



Original article

Community pharmacy customer segmentation based on factors influencing their selection of pharmacy and over-the-counter medicines



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ABSTRACT

Background: Within the competitive pharmacy market environment, community pharmacies are required to develop efficient marketing strategies based on contemporary information about consumer behavior in order to attract clients and develop customer loyalty.

Objectives: This study aimed to investigate the consumers' preferences concerning the selection of pharmacy and over-the-counter (OTC) medicines, and to identify customer segments in relation to these preferences.

Methods: A cross-sectional study was conducted between February and March 2016 on a convenient quota sample of 300 participants recruited in the metropolitan area of Thessaloniki, Greece. The main instrument used for data collection was a structured questionnaire with close-ended, multiple choice questions. To identify customer segments, Two-Step cluster analysis was conducted.

Results: Three distinct pharmacy customer clusters emerged. Customers of the largest cluster (49%; 'convenience customers') were mostly younger consumers. They gave moderate to positive ratings to factors affecting the selection of pharmacy and OTCs; convenience, and previous experience and the pharmacist's opinion, received the highest ratings. Customers of the second cluster (35%; 'loyal customers') were mainly retired; most of them reported visiting a single pharmacy. They gave high ratings to all factors that influence pharmacy selection, especially the pharmacy's staff, and factors influencing the purchase of OTCs, particularly previous experience and the pharmacist's opinion. Customers of the smallest cluster (16%; 'convenience and price-sensitive customers') were mainly retired or unemployed with low to moderate education, and low personal income. They gave the lowest ratings to most of the examined factors; convenience among factors influencing pharmacy selection, whereas previous experience, the pharmacist's opinion and product price among those affecting the purchase of OTCs, received the highest ratings.

Conclusions: The community pharmacy market comprised of distinct customer segments that varied in the consumer preferences concerning the selection of pharmacy and OTCs, the evaluation of pharmaceutical services and products, and demographic characteristics.

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1. Introduction

Community pharmacies are the most accessible providers of primary health care to community, through the management of therapeutic use of medicinal products, as well as other related pharmaceutical services. The image and professional performance of community pharmacist are improving in the most countries and results in better satisfaction, perception and appreciation of the pharmacists' role in the health care team. Despite this, community pharmacists need to be able to reach out to patients, assess

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their requirements and should play a pro-active role in becoming an effective and indispensable part of health care (Al-Arifi, 2012).

Special protective measures at the macroeconomical level have been introduced in recognition to the critical contribution of pharmacies to the community, bringing on heavy regulation of community pharmacies in several countries (Schmidt and Pioch, 2004). The extensive liberalization measures introduced to the community pharmacy sector in several European countries over the past few decades (Vogler et al., 2012) have led to increased competition between pharmacies (Castaldo et al., 2016; Schmidt and Pioch, 2004). Competitive market environment requires from community pharmacies to develop an efficient marketing strategy in order to attract new clients, maintain their patronage and develop customer loyalty. An improvement of the business model of community pharmacies appears to be a necessary reaction on the increased competitive pressure (Castaldo et al., 2016; Gavilan et al., 2014). Prescriptions may be the number one reason why customers come into the pharmacy, and they are definitely one of the biggest revenue sources, but support of non-prescription sales seems to be vital for financial prosperity of pharmacies (Gyaneshwari, 2015; Lessenger and Feinberg, 2008). The consumption of OTC medicines is steadily rising and unlike prescriptions, their profit margins remain consistent and strong. Focus on OTC segment in pharmacy can be an important component of its active customer-orientated management (Heinsohn and Flessa, 2013). Considering the fact that the consumers' selection of pharmacy and customer loyalty depend on the pharmacy's attributes and on the consumers', novel information concerning the factors affecting pharmacy patronage is needed in order to bring the pharmacy's marketing plan into focus demands (Arneson et al., 1989).

The understanding of consumers' preferences concerning the purchase of goods or services is general intensive and includes problem recognition, information search, evaluation alternatives, purchase, and post-purchase evaluation (Pujari et al., 2016). The OTC medicines are not just another economic good and the consumers' behavior naturally is built towards them, mainly in the cases, if they are sold outside of pharmacies. The information which consumers receive before they purchase OTC medicines has been reported to originate from internal sources, meaning the consumers' previous experience with the product and their knowledge, and from external sources, such as pharmacists, physicians, interpersonal relationships, information on the product's packaging, and advertisements (Paddison and Olsen, 2008). After the information search the OTC medicines is rated under a variety of evaluative influences; such influences may be the product's qualities and characteristics, the customer's loyalty and knowledge, demographic factors, and time-related pressures provoked by the need to treat the symptom immediately. All purchases of OTC medicines are not planned and many various factors (cultural, social, personal, psychological) finally formulate consumer's purchasing behavior (Hanna and Hughes, 2011; Kohli and Buller, 2013; Lodorfos et al., 2006; Paddison and Olsen, 2008; Wazaify et al., 2005).

According to literature, the segmentation of the community pharmacy market, based on the individuals' combination of pharmacy patronage and OTC purchase influences, as well as consumer's demographic characteristics, could decisively contribute to the development of an efficient market strategy. Under the concept of Customer Relationship Management (CRM), customers are not equal and, thus, it is unreasonable for the community pharmacy to provide the same incentive offers to all customers. The analytical CRM refers to the analysis of customer characteristics and behaviors so as to support the pharmacy's customer management strategies. As such, analytical CRM can help community pharmacies to better discriminate and more effectively allocate

resources to the most profitable group of customers (Ngai et al., 2009).

The present study aimed to investigate the consumers' preferences concerning the selection of pharmacy and over-the-counter (OTC) medicines, and to identify customer segments in relation to these preferences. The following research questions were formulated: (1) What are the consumer preferences concerning the selection of pharmacy and OTC medicines? Which are the key factors that affect their selection of pharmacy and their purchasing preferences of OTC medicines? (2) Which distinct consumer profiles emerge in relation to their preferences, taking into account their demographic characteristics?

2. Materials and methods

2.1. Study design and data collection

The cross-sectional study was conducted in a convenience quota sample of participants recruited in the metropolitan area of Thessaloniki, Greece, from February to March 2016. The sample was stratified by age and employment status, using the 2011 Population and Housing Census of this area, provided by the Hellenic Statistical Authority (2014). A total of 314 adult participants (approximately 0.1% of the target population), who were attending public places (shopping centers, traffic stations and other) at the time were surveyed by the first author through face-to-face surveys using a structured written questionnaire. The surveys were typically conducted during weekdays from 9 am through 3 pm and a written consent was obtained from all participants. Overall, there were only minor differences in distribution by age and employment status between the study sample and the target population; there is a notable difference with regard to gender, which is consistent with the fact that women were more likely to go shopping and tending to buy OTC medicines more frequently. The survey was anonymous in order to encourage participation to avoid social desirability in the responses. Fourteen participants were removed in total, ten due to erroneous answers in some of the questions and four due to uniform questionnaire scores. The percentage of missing responses was less than 2% for all variables considered. The final sample consisted of 300 participants, 185 (61.7%) female and 115 (38.3%) male.

2.2. Survey instrument

The structured questionnaire with close-ended, multiple choice questions was used for data collection. The instrument was developed by the authors after a thorough literature review for the selection of pharmacy (Arneson et al., 1989; Boström, 2011; Merks et al., 2014; Villako and Raal, 2007; Wirth et al., 2010) and for the purchase of OTC medicines (Boström, 2011; Gyaneshwari 2015; Lodorfos et al., 2006; Paddison and Olsen, 2008; Wazaify et al., 2005). The final version of the questionnaire consisted of three parts (available in Appendix A). The first part contained demographic information, the second part comprised of questions related to factors that may influence the selection of pharmacy. The participants were asked on their purchases from a single pharmacy, their relationship with the pharmacy staff, and had to indicate on a 5-point Likert scale from 1 (*completely disagree*) to 5 (*fully agree*) the degree to which each one of eight different factors influences their selection of pharmacy. The third part comprised of questions assessing the factors that may influence the purchase of OTC medicines. The participants were asked on knowledge what they need when they purchase OTC medicines, on intention to make unscheduled purchases and usual purchase of OTC product. Finally, they were asked to rate on a 5-point Likert

scale from 1 (*completely disagree*) to 5 (*fully agree*) the degree to which each one of eight different factors influences their purchase of OTC medicines. The questionnaire was originally developed in Greek, in native language of the participants. Face and content validity of the instrument were investigated by an independent panel of three pharmaceutical science specialists and a convenience sample of nine adults at a shopping center in the area of Thessaloniki, Greece. Three questions were revised for clarity and ease of comprehension. Responses obtained in the pilot phase were not included in the main study.

2.3. Data analysis

Descriptive statistics (means, standard deviation, median, range, counts and percentages) were used to describe the quantitative and categorical study variables. In order to present the consumers' preferences concerning the selection of pharmacy and OTC medicines in a measurable way, mean scoring of responses was done for the factors mentioned in the second and third part of the questionnaire. A cluster analysis approach was employed so as to find a meaningful allocation of participants into groups with respect to their responses on the set of questions related to their preferences (part two and three of the questionnaire). Two-Step cluster analysis (Chiu et al., 2001) was considered as the most appropriate technique, implemented in IBM Statistical Package for Social Science Statistics software, version 21. The similarity between subjects was based on the Log-likelihood distance measure and the Bayesian Information Criterion (BIC) was used to determine the optimal number of clusters. Differences in sample characteristics among the clusters were subsequently evaluated

using one-way ANOVA followed by Tukey's test and Chi-square test with Cramer's *V* coefficient as a measure of effect size, where appropriate. All tests were two-tailed and the significant level was set at 5%.

3. Results

3.1. Descriptive analysis

Survey participants were mostly female (62%) with a mean age of 50.3 ± 18.9 years. Demographic characteristics of the surveyed participants are summarized in Table 1 (see column "Overall").

With regard to the selection of pharmacy (results are presented in Table 2), most respondents stated that they tend to buy from a single pharmacy 'always' (32%) or 'most of the time' (45%). Furthermore, most of them prefer their relationship with the pharmacy staff to be familiar (69%), whereas 27% want it to be formal.

With regard to their purchase patterns of OTC medicines (results are presented in Table 2), about half of the respondents (52%) stated that they know exactly what they need when purchasing an OTC medicines, and 43% reported that they know approximately what they need. Answers regarding confirmation of unscheduled purchases of OTC medicines are split between 'never' (47%) and 'sometimes' (46%). Moreover, among various OTC medicines with the same use, most respondents reported that they tend to buy one specific product (77%).

In general, respondents rated positively the eight factors that may influence their selection of pharmacy (results are presented in Table 3). The pharmacy's location, opening hours and staff were among the most important factors (means ranging from 4.20 to

Table 1
Demographic characteristics of the overall sample and the three clusters (N = number of participants).

Demographic variables	Overall N = 300 (100%)	C1 N = 147 (49%)	C2 N = 106 (35%)	C3 N = 47 (16%)	χ^2	Sig.	V
Gender					0.59	0.743	0.044
Female	185 (62)	91 (62)	63 (59)	31 (66)			
Male	115 (38)	56 (38)	43 (41)	16 (34)			
Educational level					36.09**	<0.001	0.246
Primary Sch.	15 (5)	1 (1)	7 (7)	7 (15)			
Gymnasium	45 (15)	13 (9)	23 (22)	9 (19)			
Lyceum	111 (37)	57 (39)	36 (34)	18 (38)			
University	90 (30)	54 (37)	24 (23)	12 (26)			
Post-Grad.	25 (8)	17 (11)	8 (7)	0 (0)			
Doctorate	12 (4)	4 (3)	7 (7)	1 (2)			
Missing	2 (1)	0 (0)	0 (0)	0 (0)			
Occupation					44.67**	<0.001	0.273
Student	15 (5)	12 (8)	2 (2)	1 (2)			
Unemployed	37 (12.3)	21 (14)	4 (4)	9 (19)			
Homemaker	42 (14)	18 (12)	19 (18)	5 (10)			
Full-Time	87 (29)	48 (33)	31 (29)	8 (17)			
Part-Time	20 (6.7)	13 (9)	2 (2)	4 (9)			
Self-Empl.	18 (6)	11 (8)	3 (3)	4 (9)			
Retired	81 (27)	23 (16)	45 (43)	16 (34)			
Monthly personal income					32.54**	<0.001	0.233
Under 400€	86 (28.7)	52 (35)	19 (18)	15 (32)			
400–800€	97 (32.3)	42 (29)	32 (30)	23 (49)			
801–1200€	78 (26)	29 (20)	43 (41)	6 (13)			
1201–1600€	24 (8)	17 (12)	5 (5)	2 (4)			
1601–2000€	9 (3)	5 (3)	4 (4)	0 (0)			
Over 2000€	6 (2)	2 (1)	3 (3)	1 (2)			
Age					F	Sig.	
Mean \pm SD	50.3 \pm 18.9	43.5 \pm 16.5	57 \pm 18.7	56.4 \pm 19.4	20.97	<0.001	

Note. SD: Standard Deviation; C1: Cluster 1; C2: Cluster 2; C3: Cluster 3; Values in parentheses are percentages (%); F: F statistic value; χ^2 : Chi-square statistic value; V: Cramer's *V* coefficient; Sig.: *p*-value.

**Significant at *p* < .05.

****p* < .001.

***p* < .01.

Table 2
Selection of pharmacy and purchase of OTC medicines preferences in the overall sample and the three clusters (N = number of participants).

Question	Overall N = 300 (100%)	C1 N = 147 (49%)	C2 N = 106 (35%)	C3 N = 47 (16%)	χ^2	Sig.	V
Selection of pharmacy							
<i>I tend to make my purchases in a single pharmacy</i>					49.66**	<0.001	0.288
Yes, always	95 (32)	21 (14)	56 (53)	18 (38)			
Yes, most of the time	134 (45)	80 (55)	39 (37)	15 (32)			
No, I make my purchases in various pharmacies	70 (23)	46 (31)	10 (10)	14 (30)			
Missing	1 (0.3)	0 (0)	0 (0)	0 (0)			
<i>Relationship with the pharmacy staff</i>					33.13**	<0.001	0.235
I want it to be familiar	206 (69)	86 (59)	91 (86)	29 (62)			
I want it to be formal	81 (27)	58 (39)	9 (9)	14 (30)			
I don't want the staff to recognize me	12 (4)	3 (2)	5 (5)	4 (8)			
Missing	1 (0.3)	0 (0)	0 (0)	0 (0)			
OTCs purchase							
<i>When I purchase an over-the-counter medicines, usually:</i>					63.72**	<0.001	0.328
I know exactly what I need	156 (52)	60 (41)	75 (71)	21 (45)			
I know approximately what I need	130 (43)	86 (58)	28 (28)	16 (34)			
I don't know what I need	11 (4)	1 (1)	1 (1)	9 (19)			
Missing	3 (1)	0 (0)	0 (0)	0 (0)			
<i>When I am in a pharmacy, I tend to make unscheduled purchases of over-the-counter medicines:</i>					12.86*	0.012	0.147
Yes, often	16 (5)	4 (3)	9 (9)	3 (6)			
Yes, sometimes	139 (46)	75 (41)	52 (49)	12 (27)			
No, never	142 (47)	68 (46)	44 (42)	30 (67)			
Missing	3 (0.3)	0 (0)	0 (0)	0 (0)			
<i>Between various over-the-counter medicines with the same use, usually pick one specific product:</i>					11.38*	0.023	0.139
One specific product	231 (77)	114 (79)	89 (85)	28 (61)			
Some product randomly	39 (13)	18 (12)	11 (10)	10 (22)			
A different product each time	26 (9)	13 (9)	5(5)	8 (17)			
Missing	4 (1)	0 (0)	0 (0)	0 (0)			

Note. C1: Cluster 1; C2: Cluster 2; C3: Cluster 3; Values in parentheses are percentages (%); χ^2 : Chi-square statistic value; V: Cramer's V coefficient; Sig.: p-value.

*** p < .001.

* Significant at p < .05.

** p < .01.

Table 3
Importance of factors influencing the selection of pharmacy in the overall sample and across the three clusters.

Selection of pharmacy	Overall		C1		C2		C3		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Pharmacy's location	4.25	0.90	4.08a	0.81	4.60b	0.76	3.98a	1.19	14.01***	<0.001
Opening hours	4.23	0.94	4.01a	0.88	4.58b	0.83	4.13a	1.17	12.03***	<0.001
Pharmacy's staff	4.20	0.96	3.95a	0.75	4.80b	0.47	3.62a	1.51	44.13***	<0.001
Anonymity / confidentiality	4.17	0.94	3.97a	0.83	4.59b	0.71	3.85a	1.33	18.16***	<0.001
Store's atmosphere	4.06	0.95	3.80a	0.69	4.65b	0.72	3.55a	1.40	40.61***	<0.001
Product range	3.98	0.96	3.85a	0.70	4.65b	0.60	2.85c	1.12	98.08***	<0.001
Additional services	3.79	1.04	3.50a	0.79	4.50b	0.74	3.15a	1.43	51.36***	<0.001
Membership program	3.49	1.14	3.29a	0.88	4.00b	1.11	3.04a	1.50	17.89***	<0.001

Note: Participants scored items using a 5-point Likert-type scale ranging from 1 (completely disagree) to 5 (fully agree). C1: Cluster 1; C2: Cluster 2; C3: Cluster 3; M: Mean value; SD: Standard Deviation; F: F statistic value; Sig.: p-value. Different letters in the same row indicate statistically significant differences according to the Tukey test.

* Significant at p < .05.

** p < .01.

*** p < .001.

4.25), whereas the additional services offered by the pharmacy, the existence of a membership program and the product range were among the least important (means ranging from 3.49 to 3.98).

The most important factors influencing the purchase of OTC medicines for the study participants were experience of previous use (4.54) and the pharmacist's opinion (4.31), followed by product price (4.02); on the contrary, a packaging (2.87) and the product's advertisement (2.97) appeared to be the least important factors to impact their decisions when purchasing OTC medicines (results are presented in Table 4).

3.2. Customer segmentation: results of two-step cluster analysis

Two-Step cluster analysis yielded three distinct clusters based on Schwarz's Bayesian information criterion (BIC = 14437.83), corresponding to a ratio of distance measures equaled to 1.985. Signif-

icant associations were found between cluster membership and educational level, cluster membership and occupation, and cluster membership and personal income. Therefore, these were the most discriminating demographic characteristics between the three clusters. The corresponding frequencies are shown in Table 1. Differences among the three clusters were also observed in purchasing patterns regarding tendency to purchase from a single pharmacy, the relationship with the pharmacy staff, readiness of OTC medicines selection, tendency to make unscheduled purchases of OTC medicines and the selection of one specific OTC product with the same use. The corresponding frequencies are shown in Table 2. Furthermore, one-way ANOVAs revealed that there were significant differences among the three clusters on all factors affecting the selection of pharmacy and the purchase of OTC medicines (results are presented in Tables 3 and 4). The Shapiro-Wilk test showed that the normality assumption was met in all

Table 4

Importance of factors influencing the purchase of OTC medicines in the overall sample and across the three clusters.

OTCs purchase	Overall		C1		C2		C3		F	Sig.
	M	SD	M	SD	M	SD	M	SD		
Experience of a previous use	4.54	0.73	4.52a	0.55	4.75b	0.55	4.13c	1.23	13.18***	<0.001
Pharmacist's opinion	4.31	0.79	4.07a	0.75	4.65b	0.62	4.33a	0.97	19.95***	<0.001
Product's price	4.02	0.96	3.80a	0.85	4.34b	0.99	4.00b	1.02	10.29***	<0.001
Drug's country of origin	3.63	1.18	3.46a	0.81	4.52b	0.81	2.21c	1.21	114.99***	<0.001
Manufacturing company	3.51	1.21	3.49a	0.79	4.31b	0.91	1.81c	1.10	129.17***	<0.001
Family's/friends' opinion	3.51	1.28	3.71a	0.96	3.75a	1.27	2.34b	1.54	27.47***	<0.001
Product's advertisement	2.97	1.21	3.10a	0.87	3.18a	1.32	2.11b	1.46	15.88***	<0.001
Packaging	2.87	1.11	2.87a	0.78	3.38b	1.19	1.72c	0.93	47.48***	<0.001

Note: Participants scored items using a 5-point Likert-type scale ranging from 1 (*completely disagree*) to 5 (*fully agree*). C1: Cluster 1; C2: Cluster 2; C3: Cluster 3; M: Mean value; SD: Standard Deviation. F: F statistic value; Sig.: p-value. Different letters in the same row indicate statistically significant differences according to the Tukey test. *Significant at $p < .05$.

** $p < .01$.*** $p < .001$.**Table 5**

Comparative summary of the three customer profiles.

	Cluster 1 (49%)	Cluster 2 (35%)	Cluster 3 (16%)
Demographic characteristics	Younger consumer, either employed or student, high education, low or high income.	Retired with low to moderate education, moderate income.	Retired or unemployed with low to moderate educational level and low income.
Consumer preferences	Do not buy from single pharmacy, formal relationship with the staff, know approximately what they need when purchasing OTC.	Buy from a single pharmacy, familiar relationship with the staff, know exactly what they need when purchasing OTC.	Do not tend to make unscheduled purchases of OTC medicines.
Factors' rating	Moderate to positive ratings to factors affecting the selection of pharmacy and purchase of OTCs.	Very positive ratings to factors affecting the selection of pharmacy and purchase of OTCs.	Mostly negative ratings especially to factors affecting purchase of OTCs.
Most important factors	Pharmacy's location and opening hours, experience of previous use, and the pharmacists' opinion.	Pharmacy's staff, atmosphere and location, product range, experience of previous use, pharmacist's opinion, and the medicine's country of origin.	Pharmacy's location, opening hours, pharmacist's opinion, experience of a previous use, product's price, all the remaining factors regarding OTCs purchasing are of minor importance.

cases ($p > .05$). A comparative summary of the three customer profiles that emerged from the previous analysis is presented in Table 5.

4. Discussion

In an attempt to adapt to the changes occurring and to the growing needs of patients and to maximize the utilization of community pharmacists unique structured strategies are needed to be introduced to the community pharmacy profession (Sadek et al., 2016).

4.1. The selection of pharmacy

In regard to the selection of pharmacy, most participants stated that they prefer to make their purchases always or most of the time in a specific pharmacy. This observation indicates that several residents of the urban area of Thessaloniki, Greece displayed an established customer loyalty towards a particular community pharmacy. This may imply a trusting relationship between the pharmacists and their customers. Castaldo et al. demonstrated that trust in pharmacists is the first driver of satisfaction, and leads to pharmacy loyalty (Castaldo et al., 2016). The important role of the skillful communication between pharmacists and pharmacy customers in promoting customer's loyalty and pharmacy trust have also been illustrated by other relevant studies (Antunes et al., 2015; Athavale et al., 2015).

The fact that the participant's loyalty towards a particular pharmacy may significantly relate to the pharmacist-customer inter-

personal relationship, is reinforced by the observation that most of respondents preferred familiar relationship with the pharmacy staff. For the most of participants the pharmacy staff was probably important not only by their competency but also based on their personal traits and relationship. In management literature, familiarity, developed through personal connection and caring behaviors, has been reported to positively influence the customer's trust towards the employee (Gremler et al., 2001).

The observation that participants positively rated all of the examined factors that may influence the selection of pharmacy indicated that multiple pharmacy attributes were important for people in urban areas in Greece when selecting a specific pharmacy. Functional attributes related to the customers' convenience, namely the pharmacy's location and opening hours, were considered to be the most important, followed by attributes of the pharmacy staff, particularly their quality and confidentiality. The pharmacy's location has been repeatedly reported in pharmaceutical literature as the primary pharmacy selection factor (El Hajj et al., 2011; Merks et al., 2014; Minarikova et al., 2016; Villako and Raal, 2007; Wirth et al., 2010).

Pharmacy staff is other important factor influencing the selection of pharmacy and seems that customer-centered care and personal connection could create hedonic or emotional attachment to the pharmacy, which customers mostly visit (Gavilan et al., 2014).

4.2. Purchase of over-the-counter medicines

Regarding the consumers' purchase patterns of OTC medicines, about half of the participants stated that they exactly know, what

they need when purchasing OTC medicines. This finding is also reinforced by the reported tendency of the most respondents to 'never' or only 'sometimes' make unscheduled OTCs purchases, as well as to often pick a specific product in a certain category of OTC medicines. This firm decision-making could originate from their existing knowledge or experience (Strutton and Pelton, 1992). The emphasis on previous experience was supported by the reported tendency of the participants to often pick a specific product from a certain category of medicines, which implies that they are loyal and long-term user of certain medicines. In line with our findings, Lodorfos et al. (2006) demonstrated that experience with the OTC medicines is the primary factor determining repeat purchasing behavior of the same brand. They also found that the subjective opinions of others particularly of health professionals, is the secondary causal factor, which was ranked higher than the interpersonal communication from family and friends. The importance of previous experience and the pharmacist's recommendation as factors influencing consumers' selection of OTC medicines has been also highlighted in other relevant studies (Hanna and Hughes, 2011; Chan and Tran, 2016; Paddison and Olsen, 2008; Wazaify et al., 2005).

The observation that the OTC product's price received the third highest ranking indicates marked consumer sensitivity towards the price. OTC's price may play not only the decisive role in the consumers' selection (Kohli and Buller, 2013), but has an important effect on attitude towards repeated purchasing (Lodorfos et al., 2006). Ricks and Mardanov (2012) found that price-sensitive consumers trust and follow the pharmacist's recommendations in choosing low-cost alternative medicines.

Familiarity with the name or brand has also been reported in pharmacy literature as an important factor influencing purchases of OTC medicines (Hanna and Hughes, 2011; Paddison and Olsen, 2008). Our results supported it, because medicine's country of origin, which was associated with the manufacturing company's background, as well as by the manufacturing company have valued higher than the product's advertisement and packaging.

The research indicated that respondents rated higher previous experience and pharmacist's opinion than remaining examined criteria (product's price, manufactory, country of origin, the advertisement and packaging).

4.3. Customers' segmentation

Cluster analysis (CA) is a lesser-known multivariate procedure that has recently gained considerable use in health science research. It describes a set of multivariate methods and techniques that seek to classify data, often into groups, types or profiles. In pharmacy administration research, CA primarily involves studies intended to explain the nature of medication side effects, utilization patterns, and classification of patients (Leonard and Droegge, 2008). Schommer and Gaither (2014) used cluster analysis in order to identify and describe segments of pharmacists and patients based upon their perceptions of the pharmacist's role in serving as an advisor on medication use. The findings revealed heterogeneity for how pharmacists and patients view the pharmacist's role as an advisor on medication use. We applied this method with the aim to provide pharmacy customers' segmentation to analyze who are pharmacy customers and which is their profile with respect to selection of pharmacy and OTC medicines purchase.

The results of performed by Two-Step cluster analysis indicated that pharmacy customers in the urban area of Thessaloniki, Greece are not a homogeneous group. Three segments appeared to comprise the community pharmacy market, varying in consumer's preferences concerning the selection of pharmacy and the purchases of OTCs, the scoring of influencing factors, and demographic

characteristics, particularly occupation, educational level and personal income.

Customers of the largest segment (cluster 1; 49%) being younger consumers (mean age 43.5 years), mainly employed, with a high educational level, and a low or high monthly personal income appeared to display a moderate to positive evaluation of pharmaceutical services and products. The majority of them stated that they do not always visit a single pharmacy and prefer formal relationship with the pharmacy staff. It could imply that these customers traditionally view on the pharmacists primarily as medicines sellers and not as primary health care providers, and/or they feel rather uncomfortable entrusting the pharmacist with their health (Castaldo et al., 2016). Attributes related to the consumers' convenience, namely the pharmacy's location and opening hours, they considered the most important in their selection of pharmacy. In regard to the purchase of OTC medicines, customers of this segment claimed to only know approximately what they need. They considered themselves to rely on the experience of previous use and the pharmacist's opinion in the purchase of OTC medicines. On the basis of the above findings, this segment could be classified as 'convenience customers'.

Customers of the second largest segment (cluster 2; 35%), being mainly retired with low to moderate education and moderate income, appeared to highly value pharmaceutical services and products, as they gave very positive ratings to all of the examined factors that influence the selection of pharmacy and to most of those that affect the purchase of OTC medicines. Being largely retired, these consumers may have increased demand for pharmaceutical products and services due to the increased health challenges associated with aging (Francis et al., 2005; Pelicano-Romano et al., 2015), and, as a consequence, they may be very conscious of their health care needs, the medications they purchase, and the professional services they receive. Customers of this segment appeared to display a high level of loyalty to a particular pharmacy, making their purchases in a single pharmacy and looking for a familiar relationship with the pharmacy staff. This finding is consistent with those of previous studies indicating that elderly customers display high pharmacy patronage (Rabbane et al., 2015).

In the selection of pharmacy multiple pharmacy attributes seemed to be important to customers of this segment. They highly rated all of the examined factors. With regard to the purchase patterns of OTC medicines, customers of the second segment appeared to be firm in their OTC purchases, as the vast majority of them reported to know exactly what they need when buying an OTC medicines. The most important factor for them, influencing their purchase of OTCs was experience of previous use, followed by the pharmacist's recommendation and the medicine's country of origin. Non-medical characteristics also seemed to be important for them. They gave high ratings to the remaining examined criteria (country of origin, the manufacturing company, and the product's price). This segment could be categorized as 'loyal customers'.

The customers of the smallest segment (cluster 3; 16%), being mainly retired or unemployed with low to moderate educational level and low personal income. They gave the lowest ratings to most of the factors affecting the selection of pharmacy and negative ratings to most of those influencing the purchase of OTC medicines. Convenience, particularly the pharmacy's opening hours and location, seemed to be the most important attribute for these customers in their selection of pharmacy. Many of them visit the pharmacy for a specific need, and the vast majority stated that they did not tend to make unscheduled purchases. Similar to the previous segments, the past experience and the subjective opinion of the pharmacist were ranked the highest. Apart from them, this segment's customers also gave a relatively high rating to the product

prices. This sensitivity could relate to their low personal income (Paddison and Olsen, 2008). Based on the above findings, this segment could be classified as 'convenience and price-sensitive customers'.

The above findings are comparable to those of an earlier study by Arneson et al. (1989) conducted in the state of Washington, USA. They identified three major groups of pharmacy patrons with particular wants and needs based on the individuals' desired combination of pharmacy attributes; the patrons of the largest group (36%) were categorized as involved patrons, those of the second largest group (22%) as convenience patrons and the patrons of the third group (10.5%) as price-sensitive patrons. In another study conducted in south Texas, USA, Shufeldt et al. (1998) identified five lifestyle groups of elderly shoppers that significantly differed regarding the perceived importance of various factors which influenced the purchase behavior of OTCs (price, commercial influences and personal influences). Current Greek study shows that residents mainly in rural community are self-care oriented (Papakosta et al., 2014), what is together associated with a high prevalence of self-medication (Mitsi et al., 2005; Poulakou et al., 2007; Skliros et al., 2010). The community pharmacies, not only in Greece, will have to develop efficient marketing strategies how to attract new clients, to maintain their patronage and to develop customer loyalty. In this respect the research investigating the consumer behavior in real practice can provide the useful information.

5. Conclusions

The present study aimed to investigate the consumer's preferences concerning to the selection of pharmacy and OTC medicines together with consumer's profile involving his/her selected demographic characteristics. Multiple pharmacy attributes were important for selection of pharmacy, but functional attributes related to the consumers' convenience and the pharmacy staff was the most important. Consumers relied, for the purchase of OTC medicines, primarily on the experience of previous use, secondarily on the pharmacist's opinion, and thirdly on the product's price. Pharmacy customers were not a homogeneous group. Three segments comprised the community pharmacy market in the urban area of Thessaloniki, varying in consumers' preferences concerning the selection of pharmacy and the purchase of OTCs, the evaluation

of pharmaceutical services and products, and demographic characteristics.

5.1. Limitations

Although the sample was obtained by following a rigorous procedure, it is convenient and cannot be considered nationally representative. Therefore, further studies in other areas of Greece are needed to generalize our findings. Further limitation of this work concerns the main data analysis method employed in this study. Two-Step cluster analysis is an exploratory approach that is based upon the methodological decisions made by the researchers regarding the objects to cluster, the clustering variables and the clustering algorithm. The choice of Two-Step cluster analysis, as well as the specific combination of clustering variables led to particular cluster solutions, and different choices would probably lead to different solutions. The intent of this approach is not to identify the one and only perfect clustering solution, but rather to identify naturally occurring groups of consumers based on certain variables for which meaningful interpretations can be proposed and supported. Thus, with the approach followed in this study, three meaningful groups emerged that led to a better understanding of consumer preferences.

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Conflict of interest

There is no conflict of interest.

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Appendix A

QUESTIONNAIRE

Community pharmacy customer segmentation based on factors influencing their selection of pharmacy and over-the-counter medicines

Dimitrios Phaedon Kevrekidis^a, Daniela Minarikova^b, Angelos Markos^b, Ivona Malovecka^{a*}, Peter Minarik^c

Please cross X in only one choice per question.

A. DEMOGRAPHIC INFORMATION

1. What is your gender?		
<input type="checkbox"/> Female	<input type="checkbox"/> Male	
2. What is your age?		
I am _____ years old.		
3. What is your highest completed level of education?		
<input type="checkbox"/> Primary School	<input type="checkbox"/> Gymnasium (Lower Secondary)	<input type="checkbox"/> Lyceum (Upper Secondary)
<input type="checkbox"/> University	<input type="checkbox"/> Post-graduate	<input type="checkbox"/> Doctorate
4. What is your occupation?		
<input type="checkbox"/> Student	<input type="checkbox"/> Unemployed	<input type="checkbox"/> Homemaker
<input type="checkbox"/> Part-time Worker	<input type="checkbox"/> Full-time Worker	<input type="checkbox"/> Self-employed
<input type="checkbox"/> Retired		
5. What is approximately, your monthly personal income?		
<input type="checkbox"/> Under 400 €	<input type="checkbox"/> 400 – 800 €	<input type="checkbox"/> 801 – 1200 €
<input type="checkbox"/> 1201 – 1600 €	<input type="checkbox"/> 1601 – 2000 €	<input type="checkbox"/> Over 2000 €

B. PHARMACY SELECTION

1. I tend to make my purchases in a single pharmacy.

<input type="checkbox"/> Yes, always.	<input type="checkbox"/> Yes, most of the time.	<input type="checkbox"/> No, I make my purchases in various pharmacies.
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2. Regarding my relationship with the pharmacy staff:

<input type="checkbox"/> I want it to be familiar.	<input type="checkbox"/> I want it to be formal.	<input type="checkbox"/> I don't want the staff to recognize me.
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3. To which extent do the following factors influence the pharmacy you choose for your purchases?

Select 5-1 in each question, where 5 means «Fully Agree» and 1 means «Disagree Completely».

My selection is influenced by ...	Fully Agree	Agree	Neither Agree / Nor Disagree	Disagree	Disagree Completely
The pharmacy's location	⑤	④	③	②	①
The pharmacy's staff	⑤	④	③	②	①
The product range	⑤	④	③	②	①
The additional services that are offered	⑤	④	③	②	①
The membership program	⑤	④	③	②	①
The anonymity / confidentiality that is offered	⑤	④	③	②	①
The store's atmosphere	⑤	④	③	②	①
The opening hours	⑤	④	③	②	①

C. OVER-THE-COUNTER MEDICINES SELECTION

Over the counter drugs are drugs which can be purchased without a doctor's prescription.

1. When I purchase an over-the-counter medicines, I usually:					
<input type="checkbox"/> I know exactly what I need.	<input type="checkbox"/> I know approximately what I need.	<input type="checkbox"/> I don't know what I need.			
2. When I am in a pharmacy, I tend to make unscheduled purchases of over-the-counter medicines.					
<input type="checkbox"/> Yes, often.	<input type="checkbox"/> Yes, sometimes.	<input type="checkbox"/> No, never.			
3. Between various over-the-counter medicines with the same use, I usually pick:					
<input type="checkbox"/> One specific product.	<input type="checkbox"/> Some product randomly.	<input type="checkbox"/> A different product each time.			
4. To which extent do the following factors influence your selection during the purchase of an over-the-counter medicines?					
Select 5-1 in each question, where 5 means «Fully Agree» and 1 means «Disagree Completely».					
My purchase is influenced by ...	Fully Agree	Agree	Neither Agree / Nor Disagree	Disagree	Disagree Completely
The medicine's country of origin	⑤	④	③	②	①
The manufacturing company	⑤	④	③	②	①
The packaging	⑤	④	③	②	①
Experience of a previous use	⑤	④	③	②	①
The product's advertisement	⑤	④	③	②	①
The pharmacist's opinion	⑤	④	③	②	①
Family's/friends' opinion	⑤	④	③	②	①
The product's price	⑤	④	③	②	①

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