispensing of antimicrobial agents without prescription in India : appropriateness and cost burden in the private sector. *Antimicrobial Resistance and Infection Control*, 1–7. <https://doi.org/10.1186/s13756-015-0098-8>

Smith, F. (2009). The quality of private pharmacy services in low and middle-income countries: A systematic review. *Pharmacy World & Science*, 31(3), 351–361. <https://doi.org/10.1007/s11096-009-9294-z>

Soumya, R., Devarashetty, V., Jayanthi, C., & Sushma, M. (2016). Drug dispensing practices at pharmacies in Bengaluru: A cross-sectional study. *Indian Journal of Pharmacology*, 48(4), 360. <https://doi.org/10.4103/0253-7613.186204>

The History of Antibiotics - HealthyChildren.org. (n.d.). Retrieved September 28, 2017, from <https://www.healthychildren.org/English/health-issues/conditions/treatments/Pages/The-History-of-Antibiotics.aspx>

WHO, (2016). Antibiotic resistance: World Health Organisation <http://www.who.int/mediacentre/factsheets/antibiotic-resistance/en/>