



Available online at www.sciencedirect.com

 ScienceDirect

Research in Social and
Administrative Pharmacy 11 (2015) 560–570

RESEARCH IN SOCIAL &
ADMINISTRATIVE PHARMACY

Original Research

How pharmacist–patient communication determines pharmacy loyalty? Modeling relevant factors

Liliana Patrícia Antunes, Pharm.D.^a, João José Gomes, Ph.D.^b,
Afonso Miguel Cavaco, Ph.D.^{c,*}

^aFaculty of Pharmacy, University of Lisbon, Av. Prof. Gama Pinto, 1649-003 Lisboa, Portugal

^bDepartment of Statistics and Operational Research, Faculty of Sciences, University of Lisbon, Campo Grande, 1749-016 Lisboa, Portugal

^cFaculty of Pharmacy, University of Lisbon, Research Institute for Medicines (iMed.U LISBOA), Av. Prof. Gama Pinto, 1649-003 Lisboa, Portugal

Abstract

Background: Portuguese community pharmacies provide pharmaceutical services, such as therapeutic outcomes follow-up, supplemented by relevant point-of-care testing that require continuity of provision to be effective.

Objectives: To identify factors of technical and communication nature that during a patient interview contribute to patients' loyalty.

Methods: A cross-sectional descriptive study, with a purposive sample of community pharmacies providing pharmaceutical care, was conducted. Patient interviews were taped and transcribed verbatim. Duration, segments and utterances were identified and time stamped, using a previously validated coding scheme. To identify predictors of loyalty, logistic regression analyses were performed.

Results: From 59 interviews, participants' average age was 65.7 years and 42 (71.2%) were female; 45 (76.3%) interviews were classified as outcomes measurements and 14 (23.7%) as pharmaceutical consultations, with 33.2% of the patients booking a following appointment. The significant items to explain loyalty were associated with lifestyle and psychosocial exchange, age of the patient, and the presence of all interview segments (i.e. a complete consultation).

Conclusion: Contrary to common professional beliefs and practice orientation it would appear that pharmacists' technical skills are not the essential factors that promote patients' loyalty needed for continuity of care, at least in the same extent as the social and lifestyle-related content of the exchange. Pharmaceutical care education should focus on relational skills as much as on medication-related competencies.

© 2015 Elsevier Inc. All rights reserved.

Keywords: Pharmacy loyalty; Pharmacist–customer communication; Consumer satisfaction; Community pharmacy; Pharmacist counseling; Portugal

* Corresponding author. Tel.: +351 217946456; fax: +351 217946470.

E-mail address: acavaco@ff.ul.pt (A.M. Cavaco).

Introduction

Historically, the services provided by Portuguese pharmacists in the early 1990's were based on outcome measurements including point-of-care testing (e.g. blood pressure, glycemia and weight), drug information, patient unstructured counseling and public health programs, such as needle exchange and methadone replacement therapy.¹ In 2001, to further develop pharmaceutical services, the National Pharmacies Association implemented pharmaceutical care programs (PCP) in community pharmacies, aimed to follow-up chronic patients with hypertension, diabetes, dyslipidemia, asthma and chronic obstructive pulmonary disease.^{2,3} A good example of a successful patient intervention was the PCP in diabetes, a cooperative program with the Ministry of Health and other public and private stakeholders. This program included a service fee paid by the government (€15/month/patient), for medication use review, patient's blood testing, evaluation of other health issues, and the definition of a care plan comprising the monitoring of the intervention outcomes.^{2,4} These programs, including the diabetes patient care, eroded through time, highlighting professional and practice issues while operating such services. However, it is known that a few motivated pharmacists persist in providing such cognitive services.^{5,6}

Pharmacist–patient consultation

In daily practice most pharmacy customers ask questions and receive information at the pharmacy counter.^{7,8} This is usually a brief exchange, but also provides pharmacists with an opportunity to further explore patient's health concerns and needs, thus opening a window for longer and structured interactions in a private consultation office, where medication review and associated activities may occur.⁹ Sharing information with patients is critical to understand their knowledge, expectations and medication-related needs, improving patients' therapeutic adherence and treatment outcomes.¹⁰ According to the needs of each patient, interview duration and content may vary from brief episodes to longer interviews.^{9,11} These moments contribute also to build a trustful relationship that is needed to provide optimal health care and thus building patient's satisfaction with the pharmacist's service.^{12,13} In fact, previous studies have shown that pharmacist-patient communication has been predominantly one-way and mainly based on information provision,

following the traditional biomedical practice model, more than a patient-centered approach.^{14,15} This practice pattern has been described through a number of physician-patient communication models, such as the conceptual framework used in the present study, the well established Byrne & Long model,¹⁶ here reinforced by the Roter Interaction Analysis System analytical approach, which has been also used in the pharmacy setting.^{17–19}

Additionally, the present social and economic environment requires professionals' adaptation to new forms of organization and management. These changes imply business strategies not only to attract new clients, but also to achieve customer retention and loyalty.²⁰

Communication and consultation loyalty

Patient loyalty to pharmacy is here defined as the repeated use of the same pharmacy for pharmaceutical services besides counter-based interactions, usually provided in the private consultation office. Loyalty as a concept is influenced by satisfaction. Although not addressed in this study, satisfaction is in turn affected by three factors: consumer expectations, service quality and service value, i.e. the amount paid on the basis of service quality and consumer expectations.²¹ Communication plays here an essential role, knowing that a higher patient satisfaction maybe achieved if pharmacists show adequate interest by appropriately questioning patients on their medication.²² Thus, the communication pattern and the information provided to the patient have the potential to increase pharmacy loyalty.²³

Previous studies indicate that in Portuguese pharmacies the low level of pharmacy competition may have been a barrier for the development of a fidelity model.²⁴ According to the law, pharmacies have to present a conveniently balanced location in the community; hence, to increase customers' loyalty a number of pharmacies have implemented additional services, which have demonstrated higher levels of satisfaction and preference.^{22,23} However, consumers' loyalty is not assured since many consumers are not aware of the potential advantages of using these services or even that services are provided; other times, customers assume the provision of these additional services take longer than their willingness to spend time at the pharmacy.^{23,25}

Knowing that loyalty has an affective component that is related to satisfaction, which in turn depends on the completion of individual

expectations through interpersonal exchange, and knowing that effective communication is necessary when providing advanced services such as medication management, it is expected that communication variables may determine customers' loyalty.²⁶ Therefore, the aim of this study was to identify communication factors, including consultation verbal content and structure, as well as background and demographic variables, which during the pharmacist–patient interview would influence patients' predisposition to return to the pharmacy for receiving pharmaceutical services and continuity of care.

Methods

This study followed a cross-sectional descriptive design with 10 pharmacies being purposively selected i.e. all participating pharmacists were identified from a governmental database (INFARMED – National Authority of Medicines and Health Products, IP) as providing PCP consultations. There was at least one professional able to provide the diabetes PCP in each identified pharmacy.

Sampling and data collection

Each pharmacy received one small dictaphone so that each PCP pharmacist could

audio-record the interaction, as well as an information package with instructions on how to recruit patients. All patients looking for a pharmaceutical service were invited to participate in the study and were informed of all details. Those who agreed to participate scheduled a taped consultation within the next 2 weeks. This time gap allowed patients to clarify any doubts in relation to their participation. Patients' agreement was reconfirmed prior to the taped interaction through the filling out of a patient and pharmacist informed consent form. It was asked that all PCP qualified pharmacists would audio-record one private consultation per patient, during one month, between April 2012 and August 2012. Basic demographics were collected for both patients and pharmacists.

Data coding and analysis

All the content of the consultations was transcribed verbatim, utterances identified, time-stamped and coded using a simplification of the Roter Interaction Analysis System (RIAS) – a known theoretical and coding frame used for healthcare providers–patient interaction,²⁷ based on a previously published coding scheme with 15 communication codes (see Table 1).^{28,49–52} Transcripts and the coding scheme were managed

Table 1
Exchanged coding scheme with fifteen communication categories

Code	Description	Literature influence
Closed questions		
1. Medical	Questions which lead to restricted answers with few words	Roter (2011) ²⁸
2. Therapeutic		Sleath (1995) ⁴⁹
3. Lifestyle (LS)/Psychosocial (PS)		Sleath (1996) ⁵⁰
Open questions		
4. Medical	Questions which solicit more than factual & restricted information	Roter (2011) ²⁸
5. Therapeutic		Sleath (1995) ⁴⁹
6. LS/PS		Sleath (1996) ⁵⁰
Gives information		
7. Medical	Utterances related to all information stated in a non-interrogative form	Roter (2011) ²⁸
8. Therapeutic		Sleath (1996) ⁵⁰
9. LS/PS		Fritsch and Lamp (1997) ⁵¹ Kooy et al (2006) ⁵²
Advice		
10. Medical and therapeutic	Utterances that induce a change in behavior	Roter (2011) ²⁸
11. LS/PS		Fritsch and Lamp (1997) ⁵¹ Kooy et al (2006) ⁵²
12. Orientation	Exam instructions	Verbatim transcript
13. Personal dialog	Personal regards	Roter (2011) ²⁸ ; Sleath (1996) ⁵⁰
14. Concern	Negative emotional disclosures	
15. Optimism	Positive emotional disclosures	

through the qualitative software QSR NVivo v10, just for data handling purposes. Table 2 describes all the variables registered in this study.

After coding, taped consultations were classified into 2 main groups: therapeutic follow-up (TF) and outcomes measurements (OM), the last including point-of-care testing and/or intramuscular injection administration. To evaluate the structure, the Byrne & Long medical consultation model was used: this is a simple model for interview segmentation,¹⁶ previously used in pharmacy communication research,^{11,30,31} easier to use than other frameworks (e.g. Calgary-Cambridge Guide).³² Thus, interviews were segmented as follows:

1. Opening – greetings and any initial statements regarding the reason of the visit;
2. History – gathering of information about patient's medical and therapeutic history, comprising medical conditions and therapeutic regimens, as well as lifestyle and/or psychosocial concerns;
3. Examination – physical examination and screening tests;
4. Counseling – professional advice about the medical conditions, therapeutic regimen, as well as lifestyle and/or psychosocial issues;
5. Closing – concluding statements.

Consultations were classified as completed when presenting the 5 distinguishable segments and/or with the right segment sequence i.e. opening > history > examination > counseling > closing.

Loyalty analysis

Although loyalty is explained by variables such as patient satisfaction, this study was looking for background variables, consultation features, and particularly communication variables, that could explain the odds of booking a following interview. All variables described in Table 2 were imported to a statistical database for quantitative analysis (R-CRAN, R Development Core Team 2011) aiming to explain the propensity to return for a subsequent pharmacist interview, hence to estimate predictors of loyalty. The dependent variable, loyalty, was coded as a binary variable with 2 categories: 1 if the patients booked a following interview and 0 otherwise, and logistic regressions calculations were performed.³³ Initially, univariate analyses were used to selected relevant predictors. This was assessed by the Wald test, considering at this stage a significance level of 25% (P -value < 25). After this pre-selection,

multivariate logistic regression models with step-wise selection process were estimated to obtain the best solutions (see Table 5), now using a significance level less than 5% for the entry and more than 15% to exclude a new predictor. Since data were obtained from different pharmacies, mixed logistic models were calculated to remove the nesting effect, i.e. removing the residual variability due to the random factor pharmacy.

Ethical approval

This study received ethical approval from an independent ethical commission for health care sciences and services research (UICISA-E). All data were handled and treated with respect for good practice research, with full confidentiality, and those elements essential to achieve the previously defined objectives were available for research team members only.

Results

Demographic and clinical data

The study sample comprised 17 pharmacists, with a mean age of 28 years (SD = 6.4) and ranging from 24 to 49, being 11 (64.7%) female. The number of taped pharmacy customers reached 56, with 40 (71.4%) being female. Customers' mean age was 65.7 years (SD = 13.1), ranging from 28 to 87.

Consultation features: content and structure

From the 59 recorded pharmaceutical interviews, the service provided in 45 (76.3%) was an OM, while 14 (23.7%) comprised a TF consultation. The mean duration of all interviews was 15:40 (min:sec) (SD = 16:12), ranging from a minimum of 2:34 to a maximum of 1:01:59 (h:min:sec). On average, an OM interview lasted 8:12 (SD = 5:13), while the TF exchange lasted 39:40 (SD = 16:17).

As seen in Table 3, the communication content analysis showed as the most frequent utterance *gives information*, with an average of 30.1 (SD = 26.8) per interview. The most frequent exchange comprised the *medical* condition, which was present in all interviews at least 3 times. *LS/PS* and *therapeutic* utterances were produced on average 21.6 (SD = 30.8) and 21.2 (SD = 27.8), respectively. After these three categories, the most common utterance was *orientation* (used to facilitate the interview flow), with a frequency of 13.9 (SD = 12.3) and also present in all interviews at least 3 times. *Personal dialog*

Table 2
Description of variables in the study

Variables	Meaning	Code
Pharmacy ID	Identification of pharmacy	
Pharmacist ID	Identification of pharmacist	
Pharmacist sex ^a	Pharmacist gender	0 – Female 1 – Male
Pharmacist age ^a		
Patient sex ^a	Patient gender	0 – Female 1 – Male
Patient age ^a		
Interview type ^a	Service provided	0 – Outcome measurement 1 – Therapeutic follow-up
First interview ^a	First time service was provided	0 – No 1 – Yes
Interview duration ^a	In seconds	
Accompanying ^a	Presence of a companion	0 – No 1 – Yes
Interruption ^a	Interview with interruption	0 – No 1 – Yes
Interruption duration ^a	In seconds	
Closed question – medical (i1) ^a	Frequency code 1	
Closed question – therapeutic (i2) ^a	Frequency code 2	
Closed question – LS/PS (i3) ^a	Frequency code 3	
Open question – medical (i4) ^a	Frequency code 4	
Open question – therapeutic (i5) ^a	Frequency code 5	
Open question – LS/PS (i6) ^a	Frequency code 6	
Gives information – medical (i7) ^a	Frequency code 7	
Gives information – therapeutic (i8) ^a	Frequency code 8	
Gives information – LS/PS (i9) ^a	Frequency code 9	
Advise – medical and therapeutic (i10) ^a	Frequency code 10	
Advise – LS/PS (i11) ^a	Frequency code 11	
Orientation (i12) ^a	Frequency code 12	
Personal dialog (i13) ^a	Frequency code 13	
Concern (i14) ^a	Frequency code 14	
Optimism (i15) ^a	Frequency code 15	
Presenting external patient data ^a	Patient clinical lab results at the interview	0 – No 1 – Yes
Presenting medicines at consultation ^a	Patient medication at the interview	0 – No 1 – Yes
New outcome measurement	Schedule of new a measurement	
New therapeutic follow-up	Schedule of new a consultation	
Fidelity ^b	Scheduling of new a service provision	
Opening segment frequency ^a	Frequency of opening segments	
Opening segment duration ^a	In seconds	
History segment frequency ^a	Frequency of history segments	
History segment duration ^a	In seconds	
Exam segment frequency ^a	Frequency of exam segments	
Exam segment duration ^a	In seconds	
Counsel segment frequency ^a	Frequency of counsel segments	
Counsel segment duration ^a	In seconds	
Closing segment frequency ^a	Frequency of closing segments	
Closing segment duration ^a	In seconds	
Segments complete ^a	Interview with the 5 interview segments	0 – No 1 – Yes
Segments with sequence ^a	Interview with ordered segments	0 – No 1 – Yes

^a Independent variables.

^b Dependent variable.

Table 3
Descriptive analysis of interviews content and segments

Content	Mean	SD	Min	Max
Closed question				
1. Medical	8.86	6.95	1	30
2. Therapeutic	7.61	10.19	0	56
3. LS/PS	4.37	6.32	0	33
Open question				
4. Medical	0.83	1.2	0	4
5. Therapeutic	1.34	2.37	0	10
6. LS/PS	0.64	1.11	0	5
Gives information				
7. Medical	30.10	26.77	3	124
8. Therapeutic	21.2	27.76	0	119
9. LS/PS	21.59	30.77	0	148
Advise				
10. Medical and therapeutic	8.53	10.54	0	60
11. LS/PS	3.58	7.17	0	50
12. Orientation	13.90	12.32	3	60
13. Personal dialog	11.03	12.59	0	51
14. Concern	5.66	6.74	0	28
15. Optimism	7.39	7.52	0	32
Segments	Mean	SD	Min	Max
Opening frequency	0.47	0.50	0	1
Opening duration ^a	21.47	34.04	0	117
History frequency	2.58	1.88	0	8
History duration ^a	411.49	648.44	0	3379
Exam frequency	1.19	0.43	1	3
Exam duration ^a	318.2	252.82	53	1423
Counsel frequency	2.15	1.44	0	7
Counsel duration ^a	316.93	403.54	0	1891
Closing frequency	0.88	0.42	0	2
Closing duration ^a	18.75	31.35	0	137

^a In seconds.

statements (i.e. social conversation) were shared on average 11.03 (SD = 12.6). Regarding *medical and therapeutic advice*, the average use was 8.53 (SD = 10.5), while *LS/PS advice* was shorter with 3.58 (SD = 7.2). When considering all the questions asked, the *closed questioning* format was the most frequent in all interviews, being the *medical condition* the most usual, with an average of 8.86 (SD = 6.9). Open questions concerning LS/PS were less frequent, with an average of 0.64 (SD = 1.1) per interview.

Regarding the consultation segments, 37.3% (n = 22) of all interviews presented all segments, while in 55.9% (n = 33) these were ordered (i.e. opening > history > examination > counseling > closing), even if missing one or more segments. In fact, it was found the *opening* segment was not present in more than half of the interviews (52.5%, n = 31), while the *closing* segment was present in

most interviews (81.4%, n = 48). The *history-taking* segment was not present in only 5.1% (n = 3) and all interviews comprised the *patient examination* segment. The *counseling* segment was absent only in 6.8% (n = 4). Segments such as *history*, *examination* and *counseling* appeared more than once, during the interview, with an average of 2.6 (SD = 1.9), 1.2 (SD = 0.4) and 2.2 (SD = 1.4), respectively. There were interviews presenting up to 8 history and/or 7 counseling segments.

Considering the length of the segments, the *closing* segment proved to be shorter than the *opening* one, with mean durations of 18.6 s (SD = 31.6) and 21.5 s (SD = 34), respectively. The *history* segment was the longest, with an average duration of 6:51 (SD = 10:48), followed by the *examination* segment with 5:18 (SD = 4:13) and the *advice* segment with an average duration of 5:17 (SD = 6:44).

Pharmacy loyalty

The proportion of customers who scheduled a following interview with the pharmacist was 32.2%. After the initial univariate analysis (see Table 4), a number of significant variables, as well as patient age, were submitted to multivariate logistic regression producing the results presented in Table 5. In a first model, it was found variables *gives LS/PS information* (OR = 1.09, P < 0.00), *patient age* (OR = 1.08, P = 0.05) and *segment complete* interviews (OR = 4.56, P = 0.12) to significantly explain pharmacy loyalty, even if presenting a P-value not less than the usual 0.05. Actually, these three variables were considered sufficient to assess the propensity to return to a next interview (AUC = 0.92). An alternative equivalent model was also calculated and found as predictors *open-question LS/PS* and *personal dialog* (see Table 5, model 2). It was observed that the conjugation of the variable *gives LS/PS information* with *patient age* made possible to obtain higher loyalty values within both the complete interview segments group as well as for those interviews with no complete segments.

Discussion

Demographic and clinical data

The study comprised predominantly pharmacists and customers both female, presenting the last an average age corresponding to elderly patients. These results are in accordance with

Table 4

Results of univariate analysis: statistic relevance for multivariate logistic regression of all potential loyalty predictors (marked with an asterisk)

Variable	OR	CI 95%	P-value	P-value < 0.25
Interview duration	1.001	1–1.002	0.004	*
Accompanying	11.438	0.424–308.565	0.139	*
Interruption	3.147	0.528–18.769	0.199	*
Interruption duration	1.046	0.972–1.126	0.219	
First interview	3.658	0.562–23.807	0.166	*
Patient sex	0.309	0.06–1.59	0.151	*
Patient age ^a	1.019	0.96–1.081	0.531	
Pharmacist sex	1.922	0.474–7.795	0.351	
Pharmacist age	0.979	0.873–1.098	0.712	
Closed question – medical	1.071	0.942–1.218	0.284	
Closed question – therapeutic	1.116	1.017–1.225	0.018	*
Closed question – LS/PS	1.240	1.05–1.465	0.010	*
Open question – medical	1.943	1.054–3.58	0.030	*
Open question – therapeutic	1.374	1.357–1.39	0.000	*
Open question – LS/PS	2.811	1.329–5.945	0.006	*
Gives information – medical	1.029	1–1.06	0.049	*
Gives information – therapeutic	1.040	1.007–1.073	0.014	*
Gives information – LS/PS	1.055	1.019–1.092	0.002	*
Advise – Medical and therapeutic	1.139	1.027–1.264	0.012	*
Advise – LS/PS	1.320	1.304–1.337	0.000	*
Orientation	1.074	1.006–1.146	0.029	*
Personal dialog	1.074	1.011–1.142	0.018	*
Concern	1.116	0.995–1.25	0.055	*
Optimism	1.151	1.032–1.283	0.010	*
Presenting external patient data	1.515	0.14–16.397	0.727	
Presenting medicines at consultation	2.796	0.483–16.18	0.241	
Opening segment frequency	2.164	0.443–10.563	0.330	
Opening segment duration	1.008	0.98–1.036	0.580	
History segment frequency	1.226	0.829–1.813	0.297	
History segment duration	1.001	1–1.003	0.052	*
Exam segment frequency	1.673	1.659–1.687	0.000	*
Exam segment duration	1.000	0.997–1.003	0.837	
Counsel segment frequency	1.204	0.74–1.96	0.445	
Counsel segment duration	1.003	1.001–1.004	0.003	*
Closing segment frequency	4.213	0.569–31.197	0.151	*
Closing segment duration	1.014	0.989–1.039	0.275	
Segments complete	2.749	0.61–12.391	0.179	*
Segments with sequence	0.413	0.099–1.723	0.216	*

^a This variable was maintained in the analysis due to its theoretical pertinence, although not compliant with the criterion.

professionals' gender distribution and the type of population that typically uses community pharmacies in Portugal.^{34–36}

Consultation features

The present study showed the average duration of a pharmaceutical interview during an OM to be 8:12 min, although the length of this type of service is highly related to the measurement itself and the procedures usually required, e.g. with or

without blood sampling.^{30,31,37} As expected, the mean duration of TF interviews proved to be longer (39:40 min) mainly due to medication assessment needs, usually associated with an OM to assess treatment effectiveness,¹¹ hence adding length to the consultation. Nevertheless, the interview extension is also needed to allow the pharmacist to explore and clarify any issues and concerns related to the medication being used. The predominant questioning type found was the closed format, but the dialog showed dyads' engagement

Table 5
Results of the first and second statistical models with variables that significantly predict fidelity

Model 1	OR	CI 95%	P-value
Patient age	1.08	1.00–1.16	0.05
Segments complete	4.56	0.67–31.01	0.12
Gives LS/PS information	1.09	1.03–1.15	0.00
<i>Summary measures</i>			
No. of cases	AIC	AUC	Random effects: St. Dev.
54	49.2	0.92	1.19
Model 2	OR	95% CI	P-value
Open LS/PS question	2.59	1.15–5.86	0.02
Personal dialog	1.06	1.01–1.12	0.03
<i>Summary measures</i>			
No. of cases	AIC	AUC	Random effects: St. Dev.
54	62.6	0.92	0.88

in personal disclosure and counseling, which may have result from a confidential and trustful environment in the consultation office.⁹ Although it is expected that such an interview atmosphere would provide bridges for longer interactions and continuity of care, the present study results have shown no association between the interview duration and the patients' willingness to return for a following appointment. Longer interviews do not necessarily correspond to patient expectations and/or are not perceived as providing a better quality of care. In fact, there are customers who prefer to visit pharmacies that provide only basic services, and this may be related to the lack of knowledge of what pharmacists' cognitive services are and what these services can do to help patients making the best use of their drug treatments.^{23,25,26}

Regarding content and in agreement with previous studies, most of the information exchanged was of a biomedical nature.¹⁸ The type of statement most frequently used was the provision of medical information (e.g. clinical data or current health problem description), followed by LS/PS information provision (e.g. psychosocial situation at home or at work, lifestyle info) and therapeutic data (e.g. drug, indication or dosage). These statements allow defining patients' clinical status and to inform on the

prescribed treatment, aiming to improve therapeutic outcomes.²⁹ Interestingly, counseling utterances were not so frequent, while the exchanged LS/PS information proved to be an interview feature associated with patients' willingness to return for a next appointment. Additionally, patient loyalty was also related to the personal dialog or social chitchat, i.e. utterances unrelated to health or clinical topics.²⁸ This will be further discussed in the next section.

Pharmacist-patient consultations do follow the widely accepted structure to interact with patients in a health care setting. It was noted that the opening segment was not present in the majority of the cases (52.5%) perhaps because the initial greetings between pharmacists and users occurred outside the consultation office and/or the recording of the interview started afterward. Some of the missed interview-closing segments can be explained by the abrupt recording termination (before the end of the interview) or due to the ongoing interaction when the customer was back to the counter to purchase any products.³⁶ The history segment was present in most interviews due to the need of researching customer's past and present clinical data, including medication related information, thus helping the pharmacist to implement any intervention, if necessary.^{38,39} The duration of this segment proved to be the longest, which is a good indicator of the pharmacist interest to collect additional information and better understand the patient clinical status.³⁸ On the other hand, the counseling segment was present in most, but not all, of the interviews. If it is expected the pharmacist to enroll in an active conversation with the customer, especially when developing a care plan, then counseling should be present in all interviews. Actually, this segment is known to be the one where professionals should exert their influence and attempt to improve patient's medication-related behaviors.^{38,40} More importantly, the current study found multiple history and counseling segments per interview. This does not follow the usual health care consultation structure, accepted to be the most effective, and might contribute to confuse the patient in relation to the purpose and procedures of a pharmaceutical care consultation as an important tool of pharmacists' labor.^{41,42} In any event, one possible reason for multiple history and counsel segments in the same interview is related to abnormal results in OM, which should trigger new questioning utterances or counseling cycles.⁴⁰

Pharmacy loyalty

The ROC (receiver operating characteristic) curves, which provide an overall statistical summary of models' diagnostic accuracy, are above 0.9 in both proposed solutions. According to Hosmer et al. (2013) this indicates an excellent discriminatory capacity, being possible to accept any of the models with good confidence.³³

From all variables that might have had an impact on patients' loyalty to a particular pharmacy, the first model presents LS/PS information and open LS/PS questioning, as well as personal dialog (amongst others), as the variables to exert the greatest influence. This clearly indicates that patients' willingness to return to the pharmacy for a follow-up interview might be based on the relationship qualities rather on pharmacists' technical competencies, i.e. the probable satisfaction with the service seems supported by drugs unrelated skills and reinforced by humanistic features. These last qualities are not usually recognized by professional and education bodies as core pharmacists' competencies, since "pharmacists are medicines experts,"⁴³ even if pharmacists' technical work and medicines-related skills are not fully recognized by service users. On the other hand, when the interview comprises the five usual segments in a clinical visit there is a greater propensity to be loyal to that pharmacy. Although it remains to be understood whether a structured and purposeful interview is noticeable by users, i.e. if patients understand the importance of a complete consultation to address its clinical and patient caring objectives, one can ask if the absence of a service righteous sequence mean a lower service quality perception, leading to less loyalty. Previous studies on patient-pharmacist relationship have found that patient-perceived pharmacist expertise and contact intensity predicted the relationship quality, which in turn predicted the relationship commitment.^{44–46} Although using an equivalent population but not measuring the same constructs, the present study results suggest equivocal conclusions, which may be a reflection of different practice contexts. Nevertheless, other studies indicate that explaining to pharmacy customers how the service works was an important factor for changing users' attitude and to achieve a greater recognition of the service.⁴⁷

Study limitations

This study presents limitations, such as the reduced sample size. The dialogs were analyzed

through interview transcripts, which may have caused bias in identifying the actual duration of each utterance as well as a potential loss of the affective tone identification. However, using a simple coding scheme and a single coder reduced the risk of internal inconsistencies.

Pharmacy customers who participated in the study were not completely unaware of the nature of the investigation, so influence on the content exchanged may have occurred (Hawthorne effect).⁴⁸ Also, customers' selection was purposively accomplished by each pharmacist and might have been based on previous patient knowledge, which in turn might have limited the search for patient's information, i.e. history taking. Another study limitation includes the absence of individual clinical information for each patient, being impossible to check the interview content adjustment.

Conclusion

Studies on communication between pharmacists and pharmacy customers are scarce, in particular those comprising interaction outcomes. This study aimed to characterize the pharmacist-patient exchange while providing pharmaceutical care services, as well as to identify whether technical and/or humanistic communication-based variables would influence patient willingness to return for a next consultation with a pharmacist. Although commonly defended in professional forums as the relevant educational approach, medication-related competencies seem to be less influential in customer retention and loyalty than social-based skills. Regardless of the technical work being an essential component for therapeutic follow-up and suitable pharmaceutical care provision, humanistic-based skills were found to promote Portuguese customers' visit to pharmacies, including the customer experience of an appropriately structured and conducted interview. Knowing the best pharmacists' expertise is actually centered in drug therapy, and keeping in mind this might not presently be fully recognized by service users, the present study helps explaining the common low success of pharmaceutical care initiatives and suggests the need to improve pharmacists' psychosocial and clinical communication training.

Acknowledgments

We would like to thank João Romano, FCT Project Ref. PTDC/SAU 098006/2008 and all participating pharmacists for the collaboration with this study.

References

1. Associação Nacional de Farmácias. Ofício Circular n.º 7820/2012 – fim da colaboração das farmácias nos programas terapêuticos de administração de metadona, buprenorfina e naltrexona. Available from: <https://www.anfonline.pt/SitePages/Internal-Page.aspx?ListId={98470d02-1dea-4edc-a564-a4cb4379ce23}&ItemId=13706&SourceId=6>. Accessed 13.03.14.
2. Associação Nacional de Farmácias. Contributos em Saúde para os Diabéticos – Avaliação do Programa de Cuidados Farmacêuticos: Diabetes. Farmácia Observatório [Internet]. Available from: http://www.anf.pt/images/stories/farmacia_observatorio/foespago06.pdf. Accessed 28.03.14.
3. van Mil JWF, Schulz M. A review of pharmaceutical care in community pharmacy in Europe. *Harv Health Policy Rev* 2006;7:155–168.
4. Associação Nacional de farmácias. 3º Protocolo Diabetes: nível II, programa de cuidados farmacêuticos - diabetes, procedimento de facturação dos cuidados farmacêuticos. Available from: http://pharmateam.com.pt/Upload/Circulares/9-2010_ANEXO1.pdf. Accessed 28.03.14.
5. Grupo de Acompanhamento Farmacoterapêutico de Évora. Acompanhamento Farmacoterapêutico. Available from: <http://www.ac-ft.pt/index.htm>. Accessed 27.06.14.
6. VII Encontro de Acompanhamento Farmacoterapêutico: farmacêuticos reforçam benefícios da função assistencial do farmacêutico. *ROF* 2012 Nov-Dec;105:77.
7. Crow R, Gage H, Hampson S, et al. The measurement of satisfaction with healthcare: implications for practice from a systematic review of the literature. *Health Technol Assess* 2002;6.
8. Berry TM, Prosser TR, Wilson K, Castro M. Asthma friendly pharmacies: a model to improve communication and collaboration among pharmacists, patients, and healthcare providers. *J Urban Health* 2011;88:113–125.
9. International Pharmaceutical Students' Federation, International Pharmaceutical Federation. *Counseling, Concordance and Communication – Innovate Education for Pharmacists*. Available from: <http://www.fip.org/files/fip/PI/Counseling,%20Concordance,%20and%20Communication%20-%20Innovative%20Education%20for%20Pharmacists.pdf>. Accessed 14.03.14.
10. European Directorate for the Quality of Medicines & HealthCare of Council of Europe. *Pharmaceutical Care – Policies and Practices for a Safer More Responsible and Cost-effective Health System*. Strasbourg, France: Council of Europe; 2012.
11. Pelicano-Romano J, Neves MR, Amado A, Cavaco AM. Do community pharmacists actively engage elderly patients in the dialogue? Results from pharmaceutical care consultations. *Health Expect*; 2013. <http://dx.doi.org/10.1111/hex.12165> [Epub ahead of print].
12. Nunes JM. A abertura da consulta. O fim está no princípio. *Rev Port Clin Geral* 2009;25:199–207.
13. Kaae S, Traulsen JM, Norgaard LS. Challenges to counseling customers at the pharmacy counter-why do they exist? *Res Soc Adm Pharm* 2012 May-Jun;8:253–257.
14. Shah B, Chewning B. Conceptualizing and measuring pharmacist-patient communication: a review of published studies. *Res Soc Adm Pharm* 2006; 2(2):153–185.
15. Murad MS, Chatterley T, Guirguis LM. A meta-narrative review of recorded patient-pharmacist interactions: exploring biomedical or patient-centered communication? *Res Soc Adm Pharm* 2014;10(1): 1–20.
16. Byrne PS, Long BEL. *Doctors Talking to Patients*. London, United Kingdom: Royal College of General Practitioners; 1984.
17. Liekens S, Vandael E, Roter D, et al. Impact of training on pharmacists' counseling of patients starting antidepressant therapy. *Patient Educ Couns* 2014;94(1):110–115.
18. Chong WW, Aslani P, Chen TF. Pharmacist-patient communication on use of antidepressants: a simulated patient study in community pharmacy. *Res Soc Adm Pharm* 2014;10(2):419–437.
19. Kubota Y, Yano Y, Seki S, et al. Assessment of pharmacy students' communication competence using the Roter Interaction Analysis System during objective structured clinical examinations. *Am J Pharm Educ* 2011;75(3):43.
20. Bonnala L, Moiniera X. Elements of pharmacy service and satisfaction: patient versus consumer? *J Appl Bus Res* 2014;30:479–488.
21. Fornell C, Johnson MD, Anderson EW, Cha J, Bryant BE. The American customer satisfaction index: nature, purpose, and findings. *J Mark* 1996;60: 7–18.
22. Stergachis A, Maine LL, Brown L. The 2001 national pharmacy consumer survey. *J Am Pharm Assoc* 2002;42:568–576.
23. Whitehead P, Atkin P, Krass I, Benrimoj SI. Patient drug information and consumer choice of pharmacy. *Int J Pharm Pract* 1999;7:71–79.
24. Bastos JAR, Gallego PM. Pharmacies customer satisfaction and loyalty – A framework analysis. Available from: http://gredos.usal.es/jspui/bitstream/10366/75181/1/DAEE_01_08_Pharmacies.pdf. Accessed 17.03.14.
25. Gastelurrutia MA, de San Vicente OG, Erauncetamurgil O, Odriozola I, Fernández-Llimós F. Customers' expectations and satisfaction with a pharmacy not providing advanced cognitive services. *Pharm World Sci* 2006;28:374–376.
26. Bofí P, Martínez MC, Bofí A, et al. Análisis del efecto y grado de fidelización de los pacientes mediante los servicios de educación sanitaria y de seguimiento

- farmacoterapéutico ofertados desde la farmacia comunitaria (Proyecto Fisftes). *Farmacéuticos Comunitarios [Internet]* 2011;3:62–66. Available from: http://sefac.org/files/documentos_sefac/revista/revista_sefac_vol3_n2.pdf. Accessed 14.01.14.
27. Cavaco A, Roter D. Pharmaceutical consultations in community pharmacies: utility of the Roter Interaction Analysis System to study pharmacist-patient communication. *Int J Pharm Pract* 2010;18(3): 141–148.
 28. Roter D. *The Roter Method of Interaction Process Analysis*. Baltimore, MD: The Johns Hopkins School of Public Health, Department of Health, Behavior and Society; 2011.
 29. Roter D, Larson S. The Roter interaction analysis system (RIAS): utility and flexibility for analysis of medical interactions. *Patient Educ Couns* 2002; 46:243–251.
 30. Cavaco AN, Romano JP. Exploring pharmacists' communication with customers through screening services. *Patient Educ Couns* 2010;80:377–383.
 31. Cavaco AN, Romano JP. Exploring pharmacist-customer communication: the established blood pressure measurement episode. *Pharm World Sci* 2010 Oct;32:601–609.
 32. Greenhill N, Anderson C, Avery A, Pilnick A. Analysis of pharmacist-patient communication using the Calgary-Cambridge guide. *Patient Educ Couns* 2011;83(3):423–431.
 33. Hosmer DW, Lemeshow S, Sturdivant RX. *Applied Logistic Regression*. 3rd ed. New York, NY: Wiley Series in Probability and Statistics; 2013.
 34. Tully MP, Temple B. The demographics of pharmacy's clientele – a descriptive study of the British general public. *Int J Pharm Pract* 1999;7:172–181.
 35. International Pharmaceutical Federation. FIP global pharmacy: workforce report. Available from: http://www.fip.org/files/members/library/FIP_workforce_Report_2012.pdf. Accessed 20.03.14.
 36. Boardman H, Lewis M, Croft P, Trinder P, Rajaratnam G. Use of community pharmacies: a population-based survey. *J Public Health* 2005;27: 254–262.
 37. National Heart, Lung and Blood Institute. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7). Available from: <https://www.nhlbi.nih.gov/guidelines/hypertension/index.htm>. Accessed 02.11.13.
 38. Caelles N, Ibañez J, Machuca M, Martínez F, Faus MJ. Entrevista farmacéutico-paciente en el Programa Dáder de seguimiento farmacoterapéutico. *Pharm Care Esp* 2002;4:55–59.
 39. Stiles WB, Putnam SM, Wolf MH, James SA. Interaction exchange structure and patient satisfaction with medical interviews. *Med Care* 1979 Jun;17: 667–681.
 40. Pharmaceutical Care Research Group, University of Granada. Pharmacotherapy follow-up: the Dader method (3rd revision: 2005). *Pharm Pract* 2006;4:44–53.
 41. The University of Nottingham. An Exploration of Pharmacist-Patient Communication in Clinic-style Consultations [Nottingham eTheses]. Available from: http://etheses.nottingham.ac.uk/1659/1/Nicola_Greenhill_Thesis_31-10-10.pdf. Accessed 20.06.14.
 42. Cleland J, Bailey K, McLachlan S, McVey L, Edwards R. Supplementary pharmacist prescribers' views about communication skills teaching and learning, and applying these new skills in practice. *Int J Pharm Pract* 2007;15:101–104.
 43. Anderson C, Bates I, Beck D, et al. The WHO UNESCO FIP Pharmacy Education Taskforce. *Hum Resour Health* 2009;7:45.
 44. Worley MM, Schommer JC. Pharmacist-patient relationships: factors influencing quality and commitment. *J Soc Adm Pharm* 1999;16(3–4): 157–173.
 45. Worley-Louis MM, Schommer JC. Pharmacists' therapeutic relationships with older adults: the impact of participative behavior and patient-centeredness on relationship quality and commitment. *J Soc Adm Pharm* 2002;19(5): 180–189.
 46. Worley MM. Testing a pharmacist-patient relationship quality model among older persons with diabetes. *Res Soc Adm Pharm* 2006;2(1):1–21.
 47. Montgomery AT, Kettis Lindblad A, Eddy P, Söderlund E, Tully MP, Källemark Sporrang S. Counselling behaviour and content in a pharmaceutical care service in Swedish community pharmacies. *Pharm World Sci* 2010;32:455–463.
 48. McCarney R, Warner J, Iliffe S, van Haselen R, Griffin M. The Hawthorne Effect: a randomised, controlled trial. *BMC Med Res Methodol* 2007; 7:30.
 49. Sleath B. Pharmacist question-asking in New Mexico community pharmacies. *Am J Pharm Educ* 1995;59:374–379.
 50. Sleath B. Pharmacist-patient relationships: authoritarian, participatory, or default? *Patient Educ Couns* 1996;28:253–263.
 51. Fritsch MA, Lamp KC. Low counseling rates in the Kansas City, Missouri, metropolitan area. *Ann Pharmacother* 1997;31:985–991.
 52. Kooy MJ, Dessing WS, Kroodsma EF, et al. Frequency, nature and determinants of pharmaceutical consultations provided in private by Dutch community pharmacists. *Pharm World Sci* 2007;29: 81–88.