Pharmacy Retail in Sri Lanka compared to Norway

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Summary
Pharmacy operations involve purchase of relevant drugs, qualified personal at the stores, sale of pharmaceutical products as per customer requirements, abiding by pharmacy laws in the country, customer service and help the customer to make the affective product choice according to customer’s condition and choice.

Introduction: Sri Lanka medical treatments for patients was totally depending on eastern medicine before the colonizers came to Sri Lanka. Then the english medicine started to develop and invaded the Ayurvedhic medical systems in Sri Lanka. Colonizers introduced us the system of providing medicines and consultation in hospitals. Policy research is learning from comparing policies in different countries

Objective: The purpose of this study is to describe the pharmacy retail system in Sri Lanka from a pharmacy employee perspective and compare it to Norway.

Method: A questionnaire was developed and distributed in Sri Lanka. In Norway structured interviews were conducted based on the questionnaire. The questions were chosen based on pharmacy faculty in Sri Lanka, policy frame work and the author's experience working at pharmacies in Norway and going through the articles, talking to doctoral students and professor.
The survey was conducted in the Batticaloaa district of Sri Lanka and in Aurskog, Norway.

Results: In Sri Lanka, out of the 15 respondents, 12 were working in retail pharmacy stores and 3 in pharmacy section run by hospitals. In Norway all 5 interviewed were working in retail pharmacies. All respondents in Norway had either a bachelor or a master degree in pharmacy, whereas in Sri Lanka only 3 of the respondents had a pharmacy degree. Western medicine is common in both countries. In Sri Lanka, most respondents informed that prescription is necessary in order to provide medicine. In Norway, if there is an emergency, they will provide medicines. In Sri Lanka and Norway, pharmacies have original medicines and generic drugs, which can be chosen by the patients.

Discussion: The population for this study is very small, which means that the results may not be generalized. However, as a pilot study, it may be hypothesis generating and identify areas for further research. If the author has been personally in Sri Lanka as like in Norway, performing interviews; it would have helped to collect more detailed data and information to complete this project better. Even though the data collection has been done in a particular area in Sri Lanka, the results may be generalizable for because it is a small country and it's almost the same system is applied all-over the island.
Finally this pilot study helped a lot to compare and provided a better knowledge of the pharmacy systems in Sri Lanka compared to Norway.

There are major differences between Sri Lanka and Norwegian systems. The responses were in line with the expected responses however some responses were surprising. Pharmacy staff in Norway have a higher educational qualification working at pharmacies compared to Sri Lanka. All types of medicines are sold but the majority of them are Western medicines. Most of the private pharmacies are located separately and the government pharmacies are located around hospitals in Sri Lanka and Norway. Customer care, reasonable prices, explaining the effects of the medicines and commercial communication with the customers are important factors for a community pharmacy. The most secure system is being carried out in Norway, but the same time in Sri Lanka; there is a chance that pharmaceutical systems can be manipulated.

Keyword: pharmacy system, pharmaceutical, policy, pharmacist, consume medicine.
1. Introduction

Public health interests are paramount in pharmaceutical and health policies. Quality drugs, good prescribing habits, efficient monitoring, and control mechanisms become essential components in ensuring such interests. One third of the world’s population still has no guaranteed access to essential drugs. Poor pharmaceutical raw materials and products continue to be an international trade. Drugs continue to be irrationally prescribed, dispensed and used by prescribers, dispensers and consumers. Unethical drug promotion and lack of access to independent, scientifically validated drugs contribute to such abuse. (1)

Retailing is defined as distribution and sales of pharmaceuticals to the public, included health institutions or other end users of pharmaceuticals. (2) Pharmacy operations enable society to provide a wide selection of medicines, other products and services in health care. For pharmacy operations to run optimally they require specific law and regulations as well as drug regulatory agencies and other medical organisations. (3)

Pharmacy operations involve purchase of relevant drugs, qualified personal at the stores, sale of pharmaceutical products as per customer requirements, abiding by pharmacy laws in the country, customer service and help the customer to make the affective product choice according to customer’s condition and choice

1.1. Pharmacy market in Sri Lanka

In Sri Lanka there is about 5000 pharmacies for 21 million people. (4) Major pharmacies retail chains are Hemas, Harcourt, Baur’s, Macwoods and Sun pharm. The total pharmaceutical market of Sri Lanka today is approximately US$ 365 million of which the private retail market accounts for approximately 60% of sales while the government hospital purchases account for approximately 28%, private hospitals account for approximately 10% and dispensing family physicians account for approximately 2% of the total pharmaceutical business. (5)

With developments in the market, there has been a growing concern for the youth generation to become healthier and fit. With the economic growth, there would be an increase in consumer demand and disposable income of the economy. People go to pharmacies to purchase medicines, vitamins or other food supplements. Pharmacies in Sri Lanka are set up wherein they also sell grocery items therefore customers are not forced to go elsewhere to pick up other items such as beverages etc. (4)

In Sri Lanka, there are two kind of work skills represented in the pharmacy retail sector. One is wholesaler /representatives; they have school levels knowledge, who undergo a 4/6 months training only about their products so they can explain it to the distributors. In addition, the students from high schools and university levels knowledge with minimum pass out for pharmaceutical exam. State Pharmaceutical Corporation of Sri Lanka authorizes pharmacists to work, after they have passed with work in a private/ government pharmacy internship (6).

In Sri Lanka there are four major types of pharmacists

- Community pharmacists
- Hospital pharmacists/ government pharmacist
- Pharmacists for Special Forces
- University B.Pharm degree holders
Community pharmacist: Most private sector pharmacists found in Sri Lanka are generally produced by the private institutions around the country. One who possesses a good apprentice with two years of professional experience under the supervision of any medical council approved community pharmacist may earn the privilege to acquire the registration of the Sri Lanka Medical Council to practice as a pharmacist. Then students should follow a course work of pharmacology through any recognized institute.

Hospital pharmacists are the direct government servants who have the institutional bond with the government health sector. Two years of academic education followed by a one year practical experience will be given to such students and they will be recruited to the government hospitals and other affiliations. Pharmaceutical chemistry, forensic pharmacology, pharmacognosy are some of the subfields that these students might learn, where they will obtain an in grain practice in the field. However these government servants are strictly prohibited in practicing as community pharmacists while working in a government body.

Pharmacists for Special Forces is one of a less known way of being a pharmacist. Security forces such as Sri Lanka Army and Police services, specially recruit some selected number of pharmacists to cater their own pharmacological needs. Such pharmacists will select under the authorization of the health ministry and directly affiliated to the government training sector and finally let in to the army and police hospitals.

B.Sc. Pharmacology University Degree: The other way of being a pharmacist is to follow a university or a private institutional degree specialized for pharmacology, which even recognized as much as the other governmental ways. Almost all the medical faculties of the local universities provide pharmacology courses, as B.Sc. pharmacology. If you fulfill the basic requirements as a bio student with three passes in A/L are eligible for the course, where you can follow this degree for three academic years along with a recognized training period as well. (7)

1.1.1 History of Pharmacy system in Sri Lanka

Sri Lanka (then Ceylon) created a list of medicines which contains a large number of herbals, fruits and vegetables which is used both the state health sector and private sector since 1958. In addition to which, the Ceylon Hospitals Formulary was published by Professor Senaka Bibile to provide information for the use of these medicines. Professor Bibile also set up an international procurement system, which decreased costs and at the same time increased the availability of these medicines. (8)

Sri Lanka medical treatments for patients were totally depending on eastern medicine before the colonizers came to Sri Lanka (in the 17th century) (9)
1.1.2 Eastern medicine (AYURVEDHA)
The patients were treated at the Ayurveda head’s house (doctor called as vedamahathaya), which included a big area of small huts, medical wells, herbal gardens and a medical kitchen to prepare the medicines. Mostly Vedamahathaya`s family members were taking part in treating patients. Vedamahathaya also been called in a short form `"vedas"(10)

Fig 2- Vedamahathaya prescribing medicines at his house (9)

These Vedas were very experienced medical doctors, and the treatment methods were passed through family members, through generations ear to ear and they had their scriptures. Those scriptures were kept very secretive and passed on to only selected family members. (10)

1.1.3 Colonizers: (Portuguese, Dutch and the English)
These colonizers introduced the western medicines and their medical systems. In the early periods, doctors from colonizer countries worked in Sri Lanka. Colonizers started to build dispensaries, medical houses and then big hospitals only in major populated cities. Likewise, English medicine started to develop and invaded the ayurvedhic medical systems in Sri Lanka.

They introduced to the system of providing medicines and consultation in hospitals and since followed the same system for operation of pharmacies with only one exception that, now have privatised pharmacy stores. (9)

1.2 Pharmacy market in Norway
The first pharmacy in Norway was Svaneapoteket in Bergen in 1595, followed by Svaneapoteket in Oslo in 1628. The first pharmacies received royal permit when they were established. The regulations of the Pharmacy profession in Norway were introduced with the Royal Decree/ Medicinal Act of 4 December 1672, at a time when the country was still under Danish rule. (12)The first exception from this was given in 1856 when Rikshospital was given permission to establish a hospital pharmacy owned by the stat (13). NMD (Norwegian medicinal Depot AS) was created on November 1st 1957 as a government agency that functioned as pharmaceutical wholesaler throughout Norway. It took over this responsibility from five private companies. In 1992 the company bought Apotekernes Fællesindkjøp, previously owned by the pharmacies and that had imported and wholesaled medical equipment. The first deregulation was of the wholesalers in 1995. In 1995 two competitors entered the market: Apokjiden (owned by Tamro) and Alliance. Two years later government decided to privatize NMD, and sold 17% to the Dutch Apothekers Cooperative, and the state ownership was transferred from the Norwegian Ministry of Health and Care Services to the Norwegian Ministry of Trade and Industry. Also, the medical equipment subsidiary was sold to the Dutch company. In 1999 2% of the company was sold to 223 pharmacies throughout the
country. Norwegian pharmacies are mainly run as private enterprises. Only the hospital pharmacies are owned by the public sector. In spite of this, the pharmacies are considered part of the Norwegian health service. The fact that the trade involves both retailing and providing healthcare services creates unique challenges both for the trade itself and for the authorities. (11)

In Norway, there is a strictly regulated pharmacy market. It is being National Health Supervision which is responsible for granting license for pharmacy operation and such a license could only be awarded to someone with pharmaceutical degree. (11) In 2001, a major deregulation took place, allowing “anybody” to actually own a pharmacy as long as a qualified pharmacist was employed to take care of the actual dispensing in Norway. (14) In Norway today there are 707 pharmacies for about 5 million people. (11) Major pharmacies retail chains are Apokjeden, Alliance and NMD

1.2.1 Pharmacy System in Norway
In Norway, the Ministry of Health and Care Services (Helse- og omsorgsdepartementet, HOD) is the legislative authority. The Norwegian Medicines Agency (Statens legemiddelverk, NoMA) (subordinate to the HOD) is in charge of marketing authorisation, classification, vigilance, pricing, reimbursement and providing information on medicines to prescribers and the public. (2)

HELFO (Norwegian Health Economics Administration) decides on reimbursement for individual patients for pharmaceuticals without general reimbursement or indications not covered by general reimbursement. HELFO also monitors the prescriptions issued by out-patient doctors. In addition, patients in the store needs to register its self on www.arnika.no and order natural medicines on behalf of the customer if asked for. (21)

All major international pharmaceutical companies are represented in Norway, but only a few of them have established their own manufacturing units in the country. Norway has a small, well-regulated and highly transparent market for pharmaceuticals. There are three large wholesalers, in Norway, in terms of Apokjeden Distribution AS, Alliance Healthcare Norway AS and Norwegian medicinal Depot AS (13). They buy directly from the manufacturing and supplying directly to the pharmacy. They supply to the entire market. (2)

Norway has a small, well-regulated and highly open market for pharmaceuticals. There are three large wholesaler, in Norway, in terms of Apokjeden Distribution AS, Alliance Healthcare Norway AS and Norwegian medicinal Depot AS (13). They buy directly from the manufacturing and supplying directly to the pharmacy. They supply to the entire market. NOMA is in charge of marketing authorization, classification, vigilance, pricing, reimbursement and providing information on medicines to prescribers and the public. NOMA is subordinate to the Ministry of Health and Care Services (2)

1.3 Policy research – learning from comparing policies in different countries
Policy research includes various methods that can be used to analyse and collect relevant information for further processing of the results obtained. (15) The results may direct to further developments in the drug policies. The evaluation of regulation methods helps to be more responsible. Comparing the standards of the two relevant pharmaceutical systems helps to define the pharmaceutical base in a 3rd world country like Sri Lanka and a top level country like Norway. This gives an idea about which steps should be taken to develop pharmaceutical arena in the 3rd world countries, and also provide a perspective on pharmacy retail in Norway. (16)
In studies of policy issues regarding pharmacy operations, it is important to have wide as possible with different sources to compare with other countries, allowing them to see the effects and learn from the developments. Pharmacy Operations also involve a variety of stakeholders, which allows the material to which the information is taken from, and the reflection of the business from different views. The various stakeholders referred among: pharmacy owners, pharmacists, government agencies, politicians, patients and pharmaceutical distributors. Generally, when it comes to policy issues, there is a constant change which contributes to the difficulty to compare. One conclusion after performing the summation is that pharmacy systems in the different countries studied, despite a relatively high degree of agreement nevertheless differ in detail. (27)

Policy issues regarding drug distribution and pharmacy operations can be divided into several areas. The foremost comes to the public health policy to ensure the delivery of safe, effective, high quality medicines to the consumer. The next is to balance the health care budgets and have control over health and pharmaceutical costs. The other area is to create a regulatory framework that contributes to a functioning industrial policy. These policy issues are crucial for the pharmacy business development and sets up few opposing views. Pharmacy sector is seen as a commercial activity that contributes to the economic benefit of the community, to the others, reviewed pharmacy operations as part of health care and contributing to a patient safe care. (28)

Health care in Sri Lanka is delivered by both government and private sectors. Medicines are free at the point of delivery at the government sector. It is important to measure the price of medicines as the first stage in developing a medicine policy. The government of Sri Lanka has imposed control on pharmaceuticals from time to time. Sri Lanka is currently planning on a National Drug Policy, and medicine quality would be one of the areas of importance in this context. (17)

In Norway, it is considered as the medicinal products should be used correctly, both from a medical and economic viewpoint. The patients shall be guaranteed access to effective medicinal products, independently of their ability to pay. Medicinal products should have the lowest possible price. (14)

2. Objective

The purpose of this study is to describe the pharmacy retail system in Sri Lanka, from a pharmacy employee perspective, and compare to Norway.

The research questions were:

  1. How are retail pharmacy operations in Sri Lanka compared to Norway?
  2. What are the skills required to work in retail pharmacy operations in Norway compared to Sri Lanka from an employee’s perspective?
  3. What effect does these requirements and procedures have on retail pharmacy personal?
  4. What are the challenges in running a successful retail pharmacy operations in Sri Lanka compared to Norway?
  5. How can we overcome these challenges?
3. Methods

The research method in this project involved development of questionnaire for personnel working in pharmacies in Sri Lanka and Norway, a literature search and interviews with key persons.

3.1 Questionnaire development

The questions were chosen based on pharmacy faculty in Sri Lanka, Policy framework (8) and the author’s experience working at pharmacies in Norway.

The idea of the questions was also inspired by going through the article of Medicine prices availability and affordability in Sri Lanka (17) and by talking to a doctoral student (Dr.J.Jeyanirosan M.D) who has already done research work. The author was in contact with Professor. Tuley Desilva D.Sc. (Hon) Ph.D. (Manch), B.Pharm (London) President Pharmaceutical Society of Sri Lanka. (18).

The final questionnaire consisted of 11 open answer questions. The intention was to obtain written answers and then qualitatively analyse them. This is further discussed in the method discussion section.

The survey was conducted in the Batticaloa district of Sri Lanka and in Aurskog, Norway.

3.2 Data collection

In order to collect data in Sri Lanka/ Batticaloa, the author sent the questionnaire to a university student in Sri Lanka along with an authorization letter. The student printed out the letter and questionnaire. In order to collect data from the selected pharmacies, the student personally visited the pharmacies and talked to the employees at these pharmacies, handed out the questionnaire and collected answers at each pharmacy. The intention was to collect information from a pharmacist at each pharmacy. However at the Sri Lankan pharmacies no pharmacists were available. At these pharmacies a pharmacy employee filled out the questionnaire. The university student was able to collect responses, due to the support provided by the author, since the author was in contact with several of the respondents and the data collecting student during the process by mail, emails, telephone and Skype. On completion of data collection, the student scanned all the responses and sent it back to the author.

In Norway/Aurskog, all data was collected by the author, who visited 5 pharmacies. The selection was made by a convenient selection choosing nearby pharmacies and respondents who voluntarily agreed to participate. In this case the data collection was performed as an oral questionnaire, where the author had a discussion with the respondent, using the questionnaire as an interview guide. At all Norwegian pharmacies a personnel with an university degree in pharmacy was presentment and interviewed. All the data was treated anonymously.

The survey was conducted in the Batticaloa district of Sri Lanka and in Aurskog, Norway.

3.3 Literature search and interviews

Literature search was done with the search tool PubMed using the following terms; pharmacy system, pharmaceutical, policy, pharmacist, consume medicine. Searches were performed between February and March 2014. The search was done to find information about drug policy and in order to understand what this means.
In addition to the literature search, two interviews with key persons in Sri Lanka was conducted. The interviews were conducted and lasted from 35 min to 60 min by Skype and telephone. The purpose of interviews was to gather further information to understand how the pharmacist perform pharmacy operations and how it is regulated and operates in Sri Lanka and who is responsible for this and also to gather information in order to develop the questionnaire. The persons interviewed were professor Tuley Desilva (President Pharmaceutical Society of Sri Lanka) and a doctoral student.

3.4 Analysis
All results are obtained on the basis of responses provided by respondents, to questions asked in the survey. The responses were analysed by the author. Since the study population was too small, no statistical tests were performed. Neither an advanced qualitative analysis was performed. The results were summarized and presented as the respondents’ answers to each question. Literature research results and answers from the interviews were used along the questionnaire results to compare Sri Lankan and Norwegian pharmacy systems in the discussion section.

4. Results
In Sri Lanka of the 15 respondents, 12 were working in retail pharmacy stores and 3 in pharmacy section run by hospitals. In Norway all 5 interviewed were working in retail pharmacies.

4.1 Educational background & years of experience:
All respondents in Norway had either a bachelor or a master degree in pharmacy, whereas in Sri Lanka only 3 of the respondents had a pharmacy degree. Average years of experience of pharmacy personnel interviewed in Sri Lanka was 5 years, while it was 15+ years in Norway.

4.2 Duties in a pharmacy:
The common duties of the responders in Sri Lanka was dispensing drugs according to the doctor’s prescription and advice patient counselling to improve the compliance of medication. In Sri Lanka all these duties are performed by most of the staff working at a pharmacy and the same opinion was collected from the Norwegian pharmacists responding as well.

4.3 Type of medicine sold:
9 respondents in Sri Lanka claimed that mostly Western medicine is consumed, 4 claimed that eastern medicines are the most common, while 1 respondent mentioned herbal and one Homeopathic drugs as most common. However, all respondents mentioned that a mix of the different therapy traditions is sold at the pharmacy.

In Norway, all respondents claimed that almost all of the medicines sold are western medicine but in some case, alternative medicines could be used, but that is a minimal percentage when compared to the use of western medicine in Norway. The respondents mentioned further that if customers want to buy natural medicines (herbal & homeopathy) they can buy it through a pharmacy. According to the respondents, the store needs to register its self on www.arnika.no and order natural medicines on behalf of the customer if asked for. Most of the herbal medicines also available in the Norwegian pharmacy market as well.

4.4 Locations of pharmacies:
Twelve of the responding pharmacies in Sri Lanka were located in private houses, two in hospitals and one in a shopping center.
However, in Norway all responding pharmacies were pharmacies in shopping centers and private houses.

**4.5 Basic conditions for selecting medicines to a patient/customer:**
Of the pharmacists in Sri Lanka, 10 claimed that they offer medicines on the basis of Necessity/ Prescription while 5 claimed that they did it based on economic reasons. In Norway, the norm is to offer medicines mostly based on prescription according to the respondents.

**4.6 Action taken in an emergency situation:**
In Sri Lanka, most respondents informed that prescription is necessary in order to provide a prescription medicine. All respondents from Norway mentioned that if there were an emergency, they would provide medicines to the patient based on their medical history even if they did not have a prescription.

**4.7 The information available about patients when dispensing medicine:**
In Sri Lanka the respondents answered that, hospital pharmacies have both drug lists and the lab results of tests conducted on the patients. However, in a retail pharmacy, pharmacists do not have any information about patients’ medical history and they dispense drugs based on prescriptions.

In Norway, thru electronic databases, pharmacists get information on drug lists and diagnosis for each patient.

**4.8 Quality and distribution of medicines:**
Both in Sri Lanka and Norway, the respondents answered that,, pharmacists provide original medicines for sales but they also sell generic drugs, which are sold for better prices to the patients. They also provide the patient with options to choose original or generic drugs according to their own wish.

**4.9 Ideas to improve pharmacy retail:**
In Sri Lanka, the technical infrastructure needs to be improved such as developing technologies, which support e-prescription (database), and ensuring better quality control on running of retail pharmacies according to the answers.

In Norway, the pharmacists asked, feel that they should spend more time to provide correct medicines and make patient aware of its use rather than focusing on sales stuffs. In addition, if pharmacies are able to provide services such as checking blood pressure, blood sugar test, cholesterol test etc. it will be much more helpful for patients.

**4.10 Regulations of pharmacy market and pharmacy law in work:**
Mostly uncertain answers were provided by the Sri Lankan respondents. But some answered that it is based on the Cosmetic device act on 1987 and manual on management of drugs. In Norway there are 4 chain companies in the pharmaceutical market each pharmacy chain has its own policy within the framework of the national rules and regulations.
5. Discussion

There are major differences between Sri Lanka and Norwegian systems. The responses were in line with the expected responses however some responses were surprising.

5.1 Method discussion

In the early stage of this project study, the author was planning to interview pharmacists who work in pharmacies in Sri Lanka and Norway. Practically it didn’t work out in Sri Lanka due to the fact that most of the pharmaceutical employees are not pharmacists but only the owners (community pharmacists), who are hard to reach. In Sri Lanka, pharmacists are not even present at the pharmacies in most cases. The questionnaire was developed with a pharmacist as the responder. According to the author, this research would have been provided with more data, if the author could deal with certain direct doubts raised which was difficult because the author was in Norway and the main research objects in Sri Lanka. To gap this distance the author organized a university 2nd year business management student to collect the information in Sri Lanka, and also directed the student over the phone, Skype and email. The author spoke to some pharmacists and pharmacy employees directly. It was been little harder to control and regulate the mediator than expected but this was still a way to collect data that worked out ok.

The author prepared an open questionnaire, aiming to acquire a deep picture of the systems, instead of a multiple choice questionnaire. But most of the answers were shorter than expected. This raise issues about the method chosen, maybe another design of the questionnaire or more explicit questions could have been used instead of the wider questions used in the questionnaire. An interview study may also have been more appropriate. If the author has been personally in Sri Lanka, performing interviews, it would have helped to collect more detailed data and information to complete this project better. This was not possible due to the economic and time frames of this project. However, the questionnaire prepared was helping a lot to collect data to give a better idea of the system in Sri Lanka. Author means this research as a pilot, being an inspirational idea for whoever wanted to study the same concept in comparing pharmaceutical systems between countries. The lessons learned from collecting data over a distance could be useful for future research.

The lack of data collected affected the author’s analysis and choice of method for analyzing the data. The planned qualitative analysis of the open-ended questionnaire survey failed. The results was instead used to provide an overview based on the 15 answers, keeping in mind that this is a small sample and might not be representative for the whole Sri Lankan pharmacy systems. The questions have, however, provided valuable information and leads towards an appropriate conclusion in the study of retail pharmacy systems in Sri Lanka /Batticaloa and Norway/ Aurskog. Even though data collection was done in a particular area, the results may be generalizable for Sri Lanka when it is a small country and it’s almost the same system is applied all-over the island.

The collected information helped a lot to compare both countries to provide a better knowledge of the pharmacy system in Sri Lanka even though further research is necessary to generalize and deepened the results and conclusions drawn from this pilot sample size of 15 pharmacies in Sri Lanka and 5 pharmacies in Norway. The analysis is also further complemented with interviews with key persons and a literature search. This multi-source method is suggested in policy research. (27)
5.1 Pharmacy work force – education level
The results from the survey indicate that there are very few qualified pharmacists in Sri Lankan health system. At the responding pharmacies, unqualified personnel who work at a registered pharmacy store in Sri Lanka are dispensing drugs to patients without direct supervision of a pharmacist. This is also the common standard in Sri Lanka (20). Pharmacy staff in Norway has a higher educational qualification working at pharmacies compared to Sri Lanka since in order to dispensing the appropriate drugs to the patients in Norway, a pharmacy degree is mandatory (11). However, in Norway pharmacy technicians also dispense medicines under supervision of a pharmacist (19).

In different to Norway, in Sri Lanka there are four major types of pharmacists.
• Community pharmacists
• Hospital pharmacists/government pharmacist
• Pharmacists for Special Forces
• University B.Pharm degree holders
Of these different types of pharmacists the two first mentioned have the right to supervise and control pharmacies. Pharmacists in Norway need to have at least a Bachelor degree to dispense prescription but technicians can do all other duties except dispense. In Sri Lanka pharmacists do a 1 year short programme to become one, (7) but the staffs working at these retail stores are not qualified by a university degree. Lack of low qualified staff is a huge challenge for successful retail pharmacy operations in Sri Lanka. (20) To overcome this pharmacy education should be improved.

5.2 Western vs other medicine
All types of medicines are sold but the majority of medicines sold at the respondent pharmacies in Sri Lanka/Batticoloa are Western medicines, 9 respondents claimed that mostly Western medicine is consumed. Sri Lanka medical treatments for patients was totally depending on eastern medicine before the colonizers came to Sri Lanka (in the 17th century) (9). The patients were treated at the Ayurveda head’s house. The use of traditional medicine is rather high, due to Sri Lankans are the pioneers and forefathers of Ayurveda and traditional medicine.

In Norway, mostly western medicines are sold and some natural remedies as well, it is sold in small percentage by its own register website. In addition, patients in the store needs to register its self on www.arnika.no and order natural medicines on behalf of the customer it will be directed. (21) If the customer asked for herbal medicine, as the herbal medicines also are available in the Norwegian pharmacy market.

5.3 Pharmacy location and cooperation with health care
Most of the private pharmacies are located separately and government pharmacies are located around hospitals in Sri Lanka and Norway (6, 11). Customer care, reasonable prices, explaining the effects of the medicines and commercial communication with the customers are important factors for a community pharmacy.

5.4. Prescriptions and knowledge about patient
In Sri Lanka, the responses from the questionnaires state that there is no electronic system (e-prescription and database) to track medicines prescriptions to and obtained by patients. Therefore, patients can buy high dosage medicines if they have prescription from various pharmacy stores in the city without any problem. In Norway, since the database are able to track all these details and have effective control. (23) In Sri Lanka the high-tech systems are not available because the financial needs and due to the war impact the distribution of technology is not balanced inside the country itself. (22)
5.5. Economics & Distribution Standards and selection of drugs for the individual patient
According to the respondents, pharmacies can change requested drug with an equivalent drug (usually a generic or parallel import) in both Sri Lanka and Norway.

Norway pharmacies have strict ethical rules. Sales of goods and services should be based on customer requirements, on the basis of the pharmaceutical professional evaluation. (11) In Sri Lanka it depends on the customers’ needs and severity (26). This is in line with the answers given by the respondents.

According to the respondents, pharmacy staff in Sri Lanka only provide medicines as per prescription, however the others that this not true in all cases and they do provide medicines to patients who do not have prescription based on their own judgement and necessity of the patient. This is founded in own experiences by the author while she was in Sri Lanka. The reason they are stating differently in the survey is due to their fear of being caught by local authorities based on their survey replies. The employees at these stores were a little sceptical to provide information because of the fear that it may cause some problems such as legal action against them.

In Norway, in an emergency where a customer needs for essential medicines they can supply the medicine, on the basis of past history with information on proper preparation and dosage.

In both countries, the customer can choose the drug prescribed to them within the price range prices that they can afford. The pharmacists offer their customers the cheapest option, whether it is original composition, copy or parallel imported. The quality is good anyway.

Parallel imported drugs are equivalent to the original drug in Norway and manufactured by the same pharmaceutical company, but imported from a country where the drug is sold cheaper than in Norway. (24) Generics drugs come on the market when the manufacturer of the original drug no longer has the exclusive (have lost patent protection). They contain the same active ingredient as the original drug, but has a different brand and different look of both pharmaceutical and packaging. Often have lower price than the original drug because of competition in the market. It can also cause the original drug get lower price. This type of generic drugs must be approved by the Norwegian Medicines Agency in the same way as the original drug. (24)

In Sri Lanka, pharmaceutical quality of products is carefully considered through pharmaceutical data evaluation and information on factors determining quality (starting materials/ formulation, manufacturing process, intermediate & finished product controls, packaging, stability, bioequivalence data). (8)

If it is approved, the Certificate of Registration will be issued by the Director Medical Technology. Rejections will be informed giving reasons for the decision. Every importer should employ a registered pharmacist and should possess a whole sale license from the Cosmetics Devices and Drugs Authority in order to carry out the business. (8)

In Norway, Wholesalers buy directly from the manufacturing companies and supply the pharmacies. They cover almost the entire market. Hence, there is little risk that the goods of poor quality or counterfeit drugs coming to the customer through the Norwegian pharmacies. The pharmacies in Norway trust entirely on that those wholesalers sell goods of good quality. Parallel imports are allowed, and distributed thru the wholesalers, and quality requirements are the same as for original remedies. Currently, pharmacies sell preferably generics, then the original drugs, and some parallel imports. (24) Norway is a highly regulated market with high prices, therefore
the use of generics brings a very high impact on customers and the society’s costs for medical treatment.

In Sri Lanka, generic medicines have effective pricing and affordable availability and there is a huge price difference between generic and original drugs, including the quality as a major different. Generic and branded generics pricing would indeed facilitate the affordability and equity of medicine to the majority of the patients. (17)

6. Conclusion

Designing a study for collecting data in a country were the author not is present is a challenge. Designing questionnaires and to train a person to collect data in the other country is important to get good data. The sample size in this study is very small regarding the quantitative data achieved. Some results are possible to reach about the Sri Lankan pharmacy system compared to the Norwegian.

There are major differences between the Sri Lankan and the Norwegian pharmaceutical systems.

Retail pharmacy operations in Norway are more controlled and managed in comparison with Sri Lanka. The regulations are more strictly followed by pharmacists in Norway compared to Sri Lankan pharmacists. In Sri Lanka, there are four major types of pharmacy workers and in Norway there are three major types of pharmacy workers.

Community pharmacy employees in Sri Lanka are equal to pharmacy technicians in Norway. In Sri Lanka, community pharmacists can start their own pharmacy; most private sector pharmacists found in Sri Lanka are generally owned by private institutions around the country. Pharmacists are responsible for the operations, but seldom present, at the pharmacy. In Norway an employee with a Bachelor or master degree in Pharmacy have to be present and responsible for each sale of prescription drugs and always at least one present at the pharmacy.

When considering medicine in Sri Lanka, both western and traditional medicines are equally practiced. In Norway, the western medicine is almost entirely used. The main aspect to practice traditional medicine in Sri Lanka due to it is been in practice for generations. Sri Lankan ancestors are the key founders of traditional medicine. Mostly traditional medicine practiced in the village parts of Sri Lanka. The traditional medicine includes homeopathy, Ayurveda and herbal methods which are defined as eastern medicine. It would have been more vivid if the author obtained more data with the traditional methods in pharmacies used in Sri Lanka.

The pharmacies are in the same locations in both countries.

In Sri Lanka the prescriptions written by doctors are still in the old school method of writing in papers, where in Norway, it is almost only electronic based prescriptions in use.

7. Acknowledgements

I would like to thank Dr. Andy Wallman for being a great adviser to my thesis. Your input and comments about my study were all helpful in making it a significant thesis. I would also thank my husband, parents, family and friends, who all have supported me. Moreover, the pharmacist in Sri Lanka and Norway, for participating in my interviews.
8. References

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9. Appendix Cover Letter and Questionnaire

Sir/Madam,

Will you be kind enough to take part in an interview about the pharmacy system in Sri Lanka?

This is a part of my pharmacy degree thesis in which I compare pharmacy operations in Norway and Sri Lanka, where it emphasis the status, regulations and policies between these two countries.

The thesis is done in conjunction with my pharmacy education at Umeå University and supervised by Dr. Andy Wallman

Participation means that you either answer the attached questions written by hand or by email or you participate in an interview conducted by telephone or via Skype.

Participation is voluntary and responses will remain confidential and will not be identified in the thesis.

If there are any questions, please feel free to contact us.

Sincerely;

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Questionnaire

- **Questions about you.**
  - Your educational background?
  - Years as a pharmacy practitioner
  - What duties do you have in your pharmacy?

- **Questions about your pharmacy and your customers:**
  - What do you sell in the pharmacy and which type of medicine is most consumed? (eastern, western, homeopathy & herbal medicine)
  - Your pharmacy’s location (in a shopping centre, hospital, supermarket, private house etc.)?
  - What do you know about patients when you dispensing medicine (drug list, journals, lab results etc.)?
  - How is the pharmacy market regulated, and what is your idea about the pharmaceutical law in work & application?
  - On what basic conditions do you select medicines for the customer/patient? (economically, necessity or quick relief)
  - What idea do you have about the quality and distribution of the medicines you sell? (Original, black-market, copies, traceability etc.)
  - What idea do you have to improve the pharmaceutical business system?
  - What is your action in an emergency condition to a patient (will you process with or without prescription for drugs)?