ARCHITECTURE IMPACT IN IMPROVING THE QUALITY OF SERVICES IN RETAIL PHARMACIES: CASE STUDY PRISHTINA, KOSOVO

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ABSTRACT

Aim of this study is to analyse the performance of the pharmacist and the wellbeing of the patients on the actual pharmacy layout (in retail pharmacies in Pristina, Kosovo) and recognize the modifications that need to be done in architectural design of pharmacies, in improving the quality of care, communication, decrease of the dispensing errors and providing more private spaces to patients. Retail pharmacies are more complex environment as in the same time besides being health care institution are also a retail business environment, therefore there is a need for a more comprehensive analysis regarding the workflow. The mixed methodology has been used, by employing questionaries' as quantitative method and empirical study of direct observation and interviews as qualitative means. The layout proposals are not envisioned to be implemented as a retail models, but, as ideas to provoke and encourage discussion. Kosovo retail pharmacies are a fast growing market and as such functioning self-sufficiently, which means that they can easily adapt to the local marketplace circumstances and cultural context. It is important for the retail pharmacies to test out the recommendations and challenge its environment in aim of equally maximize productivity and workflow, by keeping incorrectness to a minimum.

Keywords: *Retail pharmacy, Pharmacy layout, Architecture design, Customer perception, Design features*

1. INTRODUCTION

Pharmaceutical sector in Kosovo is divided in public and private one. In the public sector central pharmacies operate in hospitals of 7 major cities – one tertiary care hospital and six secondary care hospitals, there also in some primary health care settings but it is mainly for internal use. On the other part, the private sector is developed in different way with retail pharmacies spread all over Kosovo which count 660 pharmacies (AKPPM 2017). The retail pharmacies are very densely spread around Kosovo with one pharmacy in around 2900 inhabitants, with favourable conditions to start operating but endorsing difficulties when trying to remain on the market (Jakupi, 2014). Existing legislation for pharmacies is Law 04/L-190 for pharmaceutical products and devices from which derives the sublegal act, administrative instruction for pharmacies AI No: 11/2015 which details the requirements that are needed in order to obtain the license for a pharmacy from the competent authority. These requirements are based mainly in Good Pharmacy Practice and include criteria's from those administrative as premises, areas, layout, to those of professional work. These criteria, as such, can be fulfilled with no much difficulty. There are no set restrictions regarding open/closed shelves; or private consulting area for patients; OTC dispensing outside of the main area for prescription medicines, but those criteria remain on the preferences of the pharmacist/owner of the pharmacy, or the architect which makes the design of the pharmacy. Most of the pharmacies have been designed by the pharmacist itself whilst the role of the architects on pharmacy designs has been merely on delivering the aesthetic side. The study reveals that most of Kosovo pharmacist haven't considered taking into the account their customer perception and experience from the overall store image, therefore its relevance is under evaluated. Whilst in the developed countries the store image is being considered among the three main components of the customer satisfaction and experience, as such, its proper solution affects the customer loyalty and store choice; the store layout, pricing, and general atmosphere of the pharmacy have been shown to be significant to the retail marketing, of store positioning, profitability, customer's satisfaction and its image (Emmett et al, 2006, 68).

Due to retail pharmacy unique healthcare environment, that combines the delivery of health services with the aspect of a retail environment and the need to maintain a viable business (Croft et al, 2017), it is important to take into consideration the architectural challenges that come with it, in sense of balancing function, comfort/safety and aesthetics.

Starting from the importance of the patient-pharmacist relationship, the research is based on the inputs of both actors with the conjoint performing ground (meeting point) of the retail pharmacy store. *Pharmacists' true societal power, including professional development, lies in the relationship between the service and the users, therefore the definition of professional value needs to be considered not just as professional education and skills, but also in terms of how consumers perceive it(Cavaco et al, 2005, 54)*.

This research aims to identify aspects such as perceptions and performance related to the usage of retail pharmacy, where both patient and pharmacist are confirmed as users of the space, but from different stances of concepts, contributing on the physical arrangement of the store; by ensuring the well performance of the pharmacist and the wellbeing of patient.

2. WHY CHANGES?

According to Embrey, M. (2012) good dispensing practices ensure that an effective form of the correct medicine is delivered to the right patient in the correct dosage and quantity, with clear instructions, and in package that maintains the potency of the medicine. Dispensing includes all the activities that occur between the time when the prescription is presented and the medicine or other prescribed items are issued to the patient. A safe, clean and organized working environment provides a basis for good practice.

As Seston L &Schafheutle E (2010) suggests that pharmacists' performance could be impacted by several factors, among them is and the workplace conditions, as an important issue, for its staff can remain vulnerable to the threats posed by poor layout and equipment design.

There are many authors that made studies regarding factors that can influence changes in pharmacies toward improvement of the quality of services provided by the pharmacists. In order to make the needed improvement, primarily should be identified the factors that lead to errors or mistakes, and according to Taylor E (2010) there are some factors identified that were called as "latent conditions" which in pharmacies, can include noise, lighting, interruptions and distractions, volume of prescriptions filled per hour, while latent errors can often be reduced through environmental design interventions.

According to Cohen R. and Smetzer J. (2009) Medication errors have been linked to the physical design of medication safety zones and to error-prone methods used, within these zones to carry out medication use activities; while in the same article is making the analysis of the new chapter in the United States Pharmacopeia (USP) which recently published its proposed new General Chapter <1066>, Physical Environments That Promote Safe Medication Use. The chapter describes the optimal physical environment needed for promotion of accurate medication use and the ways that those involved in the process can establish a safer workplace. Justified by evidence and expert opinion, standards are provided in 5 key areas—illumination, interruptions and distractions, sound and noise, physical design and organization, and medication safety zones.

According to Heise J (2010) Shifting from a product to a patient-focused Profession Shrinking margins from traditional avenues of profit underline the need to shift from a simple medicinal supply role to a health care advisory and consultancy role. There is certainly a need to get back to the grass roots of pharmacy and focus on generating income through service provision.

Hattingh L (2015) as community pharmacy practice is increasingly involved in advanced medication management and disease state management services with unique privacy requirements, pharmacy layouts and systems to address privacy challenges must evolve. This requires a proactive approach in pharmacy design and the development of guidelines to rectify identified gaps in compliance.

Aguilar Ch (2012) Redesigning the workflow may not only positively impact the prescription dispensing process but may allow the pharmacist: more time to counsel patients, to be more involved in receiving, dispensing and checking prescriptions, whilst technicians can focus more on data entry and prescription filling. The above changes resulted in more

efficient use of both the pharmacists and technician's time, reducing in this way the medication errors.

On most of the arguments the focus is set to the pharmacist performance and its interests, while in this article we bring out the consumer importance. The retail pharmacy will ensure better performance by understanding the market trends as well as the consumer needs, from the consumer perspective within the context of the changes in society (Morgall, Almarsdóttir, 1999, 198). Pharmacy management was always concerned about productivity, and the responsibility was set at the previous pharmacy design with its internal disruptions (Coblio, 2011) , while today pharmacies needs to be aware of the rise of consumerism and what is referred to as the "new" or "aggressive" consumer and its impact on productivity (Morgall, Almarsdóttir, 1999, 198). A decent patient–pharmacist relationship will assist on finding an adequate organization of the inventory.

The physical layout of the pharmacy impacts on both ways; with influence on pharmacists performance as stated by Cohen L. and Smetzer J. (2006) that dispensing errors occur more frequently when medications are stored on cluttered shelves, with the environment having poor lighting conditions, distractions and interruptions, high noise levels, and unsafe medication safety zones and environmental factors; while also playing a significant role in the development of the customers' perceptions which can have a positive (or negative) impact on its sales potential (Emmett et al, 2006, 67).

3. METHODS

Methodology for this study is of mixed methods, where the quantitative and qualitative tools have been employed. The term mixed methods research is to refer to all procedures collecting and analysing both quantitative and qualitative data in the context of a single study. (Driscoll et al, 2007, 19). The research has been realized also with the engagement of the students from the Department of Architecture, Faculty of Civil Engineering and Architecture. The visits have been made in 17 retail pharmacies, one for each neighbourhood of the city (Fig. 1).

Figure 1. The distribution of the survey – Pishtina map (Source: the author plot)

The idea was to collect the perceptions of both users, pharmacists and customers, therefore there were 241 people interviewed, 37 of them were professionals/owners working at the pharmacy and 204 were customers. The quantitative research comprised survey with open ended questions directed to the customers, whilst the qualitative research of the observation on the ground and interviews, helped on understanding how the pharmacist interacts with the physical environment while completing the tasks. The cases have been differentiated by the level of prioritization of one form of data over the other in the context of the research problem. The combination of data forms in the research process (such as during the collection or analysis phases) as well as the timing of data collection, took place concurrently. (Driscoll et al, 2007, 19.)

The students had also to scan the physical environment by measuring the store and drawing the layout, this in aim of understanding the actual disposition of the inventory and comparing it with the user's perceptions (Fig.2). The collected data were used also for the realization of another research within the Department of Architecture related to the architectural representation, therefore the students had to visit the chosen pharmacy several times, in aim of observing its workflow during different times of the day.

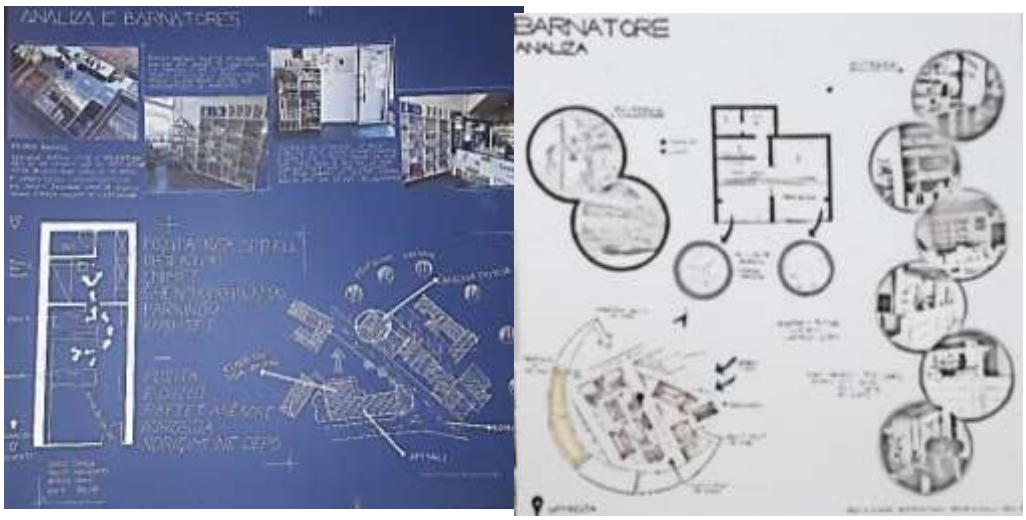

Figure 2. The student's sketch analyses of the actual retail pharmacy layout

The questions were addressed toward the physical and some professional aspects of retail pharmacies that influence the perceptions of customers. Beside the interior design, the analyses were done also on the exterior, parking, dress code, satisfaction with the service and professionalism, for the reason that all of these aspects are interrelated and cannot be researched as stand alone.

4. RESULTS AND DISCUSSIONS

The analyzed data reconfirmed some of the stands already known in more developed countries, whilst there were some findings specific to the local context that should be taken into consideration. *It must be noted that the participant's views and opinions*

displayed general and some contradictory ideas, the superficial understanding is in line with previous results from satisfaction studies, confirming a low expectation level deriving from the public's poor knowledge (Cavaco et al, 2005, 54).

Results indicate that surveyed population is mainly new age population, from both, clients and personnel, being that the majority of the age groups was 20-29 and 30-39 years old (Fig.3). While for the staff working in the pharmacy, dominant are females, composing 73% of the surveyed personnel (Fig.4).

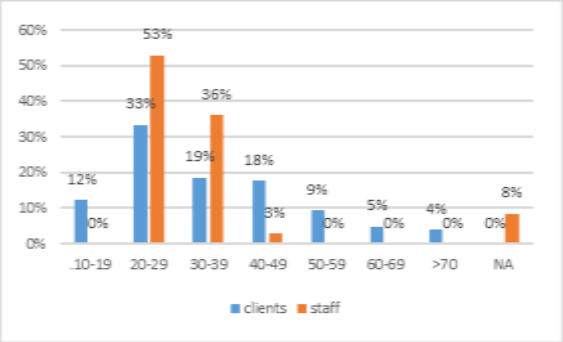

Figure 3. Age structure of the interviewed person (Derivative from the survey)

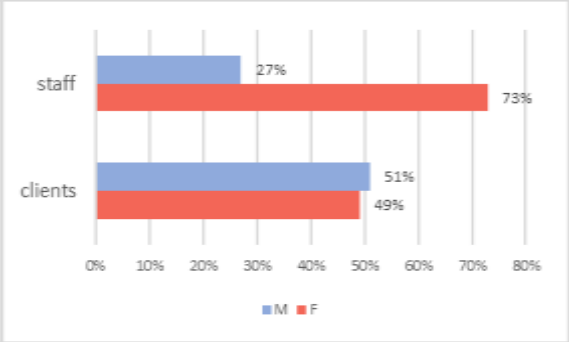

Figure 4. Gender structure of the interviewed persons (Derivative from the survey)

Another factor in the context of the drug use is also the ages of people that are mostly to consume medicines (Fig.5), indicating the age 50+, when the usage of medicaments increases.

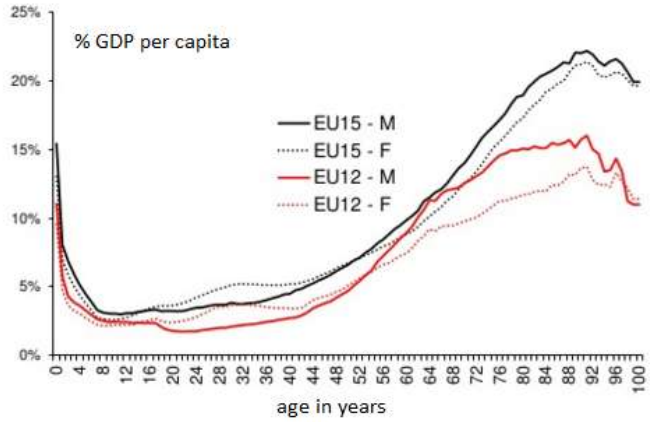

Figure 5. Use of medicines according to the age – (source Schvierz 2015)

As study shows, the pharmacy clients in Kosovo are mostly of new ages (this is something also that is in line with the age of population, as the mean age of population is 29 and only 10% of population is above 60 – Statistical Agency of Kosovo 2017), this means that also the built environment (besides the obligatory requirements), must also be in line with the expectations of this age group, meaning that the products and services must be shaped more in the context of the clients requirements, as explained above, the pharmacy is simultaneously the health care institution and a business and as a business it aims on maximizing profit.

The retail pharmacy with its physical compound regarded to its good presentation, is to be seen as accumulation of different aspects/areas which need to be treated. These aspects have been identified during the literature review and with the same concept of the segmentation, the research problem has been developed in order to decrease dispensing errors, create more comprehensive and communicable environment where both clients and staff will feel more comfortable.

The research problem was segmented into its constituent parts, so that each stage can be treated individually and the recommendation design can be applied to each one for the improvement of the process.Therefore it has been considered the segmentation into: *exterior design; interior; service and professionalism;* and *other assorted minor issue.* It needs to be emphasized that these aspects/segments are directly or indirectly linked to the physical arrangement and are impacting the overall perception of the architecture of the retail pharmacy. Some of the nonphysical aspects have been included within the survey for the sake of comparison, as to understand where does the physical layout stands within the complexity of factors that determine the good performance.

4.1. Exterior - the entrance/ the signage / visibility / the parking:

The aim was to understand if the prospective customer can see the signage and its entrance. Moreover if the overall exterior design communicates its right meaning of pharmacy and health service. During the site visit, it was noted that the green cross indicating pharmacy, as requested by authorities in the administrative instruction 11/2015 for pharmacies, is a signage that all the retail pharmacies had it and at the same time used as a commercial board, however at some cases it was not visible from all the significant observation points. The most evident problem was the overall exterior of the retail pharmacies. They were usually located on the most livable areas, on the ground floor of the building, altogether with other stores, therefore the competing images of other retailers nearby, created a chaotic look; addition to this is the front store of the pharmacy, when the posted up posters of the pharmacy marketing merge into that same messy look.

The costumer's survey revealed that one of the main reasons for visiting the particular retail pharmacy, was the location itself[1](Fig.7). Those locations were usually on the most frequented parts of the city, alongside the main road, and accessible to the pedestrians as well as the drivers with cars. Therefore, when the customers were asked about the parking places, 50 % of them had objection on lack of parking spaces (Fig. 6). The observation on the ground reconfirmed this complaint by witnessing cars parking on the streets or sidewalks while having a quick stop at the retail pharmacy.

[1]Note that in the chart the bars labeled with '*care and service'* and the other one with '*staff*', should be taken as one response due to their relation, therefore the '*location'* bar will be among 4 most indicated aspects for choosing a retail pharmacy.

Figure 6. Parking space (Derivative from the survey)

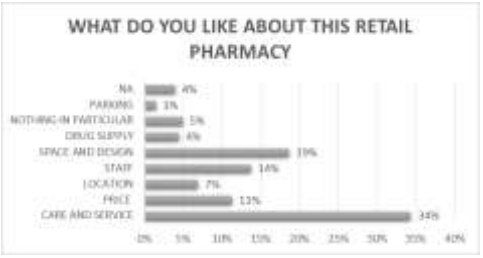

Figure 7. Indicator for choosing the retail pharmacy (Derivative from the survey)

4.2. Interior design: retail area / prescription area / back area / the overall layout:

*Retail area:*The interior design is critical for the overall atmosphere it creates, to the pharmacist and the customer, by making them feel comfortable, confident, familiar and easy to navigate. *It has been recognized that store layouts are under the explicit control of the retailers and most of the retail pharmacies had a large portion of the store devoted to general or non-health care merchandise (other than over the counter medications)* (Emmett et al, 2006, 68).Being that this is the largest area of the store, it should be paid much attention to its organization. The organization of the shelves impacts the *flow scheme of the customers.* The flow scheme is something which professional designers and architects need to work, due to its complex nature. The interviewed customer and pharmacist did not reveal any competent answer therefore they are not included into this paper. The exposed products on the retail area must meet the market need, as well as trigger the impulsive buying, therefore open shelves are needed so that the items can be seen, as a request from the customers survey (Fig. 8). *For consumers, it is imperative that items are accessible to touch, test, and try-on, but unrestricted access creates a security weakness* (Carmel-Gilfilen, 2011).

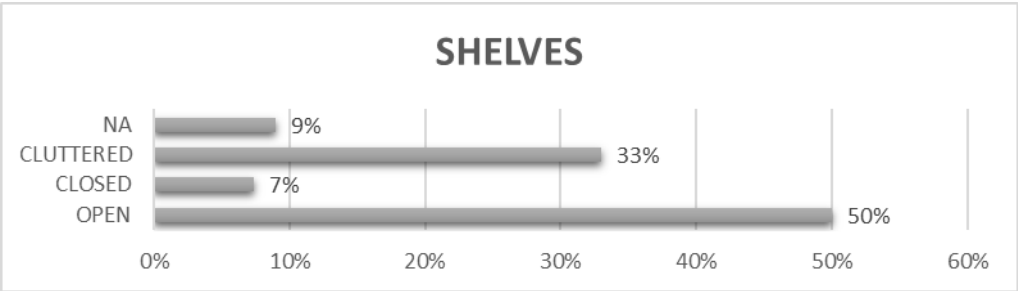

Figure 8. The costumer's preferences of the open/closed shelves, as the biggest inventory of the retail pharmacy. (Derivative from the survey)

The shelves together with the exposed products, as the most recognizable inventory of the interior, which is changing nowadays as more OTC products are more and more exposed in shelves as prescription medicines are moving behind (or in western countries also in automation), and these need to be orderly organized. The packages of the medicaments and other non-health products, with its shape and colour, are seen as part of the inventory, they

do impact the overall perception and if not properly organized, it will result as a disorganized and cluttered image. From 50% of the customers' answers, it was realized that shelters need to be open. Nowadays the customer wants to have a sight of what is being offered to her / him. The requested transparency is being realized through glass and open elements, which at the same time it creates light, spacious, professional and appealing environment. Important element is the arrangement of the prescription medicines, which is left to the pharmacist domain, and whose responsibility is to check constantly the system inventory reorder. Same as the National Community Pharmacy Association, provides advices, on reviewing inventory levels to adjust for seasonal dispensing trends, as well as ask the patientto assist in keeping expensive and rarely used drugs off the shelves. *Prescription area:*The prescription areafor many pharmacies is the core area of the pharmacy but its combination with the main retail areas would be the key to its success.Most of the dispensaries were open, and the patient could see how the pharmacist is handling their medicines safely, even though controlled medicines were kept in locked part.

One of the most discussed issue against retail pharmacy store by customers has been that there is no privacy in them. *Some customers are happy to talk openly to the pharmacist or the staff about their health issues; many others are reluctant to do so* (**Buisson, 2005).** The results from this study revealed that 35 % of the customers think that the pharmacies lack the consultation private area.

*Back area***:** The back areas, are important to the pharmacy, even though some were small, the bigger ones were integrated with the back office and not properly settled, and there were also pharmacies which prohibited this space to be seen.

The overall layout: When the participants were asked about the overall layout, their answers were indicating satisfaction with the actual layout. The safety and security issues of the retail pharmacy were staffs responsibility and during the visit it was found out that they focus on the security devices (cameras), product positioning, staff workstation, security warning posters. Worthy issue raised by the customers was the waiting area furnished with seating.

In customer mind association of pharmacy, is the cleanness, therefore their preferences were toward bright colours, as to give a modern and health service background. They welcomed the idea of having a signage that indicates particular facilities, since the majority of the visited pharmacies did not possess that kind of signage.

*Service and professionalism:*This aspect was mentioned several times during the survey, for the fact that is one of the main indicatives for the customer's decision for visiting the particular pharmacies (Fig.5). It was also important to understand the position of the physical design of the retail pharmacies, in relation to software of the pharmacy.

4.3. Other assorted issue- sound / light / dress code:

Sound: As discussed earlier, the locations of the retail pharmacies were usually on the most frequented parts of the city, alongside the main road, which produced a lot of noise, a specific objection which was raised during the survey. The reduction of noise was desirable by both parties.

*Light:*Another significant component of the overall perception of the quality of the space, is lightning. Most of the retail stores had adequate lighting, by reflecting a welcoming environment, but they lacked the interplay that the lightning could give, by capturing the attention of the customer on specific products are areas. *In general, subjective impressions (freshness, pleasantness and attractiveness) varied more, suggesting that lighting may have a greater influence on subjective impressions* (Alsharhan, 2013).

Dress code: Tertiary to the subject, bur envisioned as an integral element of the space and environment we prepared also questions and about the outfit/dress code of the pharmacist. Same as the drugs packages which are exposed into open shelves, and do impact the interior perception (due to its color and shape), same is with the outfit of the pharmacist, as a moving figure. The survey revealed that the staff looks should be clean and presentable with white lab coat which was seen as professional attribute.

*Other:*Some of customers request were the drinking water cans, more vegetation, more pamphlets with explanations, and blood pressure device.

*The overall image:*Most of the visited retail pharmacies spaces were clean and controlling the temperature, humidity and had all the required area, but still lack the **professional image** and are cluttered.

5. CONCLUSION

With the professional standards from the pharmacy regulator set in administrative instruction 11/2015 which details the requirements based mainly in Good Pharmacy Practice, pharmacists are relatively free to decide on the look and composition of their pharmacies.

The purpose of this study is to understand how spatial and design attributes can improve the work flow within the retail pharmacy environment. Being more knowledgeable on this topic will enable pharmacists, architects, practitioners, legal authorities to constructively participate in the raised discussions.

The analyses of the result revealed a numerous issues which need to be addressed (however, imprecision can arise when assessing patient's perceptions and attitudes). By following the logical investigative line of the study, it is suggested that:

The exterior, with its entrance and the front store, needs to be neatly organized, bold, with no much marketing posters; the image of the health service should be emphasized; enough space for fast parking; and ensuring visibility of the signage from different important stands.

The interior should have welcoming and health-based, design.

The suggestions are given in accordance to the three main areas: the retail, the prescription area and the bask space.

The retail area should allow for maximum products exposure, it covers the biggest portion of the space and its refitting should be done exclusively by the pharmacist and its customers. In this part of the store, the products should be wisely exposed (these are non-prescription products like cosmetics, OTC, kids' corner etc.) by targeting the young age costumers, as the biggest clientele according to the survey. This way they ensure sequential reorganization which meets best the marketing needs, in accordance to the seasonal and

cultural preferences. The customers want to see what they are being served therefore they prefer open shelves. The pharmacy should be able to offer the adequate retail purchasing for its neighbourhood. A much needed feature is the seating area integrated within the retail zone, as well as the toilet for the public use.

The prescription area is the core segment and always should be kept in mind that the retail pharmacy is primary a health service and its proper function should never be endangered by the aesthetics. The space behind the counter needs to be spacious enough for the staff to move easily and the medicaments need to be ordered in a strategically manner by the staff so they can reduce the time of unnecessary trajectories. The very important area, which is not fulfilled as the customer requested, is the consultation area, which needs to be realized as a private, soundproof area.

*Back space*are to contain the back office, storage and compounding laboratory, which even if not seen by the public, it's tidily organization can be beneficial for the wellbeing and good performance of the staff.

The overall design should create an aesthetically pleasing atmosphere by using the rightful colours which reflect the health service background, same as the proper lightning which is welcoming and creates subjective perception of clean and professional environment. The customers should be able to easy navigate, by putting proper name tags accordingly to the offered service/products. The specific health promotion area and informative stand should find its place in the store.

The above mentioned conclusion are not fundamental solutions to the good pharmacy practice, but each suggestion will help increase the pharmacy's capacity, improve efficiency and productivity, eventually improving the customer experience.

The future implication for the big number of retail pharmacies operating in Kosovo, would be to offer specialized services and differentiate themselves.

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