Original article

Assessment of patient counselling on the common cold treatment at Slovak community pharmacies using mystery shopping

Daniela Mináriková [a,*], Tomáš Fazekaš [b], Peter Minárik [c], Erika Jurišová [d]

[a] Department of Organisation and Management in Pharmacy, Faculty of Pharmacy, Comenius University in Bratislava, Odbojarov 10, SK-83232 Bratislava, Slovak Republic
[b] Department of Physical Chemistry of Drugs, Faculty of Pharmacy, Comenius University in Bratislava, Odbojarov 10, SK-83232 Bratislava, Slovak Republic
[c] St. Elisabeth University of Health and Social Work, Palackeho 1, 811 02 Bratislava, Slovak Republic
[d] Department of Languages, Faculty of Pharmacy, Comenius University in Bratislava, Odbojarov 10, SK-83232 Bratislava, Slovak Republic

ARTICLE INFO

ABSTRACT

Background: Up to now, there have been no data on patient counselling in the Slovak community pharmacies. The literature provides a wide range of activities for which mystery shopping methodology be used, including assessment of patient counselling.
Aims and objectives: To assess patient counselling on the common cold treatment with OTC medicine containing zinc provided by Slovak community pharmacists. To analyse this counselling considering the set scenarios, counsellors and their age.
Methods: 54 pharmacy students visited 270 different community pharmacies throughout Slovakia in 2 weeks in October 2016 to conduct mystery shopping with set scenarios. For assessment of patient counselling, we defined Counselling Performance. It was conceptualised as weighted mean percentage counselling successes rate of its three categories (Identification, Information and Communication) and their weights. Individual perception of counselling evaluated separately. Student t-test and Person's chi-squared test ($p < 0.05$) and Cohen delta were used for comparing outcomes and effect size of counselling. A simple linear regression was used to find relationships.
Results: The total Counselling Performance was $39.0 \pm 22.4\%$, Identification $30.6 \pm 28.7\%$, Information $39.8 \pm 25.1\%$ and Communication $74.3 \pm 11.5\%$. 26.3% pharmacies achieved the average Counselling Performance (41–60%). Subjective Perception had a success rate of $73.4 \pm 21.2\%$, but it could be predicted by the Counselling Performance and the success rate of the three categories only in 1/5 pharmacies. Spontaneous counselling was provided more by pharmacy technicians ($p = 0.0009$). The duration of counselling was similar when comparing both scenarios, counsellors and their age. The product-requested scenario achieved a higher success rate in the Information category ($p = 0.0304$; $d = 0.27$). Pharmacists achieved a higher Counselling Performance ($p < 0.0001$; $d = 0.48$) and success rate in categories Identification ($p = 0.0001$, $d = 0.46$), Information ($p = 0.0004$, $d = 0.37$), and Perception ($p = 0.0007$; $d = 0.54$). The estimated age of counsellors did not have any impact on the counselling.
Conclusion: Patient counselling on the common cold showed a suboptimal level, particularly considering its content. In the study, we found a significant relationship between the success of counselling and counsellors.

1. Introduction

Pharmacists are unique healthcare professionals responsible for ensuring safe and effective use of medicines for prevention or treatment of illnesses. Recently, the scope of pharmacy practice has expanded beyond the supply of medicines (Melton and Lai, 2017). Despite the new trend in pharmacy, such as patient-centered care, and the growing range of advanced pharmaceutical services, the traditional dispensing of prescription and non-prescription medicines (over-the-counter, OTC) still remain the decisive priority for most pharmacists (Kehrer et al., 2013).

Patient counselling is an essential element of pharmacy practice. It has mainly connected with the dispensing of medicines. Generally, it is any provision of medication information and advice by pharmacists to achieve optimal use of medicines when resolving health-related problems (Puspitasari et al., 2009). The systematic review suggests that clinical outcomes, adherence to treatment, prevention of health-related problems, quality of life, understanding of medicines and diseases, clinical outcomes and patient satisfaction have improved by appropriate counselling of pharmacists (Okumura et al., 2014).

Professional organisations have published several counselling guidelines (American Society of Health-system Pharmacists, 1997; Pharmaceutical Society of Australia, 2017). The guidelines agree that patient counselling should begin with an essential identification of the patient and should include the necessary information on the medicine (name and description of the medicine, indications, route of administration, dosage and dosage form, instructions for use, duration of the treatment). Considering the patient's needs or specific properties of the medicine, extensive dispensing information such as special instructions, precautions, side effects, and contraindications should be provided. The guidelines also emphasise that pharmacists must conduct patient counselling actively to ensure that the patient understands all necessary information for safe and effective treatment.

The extent to which counselling guidelines are followed in pharmacy practice is not sufficient and usually varies considerably depending on the intensity of state regulation, pharmacy busyness, and pharmacist personal performance (Svarstad et al., 2004). Implementation of counselling recommendations is not easy and requires changes in pharmacy practice together with effective auditing and coaching of pharmacists. Several methods have been employed to improve pharmacist performance in providing patient counselling as well as adherence to guidelines (Watkins et al., 2015). The audit using mystery shopping with feedback has been identified as a commonly used and effective interventional method to change the behaviour of pharmacists (Xu et al., 2012). Collins et al. (2017) reported that repeated mystery shopping visits with feedback were associated with improvement of the pharmacist performance over time. The mystery shopping method has been successfully used in many countries so far to evaluate counselling practice of pharmacists (Alaqeel and Abanmy, 2015; Alfadl et al., 2017; Berger et al., 2005; Hammad et al., 2018; Horvat et al., 2012; Negru et al., 2012; Paravattil et al., 2017; Santos et al., 2013) and to monitor the quality standards in dispensing of OTC medicines (Benrimoj et al., 2008).

Slovakia is a European country with a high availability of healthcare provided by community pharmacists. The liberalisation of pharmacy ownership along with the geographical and demographic deregulation of the pharmaceutical market has led to an uneven and robust increase in new pharmacies in Slovakia and the development of pharmacy networks or chains. Slovak pharmacists are legally obliged to provide professional information, appropriate advice and counselling on prescription as well as non-prescription medicines, medical devices and diet products for special nutrition (Act No. 362/2011; Decree No. 129/2012) although no local dispensing and counselling guidelines have been published yet. OTC medicines are available only in pharmacies in Slovakia. Dispensing and counselling on these medicines can be provided by pharmacists who have completed 5-year master study at university and by pharmacy technicians who have completed secondary education (a school of the healthcare) with a specialisation diploma in the specialisation field *'retail pharmacy'*.

At present, the pharmaceutical care in Slovakia represents a traditional model with an emphasis on the dispensing activity of pharmacists. Patient counselling and extended pharmacy services have identified as deficiencies in the quality of pharmaceutical care in several studies (Szalayová et al., 2014; Smatana et al., 2016). No relevant data have published so far, which would monitor the patient counselling provided by community pharmacists in dispensing OTC medicines.

This study aimed to assess patient counselling on the common cold treatment with OTC medicine containing zinc (*zincumorotate*, Zinkorot®) provided by Slovak community pharmacists. The study analysed the success rate of counselling, its spontaneity and duration considering the set scenarios, counsellors and their age.

2. Materials and methods

The mystery shopping method was employed to assess patient counselling in Slovak community pharmacies in dispensing an OTC medicine containing zinc (*zincumorotate*, Zinkorot®) in the self-medication of the common cold.

2.1. Mystery shoppers

Mystery shoppers (MSs) were 54 students of the Faculty of Pharmacy at Comenius University in Bratislava. All students were trained for the mystery shopper's role in two steps. The first phase in April 2016 was focused on the studentś role as a mystery shopper (MS). Students were taught during a 2-days course about the common cold and its treatment. Mystery shopping scenarios and the assessment protocol were explained to them in detail, and they were trained in a practical role-play *('dispensing simulator')* by the researcher team. In the second phase in September 2016 students were asked to complete a short online assessment protocol of two sample cases, which described possible situations in counselling on the common cold treatment with zinc containing medicine. Consistency and accuracy of students' evaluations of the model assessment protocol were verified. Statistical analysis did not unveil a significant share of the contribution of individual assessments of students on the overall variability of results, therefore their further training was not necessary.

2.2. Scenarios

Patient counselling on the common cold treatment was selected because it is one of the most frequent health problems in which patients visit a community pharmacy (Boardman et al., 2005). Two scenarios were developed (Appendix A): the scenario P was a product-based request (MS directly asked for Zinkorot®, it is a trade name of the only one OTC medicine containing *zincumorotate* registered in Slovakia). The scenario S was a symptom-based request (MS asked for a product containing zinc for the treatment of the common cold). The scenarios were proposed considering the published evidence-based information. Zinc administered within 24 h after the onset of common cold symptoms at higher daily dose leads to a significant reduction in the duration and severity of the common cold symptoms, incidence, school absence and prescription of antibiotics in children with the common cold (Singh and Das, 2013). The final scenarios were based on the WWHAM questioning method (W = Who is the patient? W = What are the symptoms? H = How long have the symptoms benn present? A = Action taken. M = Medication being taken, Rutter et al., 2004) and adapted from previously published articles (Berger et al., 2005; Horvat et al., 2012). MSs were not in the direct position of the patient. They asked about the treatment of the common cold for his or her sister. We supposed that this approach would facilitate the role of MSs and allow ending of mystery visit easily without a purchase of the medicine. MSs have given explicit instructions for successful mystery shopping (Appendix B). All materials were available for MSs in the electronic form.

2.3. Assessment protocol

The assessment protocol (Appendix C) included three categories of patient counselling: Identification (six items related to the identification of the patient and his or her health problem), Information (eight items related to the information about medicine Zinkorot®), Communication (five items related to the spontaneity and selected communication characteristics of patient counselling). Identification and Information items were designed to enable yes / no scale for the assessment. The Likert scale with 5 points (1-excellent, 2-very good, 3-good, 4-fair, 5-poor) was used in the assessment of Communication items. If a counsellor provided information actively, asked open questions and held a dialogue, counselling was considered as spontaneous. If a counsellor just answered questions given by MS, it was considered as requested. Spontaneity of counselling was assessed as 1-excellent, requested counselling as 5-poor. The protocol included five additional Likert scale 5-point range items for evaluating MS's subjective Perception of the mystery visit. Characteristics of visited pharmacies and situation during the mystery visit were also included. The duration of counselling and the age of the counsellor have estimated. MSs tried to identify the counsellor (pharmacist or pharmacy technician) using name tags. A pilot study (three students, six different pharmacies, two pharmacies per a student with the scenario P and S) has conducted in August 2016 to test the content and performing of the scenarios. No significant issues in the mystery visit methodology and the assessment protocol were identified.

2.4. Mystery visits and pharmacies

The cross-sectional study was conducted during two weeks in October 2016. At the same time, students performed their obligatory practice as a part of a master study in community pharmacies. This fact determined the localisation of the study in Slovak cities and researchers could not directly influence its final geographic localisation. At least 10% of pharmacies were covered in each region of Slovakia, except the region including the capital of Slovakia (27%). In the case that more students were in the same city, researchers suggested a list of 7–10 pharmacies for mystery shopping to each student with the aim to prevent repeated visits to the same pharmacy. Students individually chose pharmacies from the recommended list, the order of the scenarios and the day and time when they made their mystery visit (following given instructions). None of this information was known for researchers to ensure anonymity of the assessment. To decrease the Hawthorn effect, we did not actively inform pharmacies about this assessment. In cases, if a pharmacist detected MS or did not know this medicine, the visits were not valid, and MS had to visit another pharmacy. Each counselling has documented immediately after the visit outside the pharmacy in the electronic assessment protocol, which was available from the personal mobile of each student. The mystery visits have not audio-visually recorded. All assessments were eligible for analysis.

2.5. Data analysis

The collected data were analysed using the statistical SAS Education Analytical Suite, version 9.3. Initially, the descriptive statistic was performed. The assessment of patient counselling was expressed as total Counselling Performance. It was conceptualised as weighted mean percentage successes rate of its three categories (Identification, Information, and Communication). Statistical weights were determined as the inverse of normalised variances of the individual success rate of pharmacies in the three assessment categories. Three different levels of the counselling success rate established: low ($\leq$40%), average (41–60%) and high ($\geq$61%).

The correlation coefficient *r* was calculated between the total Counselling Performance, Identification, Information, Communication, and Perception of MSs using a simple two-parameter linear regression model. The coefficient of determination ($r^2 \times 100\%$), as the share of data described by the linear model, was expressed in percentage. The Student *t*-test and the Pearson's chi-squared test (both with p < 0.05 indicating statistical significance) and Cohen's *d* for calculation of effect size (small = 0.2, medium = 0.5, high = 0.8) were used for comparison of counselling, considering the set scenarios, counsellors and their age. In the analysis were included only those counsellors whom the MSs identified as pharmacists or pharmacy technicians (n = 193).

2.6. Ethical approval

The study was reviewed and approved by the Ethics Committee for Biomedical Research, Faculty of Pharmacy, Comenius University in Bratislava No 4/2016 who agreed that ethical approval was not necessary because the information obtained was recorded in such a way that pharmacists involved cannot be identified and results are reported anonymously and confidentially.

3. Results

3.1. Descriptive analysis

Mystery shopping involved 270 different community pharmacies, which represented approximately 13.9% of all the community pharmacies in Slovakia. The research was conducted in 42 Slovakian cities (this is 30% of all cities in Slovakia with a minimum population of 5 000 inhabitants). Eighty-two (30.4%) pharmacies belonged to a chain of pharmacies. In more than half mystery visits, a pharmacist (51.9%) provided patient counselling. MSs estimated the approximate age of counsellors, and 55.9% of them they included to the group of younger counsellors ($\leq$35 years). Table 1 outlines the pharmacies and staff characteristics.

Mystery visits took place from 07.45 a.m. to 19.35p.m. 82 (30.4%) visits were in the morning (until 12.00 a.m.). Table 2 outlines the general description of mystery shopping visits.

One hundred and fifteen (44.1%) mystery visits were performed with the scenario P, 151 (55.9%) with the scenario S. In the case of the scenario P, besides the requested medicine, counsellors also offered other products in 52 (43.7%) cases. It was a variety of dietary supplements containing zinc. As for the scenario S, 87 (57.6%) counsellors offered Zinkorot® and other products (dietary supplements), whereas 64 (42.4%) of them offered only the medicine Zinkorot®.

Table 1
Pharmacies and staff characteristics (n = 270).

Characteristics		n (%)
Pharmacy type	Independent	151 (55.9)
	Chain	82 (30.4)
	NA	37 (13.7)
Pharmacy location	Near healthcare facility	72 (26.7)
	City centre	76 (28.1)
	Residential area	54 (20.0)
	Shopping centre	59 (21.9)
	Other	9 (3.3)
Counsellor	Pharmacist	140 (51.9)
	Pharmacy technician	53 (19.6)
	NA	77 (28.5)
Estimated age of counsellors	Younger ($\leq$35 years)	151 (55.9)
	Older ($\geq$36 years)	119 (44.1)

NA = not applicable.

Table 2
Description of mystery shopping visits (n = 270).

Characteristics		n (%)
MSs used initial question 'Can you tell me more?'	Yes	198 (73.3)
Waiting time	None	141 (52.2)
	Less than 5 min	114 (42.2)
	More than 5 min	15 (5.6)
Reasons for waiting	None	142 (52.6)
	Other visitors	115 (42.6)
	Lack of staff	12 (4.4)
	Inadequate time offered to another visitor	1 (0.4)
Counselling place	Rx medicine counter	182 (67.4)
	Private counselling room	1 (0.4)
	OTC medicine counter	87 (32.2)
Counsellor greeting	Yes	262 (97.0)
Counsellor introducing	Yes	2 (0.8)
Counsellor asked for the reason of visit	Yes	125 (46.3)
Estimated counselling duration	Less than 5 min	229 (84.8)
	More than 5 min	41 (15.2)
Situation after mystery visit	Other visitors presented	142 (52.6)
	Without other visitors	128 (47.4)
Eye contact of counsellor	Yes	257 (95.2)
Open-ended questions of counsellor	Yes	114 (42.2)
Written information	Yes	28 (10.4)
Using information source	Yes	86 (31.9)

MSs = mystery shopper, Rx = prescription medicine, OTC = non-prescription medicine.

Table 3
Counselling content (n = 270).

Identification *Did counsellor ask for … n (%)*		Information *Did counsellor inform about … n (%)*	
Who is the patient?	131 (48.5)	OTC medicine and DS difference	108 (40.0)
What symptoms are present?	133 (49.3)	Dosage of medicine	192 (71.1)
How long are symptoms present?	72 (26.7)	Administration of medicine	131 (48.5)
What medicine has used in the past?	59 (21.9)	Duration of medicine use	83 (30.7)
Is the patient taking any other medicines?	39 (14.4)	Side effects of a medicine	24 (8.9)
How is the overall health status?	62 (23.0)	The expected result of medicine	79 (29.3)
		Medicine price	191 (70.7)
		Feed-back about understanding	51 (18.9)

Results present the number and percentage of pharmacies with assessment YES. DS = dietary supplements.

3.2. Counselling assessment

Table 3 summarises the results of the counselling content (Identification and Information) and Table 4 its manner (Communication) considering each item for all the participating pharmacies. *"Who is the patient"* (48.5%) and *"What symptoms are present"* (49.3%) appeared to be the most frequently asked questions by counsellors in the category of Identification of the patient. Questioning about taking any other medicines was very rare (14.4%). Counsellors provided primary information about dosage (71.1%) and the price of the medicine (70.7%). Only 8.9% counsellors warned MSs about side effects of the medicine. Counselling was spontaneous in 55.6% of visits. Communication skills generally rated very positively. The clarity of counselling (score 1.6) and non-verbal communication (score 1.7) were evaluated a slightly better than confidentiality of counselling and attention and interest of the counsellor (score 2.0).

The total Counselling Performance of all pharmacies was 39.0 ± 22.4% (from max. 100%). While in Identification and Information categories the pharmacies reached about the third of success rate, the success rate had doubled in Communication (Table 5).

Table 6 shows the distribution of the absolute and relative frequency of pharmacies based on the counselling success rate. The average Counselling Performance (41–60%) achieved 71 (26.3%) pharmacies. There were 39 (14.4%) pharmacies in the category Identification, 58 (21.5%) pharmacies in the category Information

and 20 (7.4%) pharmacies in the category Communication. The highest share of pharmacies with a low counselling success rate (≤40%) has found in the category of Identification (178; 65.9%). The largest share of pharmacies with a high counselling success rate (≥61%) was in the category of Communication (250; 92.6%).

MSs assessed subjective Perception of counselling very positively (the success rate of 73.4 ± 21.2%). Counselling duration, knowledge and general impression were rated more negatively than professional performance and communication skills (Table 7). Linear regression analyses showed only weak correlation between the total Counselling Performance (r^2 = 36.3%), Identification (r^2 = 21.9%), Information (r^2 = 26.9%) and Communication (r^2 = 16.9%) with subjective Perception of counselling by MSs (p < 0.0001). It means that only in approximately 20% of mystery visits, higher total Counselling Performance and counselling success rate of its three assessment categories, have correlated positively with higher Perception.

3.3. Counselling comparison

We found only one statistically significant difference in analysing the spontaneity of counselling which was in favour of pharmacy technicians (p = 0.0009). Results are presented in Table 8. We did not find any statistically significant differences in the duration of counselling concerning the set scenario, counsellors and their age (Table 9).

Table 4
Counselling manner (n = 270).

Communication How did MS assess ... n (%)						
	Excellent	Very good	Good	Fair	Poor	Score
Clarity of counselling	139 (51.5)	85 (31.5)	39 (14.4)	7 (2.6)	0 (0)	1.6
Confidentiality of counselling	102 (37.8)	90 (33.3)	61 (22.6)	15 (5.6)	2 (0.7)	2.0
Non-verbal communication	143 (53.0)	88 (32.6)	28 (10.4)	9 (3.3)	2 (0.7)	1.7
Attention and interest	106 (39.3)	84 (31.1)	52 (19.3)	22 (8.1)	6 (2.2)	2.0
Type of counselling[*]	150 (55.6)	–	–	–	120 (44.4)	

[*] Spontaneity of counselling was assessed as 1-excellent, requested counselling as 5-poor. The value score was assigned according to school grades (1- excellent ... 5-poor).

Table 5
Counselling assessment (n = 270).

Categories	Mean success rate ± SD (%)	CI (%)
Identification	30.6 ± 28.7	27.2–34.1
Information	39.8 ± 25.1	36.8–42.8
Communication	74.3 ± 11.5	72.9–75.7
Total Counselling Performance	**39.0 ± 22.4**	**36.3–41.7**

SD = Standard Deviation, CI = Confidence Interval.

Table 6
Distribution of absolute and relative frequency of pharmacies according to counselling success rate (n = 270).

Success rate	Pharmacy, n (%)			
	Counselling Performance	Identification	Information	Communication
0–20%	61 (22.6)	132 (48.9)	66 (24.4)	0 (0)
21–40%	89 (33.0)	46 (17.1)	76 (28.1)	0 (0)
41–60%	71 (26.3)	39 (14.4)	58 (21.5)	20 (7.4)
61–80%	36 (13.3)	33 (12.2)	55 (20.4)	137 (50.7)
81–100%	13 (4.8)	20 (7.4)	15 (5.6)	113 (41.9)

The counselling with scenario P was more successful than with scenario S, but the statistically significant difference was found only in the category of Information with a small effect size (p = 0.0304; d = 0.27). While comparing, according to the fact who the counsellor was, there was a statistically significant difference with the medium effect size in favour of pharmacists in the Counselling Performance (p < 0.0001; d = 0.48) and in categories of Identification (p = 0.0001; d = 0.46), Information (p = 0.0004; d = 0.37) and in subjective Perception (p = 0.0007; d = 0.54). The estimated age of counsellors had no impact on the assessed counselling. The results are summarised in Table 10.

4. Discussion

In recent years, there has been significant interest in using the mystery shopping methodology as a mean for evaluation of pharmacy counselling practice. This versatile tool measures 'facts' using objectively defined criteria (Xu et al., 2012; Watson et al., 2006).

Table 8
Comparison of counselling spontaneity.

	Requested n (%)	Spontaneous n (%)	P-value
Scenario P (n = 119)	55 (46.2)	64 (53.8)	0.6025
Scenario S (n = 151)	65 (43.1)	86 (57.9)	
Younger counsellors (n = 151)	68 (45.0)	83 (55.0)	0.8264
Older counsellors (n = 119)	52 (43.7)	67 (56.3)	
Pharmacists (n = 140)	77 (55.0)	63 (45.0)	0.0009[*]
Pharmacy technicians (53)	15 (28.3)	38 (71.7)	

[*] P value less than 0.05 indicates statistically significant difference.

Table 9
Comparison of counselling duration.

	Less than 5 min, n (%)	More than 5 min, n (%)	P-value
Scenario P (n = 119)	103 (86.6)	16 (13.4)	0.4795
Scenario S (n = 151)	126 (83.4)	25 (16.6)	
Younger counsellors (n = 151)	128 (84.8)	23 (15.2)	0.9808
Older counsellors (n = 119)	101 (84.9)	18 (15.1)	
Pharmacists (n = 140)	115 (82.1)	25 (17.9)	0.4318
Pharmacy technicians (53)	47 (87.0)	6 (11.3)	

Slovak pharmacies are frequently visited to obtain prescription or non-prescription medicines (Mináriková et al., 2016). Patient counselling and dispensing of medicines are therefore a daily activity of pharmacists. As far as we know, there is no available data about the assessment of patient counselling in Slovak community pharmacies. The mystery shopping method has not used to monitor the dispensing of medicines and patient counselling provided by the pharmacy staff in the self-medication yet. Despite the researchers' limitations on geographic location and randomisation of the participating pharmacies, the strength of this study is the fact that the assessment of patient counselling has conducted on the national level. Mystery shopping in previously published studies was located in one city or region, and even if the number of visits was higher, they have mostly repeated visits of the same pharmacies.

Table 7
Perception of counselling.

Perception, n (%)						
	Excellent	Very good	Good	Fair	Poor	Score
Professional performance	123 (45.6)	82 (30.4)	51 (18.9)	11 (4.1)	3 (1.1)	1.8
Counselling duration	84 (31.1)	79 (29.3)	73 (27.0)	31 (11.5)	3 (1.1)	2.2
Communication skills	104 (38.5)	103 (38.1)	45 (16.7)	16 (5.9)	2 (0.7)	1.8
Knowledge	92 (34.1)	91 (33.7)	63 (23.3)	17 (6.3)	7 (2.6)	2.1
General impression	72 (26.7)	96 (35.6)	79 (29.3)	16 (5.9)	7 (2.6)	2.2

The value score was assigned according to school grades (1- excellent ... 5- poor)

Table 10
Comparison of counselling content, manner and perception.

Categories	Mean success rate ± SD (%)	CI (%)	Mean success rate ± SD (%)	CI (%)	P-value
	Scenario P (n = 119)		**Scenario S (n = 151)**		
Identification	31.9 ± 30.4	26.4–37.4	29.6 ± 27.3	25.2–34.0	0.5045
Information	43.5 ± 23.4	39.2–47.7	36.8 ± 26.1	32.6–41.0	0.0304*
Communication	74.2 ± 12.2	72.0–76.5	74.4 ± 11.0	72.6–76.2	0.9100
Counselling Performance	41.4 ± 23.0	37.3–45.6	37.0 ± 21.8	33.5–40.5	0.1097
Perception	73.4 ± 23.3	69.1–77.6	73.5 ± 19.5	70.4–76.7	0.9546
	Younger (n = 151)		**Older (n = 119)**		
Identification	35.6 ± 28.8	25.9–35.2	30.7 ± 28.7	25.5–35.9	0.9778
Information	41.8 ± 25.8	37.7–46.0	37.2 ± 24.1	32.8–41.6	0.1334
Communication	74.4 ± 11.7	72.6–76.3	74.2 ± 11.4	72.1–76.3	0.8681
Counselling Performance	40.2 ± 23.0	36.5–43.9	37.5 ± 21.6	33.5–41.4	0.3285
Perception	73.3 ± 21.4	69.8–76.7	73.7 ± 21.2	69.8–77.5	0.8851
	Pharmacists (n = 140)		**Technicians (n = 53)**		
Identification	37.6 ± 29.7	32.6–42.6	24.8 ± 25.4	17.8–31.9	0.0001*
Information	45.4 ± 25.2	41.1–49.6	36.3 ± 24.2	29.7–43.0	0.0004*
Communication	74.3 ± 10.3	72.5–76.0	74.4 ± 12.5	71.0–78.0	0.9925
Counselling Performance	44.8 ± 23.3	40.9–48.7	34.3 ± 20.0	28.7–39.8	<0.0001*
Perception	78.1 ± 19.4	74.9–81.3	67.2 ± 20.7	61.5–72.9	0.0007*

SD = Standard Deviation, CI = Confidence Interval.
* P value less than 0.05 indicates statistically significant difference.

4.1. The assessment of patient counselling

A wide range of counselling success, the counselling absence or various deficiencies in counselling have been identified in other published studies, while using the mystery shopping method (Alaqeel and Abanmy, 2015, Alfadl et al., 2017, Berger et al., 2005, Hammad et al., 2018, Horvat et al., 2012, Negru et al., 2012, Paravattil et al., 2017, Santos et al., 2013). Considering the total Counselling Performance, we can conclude that counselling on self-medication of common cold in Slovak pharmacies had a suboptimal level (39.0 ± 22.4%). This finding relates only to the health-related problem, which was followed in this study and does not reflect the general situation of counselling practice. This conclusion supports the study, which presented the different success rate of counselling when evaluating counselling in different health-related problems (Collins et al., 2017).

The assessment of patient counselling presented in this study, we expressed as the total Counselling Performance and separately we evaluated the content and manner of counselling. We consider it important because both constitute the equivalent components of the counselling process. In agreement with other studies, we also found a higher success rate in communication than in the content of counselling (Berger et al., 2005). In this study, counsellors tried to identify who the patient was and what the symptoms of the disease were. Although it is the key information, which a pharmacist needs to get so that they can start counselling, it has only happened in less than 50% of all cases. Other published papers show even a larger variability in the results obtained in the same health problem e.g. headache (Hammad et al., 2018, Horvat et al., 2012). The most frequently provided information was dosage and the price of the medicine. The counsellors are also responsible for informing patient comprehensibly and considering the medicine or specific needs of the patient. Despite the fact, that Zinkorot® is relative safe medicine without severe contraindications or adverse effects, our results showed that attention to the safety aspects of the treatment was insufficient. For example, counsellors did not check the current state of taking other medicines, overall health status, and information about side effects or interactions of the medicine. Our results are consistent with the findings in the previous research reporting that information on precautions, side effects, interactions, contraindications, and storage is less likely to be given by community pharmacists (Negru et al., 2012; Santos et al., 2013).

The common cold is generally considered to be a simple and low-risk health problem and it could cause the average Counselling Performance (26.3% pharmacies achieved Counselling Performance in the range of 41–60%). Underestimating the counselling as well as the lack of knowledge or the absence of specific counselling guidance that counsellors should follow in their practice could cause identified deficiencies and suboptimal level of assessed counselling. It is essential for the rational medicine use to identify which information counsellors require during the identification of the patient and which information about the medicine they provide to patients. Since more information can confuse the patient, counsellors should decide which information is the most important for him. Therefore, when evaluating counselling, it would be more useful to monitor the appropriate outcome rather than quantify the information provided. The patients should be advised of the correct dose of the medicine, the duration of the treatment and the need to start taking medicine as soon as the first symptoms of cold have occurred to achieve effective treatment of common cold with zinc medicine. A suitable approach can also be a categorisation of the dispensing information concerning its importance for the patient (Paravattil et al., 2017).

Surprisingly, MSs often offered zinc-containing dietary supplements, although these do not have any therapeutic effect and although MSs have presented the need for treatment of the common cold. The pharmacists should distinguish between medicines and dietary supplements, and in the context of patient counselling, recommend a suitable product to the patient.

Besides tracking objective outcomes of counselling, we also looked at how MSs perceived it. However, the mutual correlation between the objective and subjective aspects of counselling was weak. This finding may mean that even if counselling reaches a high success, it does not necessarily represent better perception or satisfaction of a pharmacy visitor. The crucial is not only to give a perfect professional performance but also take into account the emotions and personal characteristics of people to satisfy a pharmacy visitor.

4.2. Comparison of counselling

The success of patient counselling is influenced by several factors. We compared spontaneity and duration of counselling, its success and perception concerning the set scenario, counsellors and their age. Published studies often focus on monitoring whether counselling has been spontaneous so that the dispensing of medicine did not change to a simple business transaction. The spontaneity of counselling preferably relates to the symptom-based requirements (Horvat et al., 2012) or with the more difficult self-

treatment (Santos et al., 2013). Even in this study, spontaneous counselling occurred more in the case of a symptom-based scenario and the statistically significant difference was found when comparing pharmacists and pharmacy technicians. The estimated age of counsellors has not affected spontaneity of counselling.

Many authors and our results also, showed that counselling is better in the required cases or the situation when MSs were inquisitive and requested more information (Alaqeel and Abanmy, 2015). The product-based scenario was more successful than the symptom-based scenario, but only in the Information category, there was a statistically significant difference with the small effect. At first look, it may be that counsellors only satisfy requests of visitors. The requested counselling even explained by the passive approach of counsellors, caused by the lack of time or by insufficient clinical knowledge and by a business orientation of pharmacists. Our opinion is that the requested counselling should not be understood as a lack of interest of counsellors. Counselling is always a mutual interaction between the counsellor and the patient. Activity and interest both of them are necessary. Spontaneity, as an active approach of a pharmacist, is necessary particularly for the situation, when a patient is on the contrary passive because the risk of unwanted counselling is much lower than the risk of inaccurate self-medication caused by inadequate counselling. At the same time, the patients should be encouraged to show their interest in counselling to eliminate possible communication barriers and facilitate counselling (Seubert et al., 2017).

MSs estimated that counselling duration in 84.8% mystery shopping visits was less than 5 min. The duration of counselling was comparable in both scenarios and did not differ either when comparing pharmacists and pharmacy technicians, or differences in their age. However, MSs assessed its duration critically in the subjective Perception of counselling. In several studies conducted in other countries, average counselling times ranged between 30 s–5 min (Berger et al., 2005), and less than 1 min (Alfadl et al., 2017). Despite the fact, that there is no ideal amount of time to spend on counselling and it depends on various factors like patients' condition, patients' interest, as well as the pharmacist's work schedule, we suppose that the sufficient counselling duration is crucial for its success. The literature has also suggested that encouraging patients to ask the pharmacist more questions about their medicine may result in extensive counselling with provision more detailed information (Peters et al., 2016).

The counsellor's age did not affect the total Counselling Performance, the success rate of three categories of counselling and not even its Perception. The resulting counselling was most strongly influenced by the fact who the counsellor was. Pharmacy technicians were more spontaneous in their counselling, and their communication skills were comparable to the skills of pharmacists. However, the total Counselling Performance, Identification, Information and Perception were statistically significantly better with a high effect size for pharmacists. Other authors also tracked whether counselling was influenced by the person who provided it. Horvath et al. (2012) in the comparison of counselling scores between pharmacists and pharmacy technicians yielded no significant differences. Other authors have suggested that the involvement of pharmacists in the counselling process predicts an appropriate outcome or a more significant counselling score (Collins et al., 2017). Paravattil et al. (2017) even found that the score was influenced by the profession and earned a degree (magister or bachelor). Gender, years of experience, age, mother tongue, or country origin of the master's degree have no significant impact on the score. In Slovakia, pharmacy technicians must complete the secondary school education (4 years). Only those with a specialisation diploma in the specialisation field 'retail pharmacy', are authorised to dispense OTC medicines and provide counselling on self-medication. Pharmacists have to complete university study in the length of 5 years to dispense prescription and OTC medicines (Act No. 362/2011). The mandatory continuing professional education is established for both professions. We suppose that different levels of education may affect the quality of the counselor's expertise and lead to differences in counselling that we have identified.

For Slovakia is typical, that the graduate and post-graduate education in pharmacy has generally based on the traditional methods with the main orientation on the general knowledge. The education focuses more on the pharmaceutical product than on the patient or disease. The practical aspects of pharmaceutical practice, as well as patient counselling, are rarely implemented in the teaching of students or in subsequent education of pharmacists. This trend can increase knowledge but has not necessarily brought any changes in behaviour. It seems that, even in Slovak conditions, changes in education and introduction of new innovative methods with orientation on patient counselling are needed to incorporate into the undergraduate education of students (Rogers and King, 2012). Precisely done mystery shopping can be an appropriate way to manage and coach pharmacy staff to standardise and improve their counselling practice as well as for the student's experience in preparing for the pharmacy profession. In this respect, professional and specialised pharmaceutical organisations in Slovakia should establish the standards of patient counselling, continuously ensure and verify its implementation, for example, with the mystery shopping method.

5. Conclusions

The study presents the use of the mystery shopping method in the assessment of patient counselling in the Slovak community pharmacies while dispensing OTC medicine. A higher number of evaluators has allowed us to receive extensive observations, and so the results can reflect the level of this practice in Slovak pharmacies with the selected topic of counselling (the common cold). The total Counselling Performance achieved a suboptimal level, particularly concerning its content. Improvements in counselling need to address safety issues. The communication, as well as subjective perceptions of the counselling, were rated positively. In the study, we found a significant relationship between the success rate of counselling and the counsellor who provided it. Attention should be paid to patient counselling when pharmacy technicians are dispensing OTC medicines.

5.1. Limitations

The presented study has its limitations. We consider one of them the fact, that the mystery visits have not audio-visually recorded, which could cause that the evaluator deviated from the real state. Another is, that for a general description of patient counselling, analysis of a wider range of health-related problems would be beneficial. Although the used assessment protocol and method of calculating of counselling resulted from general recommendations for the good dispensing practice and patient counselling as well as from conclusions of other published studies, more exact way of calculation of performance has needed. We suggest taking into account the distinction of individual significance of items and assessment of an appropriate and expected outcome of counselling. According to our opinion, this may lead not only to the methodological improvement of assessment, but it can additionally have a positive impact on the quality of counsellor's performance. Because, e.g., the assessment of given or missing information about medicine dosage is important but providing correct dosage information is more crucial for good counselling practice.

Conflict of interest

There is no conflict of interest.

Appendix A. Description of scenarios

The mystery shopper enters a pharmacy and requests:	
Scenario P: product-based request	Scenario S: symptom-based request
'Do you have Zinkorot®, please?'	*'Can you recommend a product containing zinc for the common cold treatment to me, please?'*

The counsellor is given the following information when asked:
- The product is not directly for mystery shopper. The patient is his/her sister.
- The patient has a common cold very frequently, mainly in spring and autumn.
- The symptoms are the stuffy nose, sore throat, cough, congestion, mild body aches or a slight headache, sneezing, low-grade fever, generally feeling unwell.
- The symptoms usually retreat for five days. The first two days are awful. She often must stay at home. Then she must go back to work (she is a teacher in the kindergarten).
- She does not see a doctor with the common cold. For self-treatment, she usually uses vitamin C, nasal sprays and headache medicines.
- She does not use any other medicines regularly, sometimes vitamins for immune system support.
- She does not suffer from allergies or other serious illnesses.
- She is not pregnant.
- She is a vegetarian, drinks coffee, does not smoke.
- She has never used Zinkorot® yet. She saw a Zinkorot® advertisement, or she read the article about zinc benefits in the common cold treatment.

Appendix B. Additional instructions for mystery shoppers

- To follow the scenarios to ensure standardisation.
- To visit five different pharmacies from the recommended list.
- Do not visit the same pharmacy more than once.
- To apply scenario P twice and scenario S 3 times.
- To use a prompting question if the counsellor only sells Zinkorot® ('can you give me more information about the medicine?').
- To provide all relevant information in the case of open-ended questions of counsellors.
- To require an explanation if the counsellor offers dietary supplements with zinc.
- To prefer an OTC medicine to a dietary supplement.
- To finish the mystery shopping visit without purchase.
- Do not discuss his/her mystery shopper role with any pharmacists.

Appendix C. Assessment protocol

Scenario: ☐ Scenario P (product-based scenario) ☐ Scenario S (symptom-based scenario)				
Time of the mystery shopping visit: .... *write exact time, when you visited pharmacy*				

Pharmacy type:
☐ Independent	☐ Chain	☐ Not applicable		

Pharmacy location:
☐ Near healthcare facility	☐ City centre	☐ Residential area	☐ Shopping centre	☐ Other

Who was the counsellor?
☐ Pharmacist	☐ Pharmacy technician	☐ Not applicable		

Estimation of counsellor age: ☐ Younger (≤35 years) ☐ Older (≥36 years)

Apendix C (*continued*)

Scenario: ☐ Scenario P (product-based scenario) ☐ Scenario S (symptom-based scenario)

Time of the mystery shopping visit: ……………….… *write exact time, when you visited pharmacy*

How long did it take until the counsellor started communicating with you?

☐ No waiting time	☐ Less than 5 min	☐ More than 5 min

What was the reason of the waiting time?

☐ No reason	☐ Other customers	☐ Lack of staff	☐ Counsellor devoted to another customer for too long

Where did counselling take place?

☐ Rx medicine counter	☐ Private counselling room	☐ OTC medicine counter

Estimated duration of counselling

☐ Less than 5 min	☐ More than 5 min

Situation in the pharmacy after ending of the mystery shopping visit:

☐ other customers in the pharmacy	☐ no other customers in the pharmacy

Did you show interest in counselling?	☐ Yes	☐ No
Did the counsellor greet you?	☐ Yes	☐ No
Did the counsellor introduce him-/herself?	☐ Yes	☐ No
Did the counsellor ask for the reason of your visit?	☐ Yes	☐ No
Did the counsellor keep sufficient eye-contact?	☐ Yes	☐ No
Did the counsellor ask open-ended questions?	☐ Yes	☐ No
Did the counsellor provide you with any written information?	☐ Yes	☐ No
Did the counsellor use any information sources?	☐ Yes	☐ No

What was the reaction to the enquiry of the MS?

☐ Counsellor offered Zincorot®	☐ Counsellor satisfied the demand
for the medicine	☐ Counsellor offered dietary supplements

Did the counsellor ask:

Who is the patient?	☐ Yes	☐ No
What symptoms are present?	☐ Yes	☐ No
How long are the symptoms present?	☐ Yes	☐ No
What medicine has used in the past?	☐ Yes	☐ No
Is the patient taking any other medicines?	☐ Yes	☐ No
What is the overall health status of the patient?	☐ Yes	☐ No

Did counsellor inform you about …

Difference between OTC medicines and dietary supplements	☐ Yes	☐ No
Dosage of medicine	☐ Yes	☐ No
Administration of medicine	☐ Yes	☐ No
Duration of medicine use	☐ Yes	☐ No
Side effects of medicine	☐ Yes	☐ No
The expected result of medicine	☐ Yes	☐ No
Medicine price	☐ Yes	☐ No
Did the counsellor require feed-back about your understanding	☐ Yes	☐ No

How do you assess …

Clarity of counselling?	☐ Excellent	☐ Very good	☐ Good	☐ Fair	☐ Poor
Confidentiality of counselling?	☐ Excellent	☐ Very good	☐ Good	☐ Fair	☐ Poor
Non-verbal communication?	☐ Excellent	☐ Very good	☐ Good	☐ Fair	☐ Poor
Attention and interest of counsellor?	☐ Excellent	☐ Very good	☐ Good	☐ Fair	☐ Poor
Type of counselling?	☐ Spontaneous	☐ Requested			

Apendix C (*continued*)

Scenario: ☐ Scenario P (product-based scenario) ☐ Scenario S (symptom-based scenario)

Time of the mystery shopping visit: .... *write exact time, when you visited pharmacy*

How did you personally perceive the following parameters of counselling?

Professional performance of counsellor	☐ Excellent	☐ Very good	☐ Good	☐ Fair ☐ Poor
Counselling duration	☐ Excellent	☐ Very good	☐ Good	☐ Fair ☐ Poor
Communication skills of counsellor	☐ Excellent	☐ Very good	☐ Good	☐ Fair ☐ Poor
Counsellor knowledge	☐ Excellent	☐ Very good	☐ Good	☐ Fair ☐ Poor
General impression of counselling	☐ Excellent	☐ Very good	☐ Good	☐ Fair ☐ Poor

References

Act No. 362/2011 Coll. on Medicines and Medical Devices and Amendment and Supplementing of Certain Acts. [Zákon č. 362/2011 Z. z. o liekoch a zdravotníckych pomôckach a o zmene a doplnení niektorých zákonov]. <http://www.zakonypreludi.sk/zz/2011-362> (accessed 30 July 2018).

Alaqeel, S., Abanmy, N.O., 2015. Counselling practices in community pharmacies in Riyadh, Saudi Arabia: a cross-sectional study. BMC Health Serv. Res. 15, 557. https://doi.org/10.1186/s12913-015-1220-6.

Alfadl, A.A., Alrasheedy, A.A., Alhassun, M.S., 2017. Evaluation of medication counselling practice at community pharmacies in Qassim region, Saudi Arabia. Saudi Pharm. J. 26 (2), 258–262. https://doi.org/10.1016/j.jsps.2017.12.002.

American Society of Health-system Pharmacists, 1997. ASHP guidelines on pharmacist-conducted patient education and counselling. Am. J. Health-Syst. Pharm. 54 (1), 431–434.

Benrimoj, S.I., Werner, J.B., Raffaele, C., Roberts, A.S., 2008. A system for monitoring quality standards in the provision of non-prescription medicines from Australian community pharmacies. Pharm. World Sci. 30 (2), 147–153.

Berger, K., Eickhoff, C., Schulz, M., 2005. Counselling quality in community pharmacies: implementation of the pseudo customer methodology in Germany. J. Clin. Pharm. Ther. 30 (1), 45–57.

Boardman, H., Lewis, M., Trinder, P., Rajaratnam, P., 2005. Use of community pharmacies: a population-based survey. J. Public Health 27 (3), 254–262. https://doi.org/10.1093/pubmed/fdi032.

Collins, J.C., Schneider, C.R., Naughtin, C.L., Wilson, F., de Almeida Neto, A.C., Moles, R.J., 2017. Mystery shopping and coaching as a form of audit and feedback to improve community pharmacy management of non-prescription medicine requests: an intervention study. BMJ Open 7, (12). https://doi.org/10.1136/bmjopen-2017-019462 e019462.

Decree No. 129/2012 Coll. on Requirements of Good Pharmacy. [Vyhláška č. 129/2012 Ministerstva zdravotníctva Slovenskej republiky o správnej lekárenskej praxi]. <http://www.zakonypreludi.sk/zz/2012-129#cast6> (accessed 30 July 2018).

Hammad, E.A., Elayeh, E., Tubeileh, R., Watson, M., Wazaify, M., 2018. A simulated patient study assessing over the counter supply and counselling in Jordan: responding to headache complaints. Int. J. Clin. Pharm. https://doi.org/10.1007/s11096-018-0679-8.

Horvat, N., Koder, M., Kos, M., 2012. Using the simulated patient methodology to assess paracetamol-related counselling for headache. PLoS One 7, (12). https://doi.org/10.1371/journal.pone.0052510 e52510.

Kehrer, J.P., Eberhart, G., Wing, M., Horon, K., 2013. Pharmacy's role in a modern health continuum. Can. Pharm. J. (Ott). 146 (6), 321–324. https://doi.org/10.1177/1715163513506370.

Melton, B.L., Lai, Z., 2017. Review of community pharmacy services: what is being performed, and where are the opportunities for improvement? Integr. Pharm. Res. Pract. 6, 79–89. https://doi.org/10.2147/IPRP.S107612.

Mináriková, D., Malovecká, I., Foltán, V., 2016. Patient choice of pharmacy and satisfaction with pharmaceutical care - Slovak regional comparison. Farmacia 64 (3), 473–480.

Negru, D.S., Cristea, A.N., Petculescu, A.M., 2012. Patient counselling at dispensing OTC medicines in the community pharmacy. Farmacia 60 (1), 102–110.

Okumura, L.M., Rotta, I., Correr, C.J., 2014. Assessment of pharmacist-led patient counselling in randomized controlled trials: a systematic review. Int. J. Clin. Pharm. 36 (5), 882–891. https://doi.org/10.1007/s11096-014-9982-1.

Paravattil, B., Kheir, N., Yousif, A., 2017. Utilization of simulated patients to assess diabetes and asthma counselling practices among community pharmacists in Qatar. Int. J. Clin. Pharm. 39 (4), 759–768. https://doi.org/10.1007/s11096-017-0469-8.

Pharmaceutical Society of Australia, 2017. Professional Practice Standards. Version 5. <https://www.psa.org.au/wp-content/uploads/2018/08/Professional-Practice-Standards-v5.pdf> (accessed 7 August 2018).

Peters, J., Desai, K., Ricci, D., Chen, D., Singh, M., Chewning, B., 2016. The power of the patient question: a secret shopper study. Patient Educ. Couns. 99 (9), 1526–1533. https://doi.org/10.1016/j.pec.2016.07.012.

Puspitasari, H.P., Aslani, P., Krass, I., 2009. A review of counselling practices on prescription medicines in community pharmacies. Res. Social Adm. Pharm. 5 (3), 197–210. https://doi.org/10.1016/j.sapharm.2008.08.006.

Rutter, P.M., Horsley, E., Brown, D.T., 2004. Evaluation of community pharmacists' recommendations to standardized patient scenarios. Ann. Pharmacother. 38 (6), 1080–1085. https://doi.org/10.1345/aph.1D519.

Rogers, E.R., King, S.R., 2012. The influence of a patient-counselling course on the communication apprehension, outcome expectations, and self-efficacy of first-year pharmacy students. Am. J. Pharm. Educ. 76 (8), 152. https://doi.org/10.5688/ajpe768152.

Santos, A.P., Mesquita, A.R., Oliveira, K.S., Lyra Jr., D.P., 2013. Assessment of community pharmacists' counselling skills on headache management by using the simulated patient approach: a pilot study. Pharm. Pract. 11 (1), 3–7.

Seubert, L.J., Whitelaw, K., Boeni, F., Hattingh, L., Watson, M.C., Clifford, R.M., 2017. Barriers and facilitators for information exchange during over-the-counter consultations in community pharmacy: a focus group study. Pharmacy 5 (4), E65. https://doi.org/10.3390/pharmacy5040065.

Singh, M., Das, R.R., 2013. Zinc for the common cold. Cochrane Database Syst. Rev. 8 (6), CD001364. https://doi.org/10.1002/14651858.CD001364.pub4.

Smatana, M., Pažitný, P., Kandilaki, D., Laktišová, M., Sedláková, D., Palušková, M., van Ginneken, E., Spranger, A., 2016. Slovakia: Health system review. Health Syst. Transit. 18 (6), 1–210 (accessed 2 October 2017).

Svarstad, B.L., Bultman, D.C., Mount, J.K., 2004. Patient counselling provided in community pharmacies: effects of state regulation, pharmacist age, and busyness. J. Am. Pharm. Assoc. 44 (1), 22–29.

Szalayová, A., Skybová, K., Kandilaki, D., Szalay, T., 2014. Analysis of pharmacies market in Slovakia and Czech Republic. Development over the past 10 years. [Analýza lekárenského trhu na Slovensku a v Českej Republike. Vývoj za posledných 10 rokov]. <http://www.hpi.sk/cdata/Publications/hpi_analyza_lekarenskeho_trhu.pdf> (accessed 20 April 2016).

Watkins, K., Wood, H., Schneider, C.R., Clifford, R., 2015. Effectiveness of implementation strategies for clinical guidelines to community pharmacy: a systematic review. Implement. Sci. 10, 151. https://doi.org/10.1186/s13012-015-0337-7.

Watson, M.C., Norris, P., Granas, A.G., 2006. A systematic review of the use of simulated patients and Pharmacy Practice research. Int. J. Pharm. Pract. 14 (2), 83–93. https://doi.org/10.1211/ijpp.14.2.0002.

Xu, T., de Almeida Neto, A.C., Moles, R.J., 2012. A systematic review of simulated-patient methods used in community pharmacy to assess the provision of non-prescription medicines. Int. J. Pharm. Pract. 20 (5), 307–319. https://doi.org/10.1111/j.2042-7174.2012.00201.x.