

RESEARCH ARTICLE

Factors Influencing the Choice of a Pharmacy in Romania: Comparation between Studies Performed in 2012 and 2020

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The main factors perceived by patients as important in selecting a pharmacy were studied for many years. Selected studies mentioned primarily factors such as location, pharmacist competence and attitude, pharmacy services and premiums, and prices. We compared the results from our study in June 2012 with the results of the most recent study conducted in April 2020 focusing on the main factors influencing the patient's option for a specific pharmacy. Respondents were asked an open question about what is the most important factor they consider when choosing a pharmacy and then answers were grouped into main categories. The urban population has been considered for both studies. The results tell us that the factors influencing the choice of a pharmacy remained unchanged over the time: i) prices, ii) availability of medicine, iii) professionalism of the pharmacist and iv) pharmacy proximity is the most mentioned by our respondents in both studies. However, the rank between these factors changed. Prices remain the top factor while the Availability of medicine (products) has been overcome by the Professionalism of the pharmacist (Attitude of the pharmacist) and Proximity. Using the logistic regression and Odds Ratio, we tried to identify socio-demographic segments significantly associated with these factors. Persons with low income are very likely to indicate Price as the most important factor in choosing a pharmacy in 2012 (OR = 2.088, $p=0.018$), while respondents aged 65 years and older are more likely not to indicate Price as the most important factor compared with other age groups, in both 2012 and 2020 studies (OR = 0.4, $p=0.009$, respective OR= 0.325, $p=0.010$). For this type of respondent, 65 years old and above, the attitude of the pharmacist is the most important factor influencing their choice of a pharmacy in 2020, while products availability has been the most frequent answer for this segment back in 2012. Results in Romania are similar to the ones collected from other countries as reported by other studies. However, particularities of the local market and regulations are influencing the ranking.

Keywords: patient, logistic regression, pharmacy, influencing, decision, medicine

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Introduction

Romania has a multiple-ownership system of pharmacies with retail chains consolidating the market during the period 2012-2020. There are about 8000 pharmacies in Romania for a population of 19 million inhabitants. Romania has 2900 inhabitants for one pharmacy which is among the lowest level in Europe and thus the competition among pharmacies to appeal to patients is fierce [1]. The number of pharmacies did not increase significantly during the studied period although a consolidation process occurred and pharmacy chains becoming dominant in the market [2].

The patronage factors perceived by patients as important in selecting a pharmacy were studied for many years. A study of 1992 revealed the following factors: the reputation of the pharmacist, professional services rendered by the pharmacy, price of the prescription, and convenient location. A study in Portugal provided us with an insight into how much patients value the technical and communication skills of pharmacies and how these influence loyalty [3, 4].

A valuable study of 2014 compared the factors influencing patients to choose a pharmacy or another in Poland

and United Kingdom [5]. The following factors were mentioned in Poland: location of the pharmacy, professional service of the pharmacist, prices, and promotions, while in the United Kingdom the influential factors in choosing a pharmacy were professional service of the pharmacist, location, advice received from pharmacist and availability to discuss with the pharmacist.

In Bulgaria, evaluation of the satisfaction of the patients towards a pharmacy is greatly influencing their loyalty and is related to gender, type, and location of the pharmacy, age, and educational degree [6].

In Washington DC (United States of America) a study of 2016 concluded that pharmacy choice is more influenced by convenience than by price in the absence of price education while providing price comparison to patients is likely to determine the opposite [7]. In Wisconsin (United States of America) older patients consider pharmacy location as the main factor to choose a pharmacy, followed by the interaction with their pharmacist and pharmacy's features [8].

In Slovakia, the main factors identified were pharmacy location, qualified and friendly personnel, good experience, and convenient opening hours [9,10].

On a very different outcome, a study in Pakistan revealed that prices and discounts are the main factors when

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choosing a pharmacy because patients seem unaware of pharmacy services [11]. Other factors mentioned were drug alternative and drug availability.

All the above studies mentioned factors such as location, pharmacist competence, attitude, services, premise and prices. We consider it interesting to evaluate how these factors are seen over some time and how the perception of the patient is influenced.

Material and methods

We compared the results of a study conducted in June 2012 with the results of the most recent study conducted in April 2020 about factors influencing the choice of a pharmacy. Respondents were asked to answer an open-ended question about what is the most important factor they consider when choosing a pharmacy and then answers were re-coded and grouped into main categories. The urban population has been considered for both studies. Data has been collected using Computer Assisted Telephone Interview (CATI). We analysed 822 answers of the 2012 study and 789 answers to the 2020 study.

A weight variable has been computed for each sample using iterative proportional fitting (raking) [12] based on respective years data provided by National Institute for Statistics [13] and Eurostat [14].

We considered the following socio-demographic factors as strata for our samples: gender, age group, urban population per macro-regions (NUTS1) and education level. Marital status and family income have been considered for further analysis.

Frequencies have been used to investigate the respondent’s opinion on considering a pharmacy over other, and contingency tables with measures of association were used to investigate the association between certain answers and socio-demographical characteristics. To further understand the influence of certain factors over the decision we employed Logistic regression, measuring Odds ratio as effect size, P values ≤0.05 being considered statistically significant.

The software used for statistics is Stata16.

Results

The factors influencing the choice of a pharmacy remained the same: i) prices, ii) availability of medicine, iii) professionalism of the pharmacist and iv) proximity. However, the frequency by which each of them is mentioned as critical for the decision has changed over the years. Prices are the top factor while the Availability of medicine has been overcome by Professionalism of the pharmacist (Attitude of the pharmacist) and Proximity. The top 4 factors total 78% respectively 81% of answers consolidate the profile of patients in Romania when discussing factors influencing the choice of a pharmacy (Figure 1).

Prices continue to appeal mostly to patients when choosing a pharmacy, 25.37% in 2020 vs 27.83% in 2012 considering price as a key factor. The second most important factor in 2020 become the Attitude of the pharmacist or the perceived professionalism of the pharmacist with 21.88% of answers vs 18.53% in 2012.

The important changes between 2012 and 2020 come from the next factors – Proximity is seen the most important factor by 21.51% of respondents (vs 11.87% in 2012) while Availability of products is seen as the most important factor only by 12.06% of respondents compared with 19.68% back in 2012.

Using the Logistic Regression, we tried to identify the association between the key factors and socio-demographic characteristics. Odds ratio above 1 means that segment indicates a positive association, while Odds ratio below 1 indicates a negative association, P≤0.05 (Table I).

Table I. Logistic Regression determinant for Prices.

Determinant for: PRICES	Year 2012		Year 2020	
	Odds ratio	P val	Odds ratio	P val
Gender				
Women	1.423	0.112	1.422	0.138
Age				
50 - 64 years	1.104	0.756	0.427	0.044
65 +	0.400	0.009	0.325	0.010
Income level				
low	2.088	0.018	0.865	0.686
Profession				
employed with university studies	0.353	0.006	0.647	0.396
retired	0.527	0.033	0.740	0.501

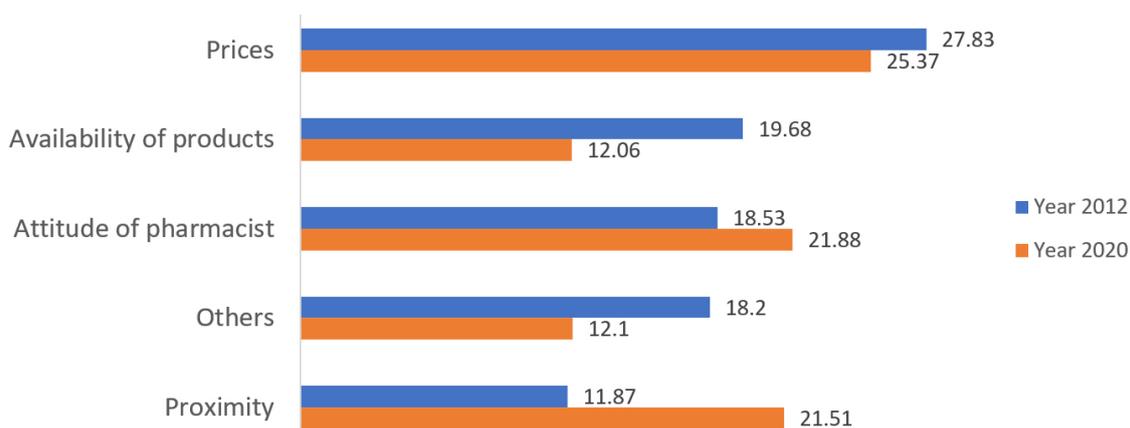


Fig. 1. Factors influencing the choice of a pharmacy (% of answers)

Persons with low income are very likely to consider Price as an important factor in choosing a pharmacy in 2012 (OR=2.1, P=0.018), while respondents with aged 65 years and above are more likely to disregard the Price as a factor both in 2012 and 2020 study (OR=0.4, P=0.009 and OR=0.35, P=0.01 respectively). This result appears somehow counter-intuitive and compelled us to further investigate both the 65+ segment and the retired persons concerning factors influencing them to choose a pharmacy.

For the variable Price, we recorded an expected value much higher in the case of the 65+ category, confirming the previous findings both in 2012 as well as in 2020 (Table II).

The expected value for answer Price as for retired persons followed the same path as for persons with age above 65 years. Expected values were much higher than the actual values, while for the rest of the age segments are lower than expected (Table III).

We extracted the answers only for the category above 65 years old and the order of factors influencing their decision regarding the choice of a pharmacy is different than the general sample. People falling within this age category appears to be interested currently (2020) more likely in the Attitude of the pharmacist and less likely into the Availability of products, as it was revealed in the 2012 study.

Top 4 factors cumulate 81.85% (2012) respectively 85.28% (2020) of all answers. This confirms also the lower interest in Prices than the findings for the general sample of the population (Figure 2).

Attitude of the pharmacist is becoming the second most important factor when respondents decide about how to choose a pharmacy and are related to the perception of the patients regarding the professionalism of the staff. Womer (2020), patients above 65 years old (2012, 2020), and widowers/divorced persons are very likely to fall into this category of answers. At the same time, persons with medium and high incomes are likely not to consider the attitude of the pharmacist as the most important factor in choosing a pharmacy in 2020 (Table IV).

The proximity factor is important in other countries as well as in Romania and particularly we saw significance for higher educated persons likely to indicate this (high

Table II. Which matters? Price, Actual value Vs. Expected value, by age group

	Year 2012			Year 2020		
	Price important			Price important		
Age	0	1	Total	0	1	Total
18 - 29 years	56	20	76	33	13	46
Exp	58	18	76	35.1	10.9	46
30 - 49 years	118	50	168	199	76	275
Exp	128.3	39.7	168	209.9	65.1	275
50 - 64 years	201	82	283	182	53	235
Exp	216.1	66.9	283	179.4	55.6	235
65 +	235	37	272	154	34	188
Exp	207.7	64.3	272	143.5	44.5	188
Pearson chi2(3) = 23.4218 Pr = 0.000			Pearson chi2(3) = 6.3415 Pr = 0.096			

Table III. Expected value for answer Price for variable Profession

	Year 2012			Year 2020		
	Price important			Price important		
Retired	0	1	Total	0	1	Total
No	277	188	385	379	126	505
Exp	294	91	385	385.5	119.5	505
Yes	334	81	415	189	50	239
Exp	317	98	415	182.5	56.5	239
Pearson chi2(4) = 8.0610 Pr = 0.005			Pearson chi2(4) = 1.4588 Pr = 0.227			

Table IV. Logistic Regression for determinant Attitude of the pharmacist

Determinant for Attitude of the pharmacist	Year 2012		Year 2020	
	Odds ratio	P val	Odds ratio	P val
Gender				
Women	0.676	0.098	2.443	0.000
Age				
65 +	2.423	0.043	4.607	0.005
Income level				
medium	1.479	0.283	0.499	0.033
high	0.563	0.141	0.441	0.018
Marital status				
widow/divorced	0.758	0.545	4.113	0.002

school and university education for 2012) and less likely for people between 30-49 years (the year 2012) or women (2020) (Table V).

The Availability of medicine has been the second factor most frequently mentioned in 2012 and only fourth in 2020. However, socio-demography doesn't differentiate between respondents.

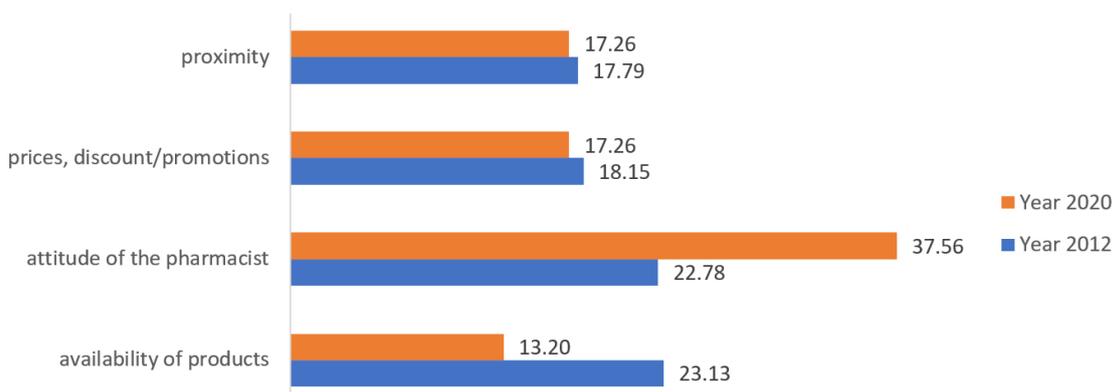


Fig. 2. Factors influencing the choice of a pharmacy (% of answers), age group 65+ years

Table V. Logistic Regression for determinant Proximity

Determinant for: PROXIMITY	Year 2012		Year 2020	
	Odds ratio	P val	Odds ratio	P val
Gender				
Women	1.079	0.777	0.529	0.007
Education				
university and higher	3.683	0.000	1.194	0.550
Marital status				
married/in partnership	0.404	0.007	0.519	0.069

Discussions

As in many other countries, in Romania pricing for OTC (Over-the-counter) medicine, food supplements or medical devices is not determined by the state and pharmacies can differentiate by this factor. Romania is also among countries in which pricing and reimbursement system allows pharmacies to use a different level of prices when dispensing out medicine to patients when we talk about prescription products. The Government is setting up the maximum price and quite often pharmacies give away discounts or various co-payment allowances to attract patients [15]. Therefore, pharmaceutical companies and pharmacies are using such schemes very often and patients, in the end, may perceive a significant difference in the final price they pay for a product between pharmacies. So, the price being the most important factor when patients are to choose a pharmacy is normal and justified by the concrete difference they feel immediately.

Although prices differ from pharmacy to pharmacy, retired persons and those older than 65 years seems to be rather interested by the second factor (Attitude of the pharmacist) than prices and this contradicts somehow the intuition set in the previous paragraph. But there is an explanation: These categories benefit by a generous reimbursement scheme [16] and even more persons with monthly revenues under 1139 lei receive reduced co-payment for most chronic disease medication (i.e. 90% reimbursement). Because the co-payment is low, all the above-described schemes to reduce prices set down the level of overall co-payment close to zero. Therefore, patients within these categories (65+ years old, retired) are paying very little at pharmacy despite being extremely important for the revenues of pharmacies. Most of the payment related to their medication is paid by Insurance House and sustained by manufacturers and pharmacies.

An important change between 2012 and 2020 in the perception of patients regarding factors influencing their choice of a pharmacy is related with the Availability of medicine. This has been the second most important factor in 2012 (with 19.68% of mentions) and falls to only 12.06% of respondents in 2020. No particular socio-demographic segment is significant statistically to drive this factor. This is surprising considering the worsening of the availability of medicine in this period. In 2015, Romania changed its pricing references for prescribed medicine to the lowest price among selected 12 countries within the European Union space. This measure created the grounds

for a lucrative parallel trade activity which is valued at about 350–450 million Euro per year [17]. Many important prescribed medicines have availability problems [18] and the Ministry of Health created an online platform on which patients and pharmacies can report problems of availability of products [19]. There is an impressive number of enquires filled on this platform covering 150-200 various prescribed products.

Despite that, patients do not feel as important as in 2012 the Availability of medicine as a factor to choose a pharmacy. The explanation may come as a result of the consolidation process within the pharmacy retail segment and the structure of the wholesale-retail market in Romania. Multiple ownership is allowed as well as vertical integration of wholesalers into pharmacy chains. Most important wholesalers are also parallel traders and they control the flow of medicine. 10 out of the 20 most important exporters of medicines from Romania are wholesalers without production facilities according to official data [20]. These groups can supply their retail chains while also being able to capture nice turnover from parallel trade. The number of pharmacies part of national chains is increased and the number of patients visiting such pharmacy to get their medication is also increased and they are able to find alternatives to source their medicines. The fact that some other pharmacies face great difficulties to source medicines is not affecting so much the perception of patients to be able to source their medication. However 12.06% of respondents consider this factor and this emphasize the difficulties many patients have in finding necessary medication.

The attitude of the pharmacist is the determinant for the perception of professionalism and quality of services provided by the pharmacy. In the absence of a differentiator by price, respondents of 65+ years old or retired are likely to be interested in this factor first and our Logistic Regression data confirm such a hypothesis.

We also noticed an expected behaviour of respondents with medium and high income by not being interested in the Price and Attitude of the pharmacist as these categories can choose different determinants for their decision. The same applies to medium and high educated persons likely to be interested in Proximity as these categories are busy and time is an essential factor in their decision.

Conclusions

The main factors influencing the choice of a pharmacy remained the same over eight years in Romania: Prices, Attitude of the pharmacist, Availability of medicine, and Proximity. However, the frequency by which each of the factors is mentioned has changed over time. In Romania, price is the most important factor for patients to decide which pharmacy to visit, followed by the perceived professionalism of the pharmacist (Attitude of the pharmacist). This is explained as an effect of the consolidation process by which more pharmacies are part of national chains, the patients have higher standards and are looking for a more

sophisticated level of the services. Despite significant drug shortage issues during the last years, Availability of medicine is not anymore the second-ranked factor although it stays among top factors. As in many countries, pharmacy remains a proximity business.

Results in Romania are similar to the ones collected from other countries. The main difference is the existence of the factor Availability of medicine which is particular to Romania and its logic is linked with the weak regulation of the issue and parallel trade.

Using the Logistic Regression, we noticed that socio-demographic attributes are important and drive the ranking and we just noticed that people above 65 years old and retired appreciate more the attitude of the pharmacist and our interpretation is related to the way the reimbursement and pricing systems works in Romania. Also, we noticed that people with medium and high income are not likely to be part of the groups interested in prices or attitude of the pharmacist.

Further studies might be conducted with more detailed analyses regarding the profile of the patient and the relations with providers of pharmaceutical services.

Authors' contribution

CMC and PCO were contributing regarding conception and design, acquisition of data, or analysis and interpretation of data; drafting the article or revising it critically for important intellectual content, and gave the final approval of the version to be published.

Conflict of interest

None to declare.

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