Annals of Pharmacy Practice and Pharmacotherapy
ISSN: 3062-4436
2022, Volume 2, Page No: 58-66

Available online at: www.galaxypub.co/page/journals

Galaxy Publication

Galaxy Publication

Modification of a Communication Assessment Tool for Community Pharmacists in Supporting Medication Adherence and Managing Minor Ailments

Maya van Dijk[1], Joris de Jong[1*], Floor Smit[1]

[1]Department of Pharmaceutical Analysis, Leiden University Medical Center, Leiden, Netherlands.

***E-mail** ✉ joris.dejong@gmail.com

Received: 07 December 2021; **Revised:** 12 February 2022; **Accepted:** 12 February 2022

ABSTRACT

This study aimed to create two tailored versions of the Communication Assessment Tool (CAT) suitable for community pharmacy settings and to conduct a preliminary evaluation on a selected sample. Two CAT versions were developed specifically for community pharmacists. Psychometric properties, including validity and reliability, were assessed. Construct validity of individual tool items was examined through confirmatory factor analysis, while reliability was measured using Cronbach's alpha. Internal validity was further evaluated by piloting the tools with patients across eleven pharmacies located in Northern, Central, and Southern Italy. The study resulted in two adapted CAT versions: one focused on pharmacist-patient communication regarding adherence to prescribed therapy, and the other addressing consultations for minor disease management. These communication assessment tools can enhance the effective management of chronic conditions by promoting adherence and reducing negative health outcomes among patients.

Keywords: patient-pharmacist relationship, communication assessment tool, patient empowerment, community pharmacy

How to Cite This Article: Dijk MV, Jong JD, Smit F. Modification of a Communication Assessment Tool for Community Pharmacists in Supporting Medication Adherence and Managing Minor Ailments. Ann Pharm Pract Pharmacother. 2022;2:58-66. https://doi.org/10.51847/gJK7BV6Lpw

Introduction

Effective communication with patients is a critical strategy for improving health outcomes and reducing the risk of failure in physician-prescribed therapies. Providing accurate information on proper medication use, alongside additional recommendations, represents a fundamental responsibility of pharmacists during prescription dispensing [1]. Ensuring patients understand their prescribed pharmacological treatments is essential to promote adherence and to support appropriate management of minor health conditions [2-5]. Addressing patient misconceptions and clarifying confusion in this regard is a key task for community pharmacists [6-8]. Recommendations from pharmacists are most effective when communicated clearly and tailored to the patient's specific concerns [9, 10].

Within this context, the Communication Assessment Tool (CAT) was originally developed as a psychometric instrument to evaluate physician communication skills from the patient perspective [11, 12]. Despite the pivotal role of community pharmacists in the healthcare chain, there is currently no standardized tool to assess the quality of pharmacist-patient communication during prescription dispensing. Community pharmacists, however, have a significant impact on disease management through their interactions with patients, providing information, guidance on medication and device use, and facilitating optimal disease management for patients and caregivers. Globally, there is increasing recognition of the need for community pharmacists to deliver advanced, value-added services, encompassing pharmaceutical care, management of minor ailments and chronic conditions, monitoring therapy adherence, and overseeing drug treatments.

In response to this need, we recently developed the CAT-Pharm tool specifically for pharmacists [13]. The objectives of the present study were: (i) to create two versions of the Communication Assessment Tool adapted for community pharmacy practice—namely, the CAT-Pharm-community Adherence to Therapy version and the Minor Disease Management version; and (ii) to conduct a pilot evaluation of pharmacist-patient communication either following the dispensing of a prescription drug (Adherence to Therapy version) or during a consultation for a minor health condition (Minor Disease Management version).

Materials and Methods

A pilot study was conducted in Italy between July and August 2019, involving eleven pharmacies selected via convenience sampling from Northern, Central, and Southern regions. Ethical approval was obtained from the Ethics Committee of Cardarelli Hospital, Naples, Italy (424/2017).

Adaptation of CAT to community pharmacist practice

The study proceeded in two phases: (i) the development of two tailored CAT-Pharm-community versions by adapting the original CAT to the community pharmacy context; and (ii) evaluation of psychometric properties, including validity and reliability, followed by pilot testing in a sample of community pharmacies.

The original Communication Assessment Tool [11] was designed to evaluate physician communication skills. This tool was previously adapted to the pharmacist role, resulting in the CAT-Pharm, which demonstrated satisfactory validity and reliability and was translated into Italian [13]. In the present study, CAT-Pharm was further adapted to the community pharmacy setting, yielding the CAT-Pharm-community in two versions reflecting key pharmacist responsibilities:

- CAT-Pharm-community – Adherence to Therapy version: Designed to assess patient perceptions of pharmacist communication during the dispensing of physician-prescribed medications.
- CAT-Pharm-community – Minor Disease Management version: Designed to assess patient perceptions of pharmacist communication during consultations for minor ailments.

The development process for these versions included:

1. Initial evaluation: A working group of clinical pharmacists, hospital pharmacists, clinicians, and researchers reviewed the original CAT-Pharm to identify items for removal, modification, or addition.
2. Consensus meeting: Adjustments were made to create preliminary versions of both CAT-Pharm-community tools, emphasizing adherence to therapy and minor disease management.
3. Cognitive debriefing: Conducted with six patients to evaluate item clarity and comprehension, including their interpretation and reasoning for responses.
4. Final consensus: The working group reviewed cognitive debriefing results to refine and finalize both versions of CAT-Pharm-community.

Setting, participants, and eligibility criteria

The second phase of the study involved internal validation and psychometric assessment of the two CAT-Pharm-community versions through pilot testing on a selected sample. Eleven community pharmacies across Italy participated in this pilot study, including five from the North, two from the Center, and four from the South. The sample included both urban and rural pharmacies. Each pharmacy was asked to recruit approximately twelve patients, based on the type of service provided: the Minor Disease Management version was administered when a patient received medication after consultation for a minor disorder (~six patients per pharmacy), whereas the Adherence to Therapy version was used when dispensing medication for chronic conditions following a physician's prescription (~six patients per pharmacy).

Eligible participants were adults aged 18 years or older who visited the participating pharmacies. Patients with cognitive impairments, those receiving antipsychotic medications, and non-Italian-speaking individuals were excluded from the study.

The instruments used included:

- CAT-Pharm-community TEST (Suppl. material 1): The original questionnaire in both developed versions (Adherence to Therapy and Minor Disease Management), structured on a 5-point Likert scale (poor; fair; good; very good; excellent).

- CAT-Pharm-community QUEST (Suppl. material 2): Questionnaires mirroring the two versions, asking patients to rate the importance of each item on a four-point scale (very important; important; slightly important; not important).
- Pharmacist Profiling Questionnaire (Suppl. material 3): Collected personal and demographic information from pharmacists.

Patient enrollment followed a systematic approach, with the individual inviting patients to complete the CAT-Pharm-community being different from the dispensing pharmacist to minimize bias. Patients were informed about the study's purpose and provided written informed consent. They completed the CAT-Pharm-community version corresponding to their consultation: Minor Disease Management for minor ailments or Adherence to Therapy for prescription medications. Following completion, patients also filled out the QUEST questionnaire to evaluate the importance of the items. Finally, the consulting pharmacist completed the profiling questionnaire, which was linked to the patient's record.

Statistical analysis

Psychometric properties of both CAT-Pharm-community versions were assessed through evaluations of validity (internal, external, and construct) and reliability. Construct validity was explored using confirmatory factor analysis (CFA), with sample adequacy measured by the Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity. Factor structures were confirmed using Oblimin direct rotation with Kaiser normalization. Item correlations were assessed via Pearson's correlation coefficient, and Chi-square tests compared the proportion of patients rating items as 'Excellent' across the two settings. A significance level of $p < 0.05$ was applied.

Responses to both CAT-Pharm-community versions were recorded on a 5-point Likert scale (poor; fair; good; very good; excellent). Internal consistency was evaluated using Cronbach's alpha for the overall CAT score. Following the original CAT methodology, 'Excellent' responses were mapped as 'Yes,' while all other responses (poor; fair; good; very good) were mapped as 'No' [11]. Accordingly, results were reported as the percentage of participants selecting 'Excellent' for each item. Analyses were performed using SPSS Statistics for Windows, version 17.1 (SPSS Inc., 2008, Chicago, IL, USA).

Results and Discussion

Both versions of the CAT-Pharm-community included 16 items, examining multiple aspects of communication during medication dispensing. Each item was scored by patients on a scale from 1 (poor) to 5 (excellent).

For the CAT-Pharm-community Adherence to Therapy version, construct validity of the items was assessed. Pearson correlation analysis revealed significant positive correlations between items, with coefficients ranging from -0.142 to 0.797 (Suppl. material 4:1). Bartlett's test of sphericity indicated the dataset was suitable for factor analysis, with a KMO value of 0.818 and $\chi^2 = 583.141$ ($df = 120$, $p < 0.01$). Factor analysis identified a four-factor structure corresponding to key domains: Factor 1 (items 1–5) assessed understanding of patient clinical needs; Factor 2 (items 6–10) evaluated communication regarding therapy; Factor 3 (items 11–13) focused on assessing patient comprehension; and Factor 4 (items 14–16) measured the establishment of trust between pharmacist and patient. Detailed results of the confirmatory factor analysis are presented in Suppl. material 4. Reliability analysis demonstrated high internal consistency for the Adherence to Therapy version, with Cronbach's alpha = 0.88.

Internal validity was evaluated in a sample of 67 patients, of whom 70% were female, with a mean age of 59 years (SD ± 14.9). Patient characteristics are summarized in **Table 1**. Most patients rated the pharmacist's respectful attitude as excellent (92%, item 2) and the welcome received upon consultation as excellent (85%, item 1). A lower proportion of patients (42%) considered the discussion of future interventions, including examinations and follow-up visits (item 14), as excellent **(Table 2)**. Regarding perceived importance, roughly 80% of patients rated the pharmacist's communication and attitude as very important, whereas 20.9% did not consider information about future interventions particularly useful **(Table 3)**.

Table 1. Demographic characteristics of patients completing the CAT-Pharm-community Test

Demographic Characteristic	Adherence to Therapy Version (N = 67)	Minor Disease Version (N = 65)
Gender		
Male	20 (29.9%)	17 (26%)

Female	47 (70.1%)	48 (73.8%)
Age		
Mean ± SD	58.6 ± 14.9	57.5 ± 13.9
Educational Level		
Primary school	31 (46.3%)	7 (10.8%)
Secondary school	14 (20.9%)	15 (23.1%)
High school	9 (13.4%)	28 (43.1%)
University degree	13 (19.4%)	15 (23.1%)
Occupation		
Unemployed	2 (3.0%)	1 (1.5%)
Housewife	7 (10.4%)	7 (10.8%)
Retired	23 (34.3%)	20 (30.8%)
Employed	30 (44.8%)	32 (49.3%)
Student	1 (1.5%)	1 (1.5%)
Other	4 (6.0%)	4 (6.2%)
Marital Status		
Single	15 (22.4%)	13 (20.0%)
Married	41 (61.2%)	40 (61.5%)
Widowed	6 (9.0%)	7 (10.8%)
Divorced	5 (7.5%)	5 (7.7%)
Previous visits to the pharmacist		
No	1 (1.5%)	–
Yes, only once	5 (7.5%)	1 (1.5%)
Yes, more than once	61 (91.0%)	64 (98.5%)

Abbreviation: SD, Standard Deviation.

Table 2. Percentage of patients providing "Excellent" ratings for each CAT-Pharm-community item (Adherence to Therapy version)

CAT-Pharm-community TEST – Adherence to Therapy Version	N (Excellent)	% (Excellent)
1. The pharmacist greeted me in a manner that made me feel at ease	57	85.1
2. The pharmacist treated me with respect	62	92.5
3. The pharmacist demonstrated understanding of my main health concerns	46	68.7
4. I was allowed to speak freely without interruptions	46	68.7
5. The pharmacist showed genuine interest in my opinions about the prescribed treatment	40	59.7
6. Instructions on how to properly follow the prescribed therapy were clearly explained	54	80.6
7. The pharmacist asked about my ability to adhere to the prescribed treatment plan	47	70.1
8. Possible side effects and how to manage them were discussed	34	50.7
9. Potential interactions of the medication with other drugs or food were addressed	35	52.2
10. The pharmacist provided as much information as I requested	50	74.6
11. Explanations were given in terms I could easily understand	54	80.6
12. The pharmacist verified that I had understood all the provided information	52	77.6
13. I was encouraged to ask questions during the consultation	31	46.3
14. Future steps, such as follow-up visits or additional evaluations, were discussed	28	41.8
15. The pharmacist dedicated an appropriate amount of time to my visit	52	77.6
16. My privacy was respected throughout the interaction	52	77.6

Table 3. Patients reporting importance of the CAT-Pharm-community items to asses adherence to therapy.

CAT-Pharm-community QUEST *Adherence to Therapy version*	**Very important**		**Important**		**Not very important/ Important**	
	N	**%**	**N**	**%**	**N**	**%**
1. The pharmacist greeted me in a manner that made me feel at ease	55	82.1	11	16.4	1	1.5
2. The pharmacist treated me with respect	53	79.1	13	19.4	1	1.5
3. The pharmacist demonstrated understanding of my main health concerns	50	74.6	15	22.4	2	3.0
4. I was allowed to speak freely without interruptions	41	61.2	24	35.8	2	3.0
5. The pharmacist showed genuine interest in my opinions about the prescribed treatment	42	62.7	20	29.9	4	6.0
6. Instructions on how to properly follow the prescribed therapy were clearly explained	51	76.1	15	22.4	1	1.5
7. The pharmacist asked about my ability to adhere to the prescribed treatment plan	47	70.1	18	26.9	2	3.0
8. Possible side effects and how to manage them were discussed	38	56.7	19	28.4	10	14.9
9. Potential interactions of the medication with other drugs or food were addressed	41	61.2	19	28.4	7	10.4
10. The pharmacist provided as much information as I requested	54	80.6	12	17.9	1	1.5
11. Explanations were given in terms I could easily understand	55	82.1	12	17.9	-	-
12. The pharmacist verified that I had understood all the provided information	54	80.6	12	17.9	1	1.5
13. I was encouraged to ask questions during the consultation	34	50.7	25	37.3	8	11.9
14. Future steps, such as follow-up visits or additional evaluations, were discussed	27	40.3	26	38.8	14	20.9
15. The pharmacist dedicated an appropriate amount of time to my visit	46	68.7	21	31.3	-	-
16. My privacy was respected throughout the interaction	45	67.2	21	31.3	1	1.5

For the CAT-Pharm-community Test – Minor Diseases Management version, the construct validity of each item was examined. The Pearson correlation analysis revealed significant positive associations among the CAT-Pharm items, with correlation coefficients ranging between 0.115 and 0.761 (Suppl. material 4: 3). The Bartlett's test of sphericity yielded a KMO value of 0.750 and $\chi^2 = 581.129$ (df = 120, $p < 0.01$), confirming that the correlation matrix was appropriate for factor analysis. A four-factor structure emerged, corresponding to the same four main domains identified in previous analyses (Suppl. material 4: 4 and 5). Reliability evaluation demonstrated strong internal consistency for the 16-item Adherence to Therapy version, with a Cronbach's Alpha of 0.87.

To evaluate internal validity, the Minor Diseases Management version was administered to 65 patients, of whom 73.8% were female, with a mean age of 57.5 years (SD ± 13.9) **(Table 1)**. The majority of participants (93.8%) gave an excellent rating to the pharmacist's respectful conduct (item 2), while 90.8% rated the pharmacist's greeting positively (item 1). Conversely, only 47.7% of respondents reported receiving adequate encouragement to ask questions (item 13) **(Table 4)**. Additionally, approximately 80% of patients considered the pharmacist's communication approach highly important, whereas 15% regarded information on potential drug or food interactions as less relevant **(Table 5)**.

Table 4. Percentage of excellent ratings for individual CAT-Pharm-community items (Minor disease Management version).

CAT-Pharm-community TEST *Minor disease Management version*	**Rating (% Excellent) N = 67**	
	N	**%**
1. The pharmacist greeted me in a manner that made me feel at ease	59	90.8%
2. The pharmacist treated me with respect	61	93.8%
3. The pharmacist demonstrated understanding of my main health concerns	48	73.8%
4. I was allowed to speak freely without interruptions	44	67.7%

5. The pharmacist showed genuine interest in my opinions about the prescribed treatment	44	67.7%
6. Instructions on how to properly follow the prescribed therapy were clearly explained	55	84.6%
7. The pharmacist asked about my ability to adhere to the prescribed treatment plan	47	72.3%
8. Possible side effects and how to manage them were discussed	32	49.2%
9. Potential interactions of the medication with other drugs or food were addressed	36	55.4%
10. The pharmacist provided as much information as I requested	51	78.5%
11. Explanations were given in terms I could easily understand	52	80.0%
12. The pharmacist verified that I had understood all the provided information	48	73.8%
13. I was encouraged to ask questions during the consultation	31	47.7%
14. Future steps, such as follow-up visits or additional evaluations, were discussed	42	64.6%
15. The pharmacist dedicated an appropriate amount of time to my visit	48	73.8%
16. My privacy was respected throughout the interaction	54	83.1%

Table 5. Patient reporting importance of the CAT-Pharm-community items to assess the management of minor diseases.

CAT-Pharm-community QUEST *Minor disease Management version*	**Very important**		**Important**		**Not very important/ Important**	
	N	**%**	**N**	**%**	**N**	**%**
1. The pharmacist greeted me in a manner that made me feel at ease	50	76.9	14	21.5	1	1.5
2. The pharmacist treated me with respect	53	81.5	11	16.9	1	1.5
3. The pharmacist demonstrated understanding of my main health concerns	51	78.5	14	21.5	-	-
4. I was allowed to speak freely without interruptions	36	55.4	28	43.1	1	1.5
5. The pharmacist showed genuine interest in my opinions about the prescribed treatment	44	67.7	20	30.8	1	1.5
6. Instructions on how to properly follow the prescribed therapy were clearly explained	49	75.4	16	24.6	-	-
7. The pharmacist asked about my ability to adhere to the prescribed treatment plan	50	76.9	15	23.1	-	-
8. Possible side effects and how to manage them were discussed	37	56.9	18	27.7	10	15.4
9. Potential interactions of the medication with other drugs or food were addressed	40	61.5	17	26.2	8	12.3
10. The pharmacist provided as much information as I requested	48	73.8	15	23.1	2	3.1
11. Explanations were given in terms I could easily understand	49	75.4	16	24.6	-	-
12. The pharmacist verified that I had understood all the provided information	47	72.3	17	26.2	1	1.5
13. I was encouraged to ask questions during the consultation	32	49.2	27	41.5	6	9.2
14. Future steps, such as follow-up visits or additional evaluations, were discussed	39	60.0	22	33.8	4	6.2
15. The pharmacist dedicated an appropriate amount of time to my visit	45	69.2	20	30.8	-	-
16. My privacy was respected throughout the interaction	47	72.3	16	24.6	2	3.1

Deficient communication between healthcare professionals and patients remains a critical factor contributing to preventable medical mistakes and compromised patient safety. Over the past decade, growing attention has been devoted to developing and testing approaches that strengthen the quality of communication in clinical and

pharmaceutical settings [14]. Within this context, the present study introduces two innovative instruments designed to allow patients to evaluate the quality of their communicative encounters with community pharmacists concerning prescribed medications. The CAT-Pharm-community tools, available in Italian, demonstrated promising applicability for use across community pharmacies nationwide. Unlike earlier tools such as the original Italian CAT [7] and CAT-Pharm [13], these adapted versions are specifically designed to reflect different patient–pharmacist interaction scenarios. The Adherence to Therapy version targets conversations linked to long-term treatment compliance, while the Minor Disease Management version focuses on communication during consultations for short-term or self-limiting health problems.

The distinction between the two instruments is most apparent in three specific items that were reformulated to better match their respective contexts. For instance, the Adherence to Therapy version includes the statement "Showed interest in my ideas about the prescribed therapy," whereas the Minor Disease Management version substitutes it with "Asked if I had consulted the doctor about this problem or taken some medication before the consultation." Similarly, "Explained how to correctly follow the prescribed therapy" was adapted into "Gave me the right therapy and advice for my problem," and "Asked about my ability to follow the prescribed therapy" was replaced with "Explained how to correctly follow the prescribed therapy."

Overall findings reveal that patients value interpersonal aspects of care—such as trust, respect, and empathy—above all else, regardless of the type of consultation. Across both CAT-Pharm-community versions, the items "Greeted me in a way that made me feel comfortable," "Treated me with respect," and "Understood my main health concerns" received the highest evaluations, emphasizing that these behaviors are central to positive patient experiences in community pharmacies. The general satisfaction expressed by participants may also reflect established rapport, as most patients in both study groups (91% in the Adherence to Therapy version and 98% in the Minor Disease Management version) had previously interacted with the same pharmacist.

Nevertheless, an important gap emerged in the Adherence to Therapy version: fewer than half of the respondents considered the discussion of follow-up steps and future visits as excellent. This indicates that, within the Italian pharmaceutical context, greater attention should be directed toward reinforcing the pharmacist's continuity role in supporting adherence to ongoing therapies. As integral members of the healthcare network, pharmacists act as a vital link between prescribers and patients, ensuring consistent medication use and improved clinical outcomes. Evidence from recent literature further supports this perspective, confirming that structured pharmacist interventions positively influence medication adherence [15-17].

Beyond adherence promotion, the application of the Minor Disease Management tool demonstrated that pharmacist–patient communication can significantly enhance symptom management and overall health perception in minor ailments. This observation aligns with recent systematic reviews showing that clinical pharmacist services contribute substantially to better therapeutic results, enhanced patient satisfaction, and safer medication practices [18].

A recent systematic review by Falch and Alves explored the potential role of pharmacists in simplifying complex medication regimens, emphasizing their capacity to optimize therapeutic outcomes, particularly among elderly patients who often face polypharmacy challenges [19]. Despite these promising findings, the review highlighted that the proactive involvement of pharmacists in reducing medication complexity remains insufficiently investigated and warrants further empirical attention.

The present findings also underscore the necessity for patients to participate actively in decisions regarding their treatment, irrespective of whether the consultation concerns a chronic illness or a minor ailment. This observation is supported by the relatively low proportion of respondents who reported feeling encouraged to ask questions (item 13). Similar communication barriers were previously identified during the preliminary testing phase of the CAT-Pharm tool. Establishing a strong pharmacist–patient relationship is therefore essential to elicit valuable information about patients' expectations, their capacity to adhere to therapeutic regimens, and to enhance their comprehension of both the prescribed treatment and the underlying health condition [20, 21].

Limitations

Several limitations should be acknowledged in interpreting the present results. The first concerns the intrinsic characteristics of the internal validity analysis, which was based on patients' subjective evaluations of their communicative experience with pharmacists. This self-reported approach may introduce bias since it reflects personal perceptions rather than objective measures of communication quality. Another limitation is the relatively small sample size, which, although sufficient for a pilot investigation, restricts the generalizability of the findings.

The study's primary aim was to design, translate, and preliminarily validate two specific versions of the CAT-Pharm-community instrument, tailored to different pharmacy consultation contexts. While external validity was not addressed at this stage, future research should involve a broader and more diverse population to confirm the psychometric robustness of both tools and to strengthen their applicability in community pharmacy practice.

Conclusion

The community pharmacy-adapted Communication Assessment Tool (CAT-Pharm-community) represents a promising framework for assessing how patients perceive pharmacists' communication during consultations. The structured feedback it generates can help identify areas requiring improvement, thereby enhancing the overall quality of pharmacy services, particularly in the counseling and management of minor ailments. Additionally, its use in chronic disease management may contribute to improved medication adherence and reduced adverse health outcomes linked to poor compliance. By systematically applying such tools, pharmacists can strengthen their communicative competencies, reinforce patient trust, and play a more proactive role in promoting safe and effective therapeutic care.

Acknowledgments: None

Conflict of Interest: None

Financial Support: None

Ethics Statement: None

References

1. Kerr A, Kelleher C, Pawlikowska T, Strawbridge J. How can pharmacists develop patient-pharmacist communication skills? A realist synthesis. Patient Educ Couns. 2021;104(10):2467-79.
2. Náfrádi L, Nakamoto K, Schulz PJ. Is patient empowerment the key to promote adherence? A systematic review of the relationship between self-efficacy, health locus of control and medication adherence. PLoS One. 2017;12(10):e0186458.
3. De Geest S, Zullig LL, Dunbar-Jacob J, Helmy R, Hughes DA, Wilson IB, et al. ESPACOMP Medication Adherence Reporting Guideline (EMERGE). Ann Intern Med. 2018;169(1):30-5.
4. Steininger L, Chromy D, Bauer D, Simbrunner B, Binter T, Schwabl P, et al. Direct patient-physician communication via a hepatitis C hotline facilitates treatment initiation in patients with poor adherence. Wien Klin Wochenschr. 2021;133(9-10):452-60.
5. Duffy EY, Ashen D, Blumenthal RS, Davis DM, Gulati M, Blaha MJ, et al. Communication approaches to enhance patient motivation and adherence in cardiovascular disease prevention. Clin Cardiol. 2021;44(9):1199-207.
6. Menditto E, Guerriero F, Orlando V, Crola C, Di Somma C, Illario M, et al. Self-Assessment of Adherence to Medication: A Case Study in Campania Region Community-Dwelling Population. J Aging Res. 2015;2015:682503.
7. Scala D, Menditto E, Armellino MF, Manguso F, Monetti VM, Orlando V, et al. Italian translation and cultural adaptation of the communication assessment tool in an outpatient surgical clinic. BMC Health Serv Res. 2016;16:163.
8. Scala D, Menditto E, Caruso G, Monetti VM, Orlando V, Guerriero F, et al. Are you more concerned about or relieved by medicines? An explorative randomized study of the impact of telephone counseling by pharmacists on patients' beliefs regarding medicines and blood pressure control. Patient Educ Couns. 2018;101(4):679-86.
9. Ferranti DE, Makoul G, Forth VE, Rauworth J, Lee J, Williams MV. Assessing patient perceptions of hospitalist communication skills using the Communication Assessment Tool (CAT). J Hosp Med. 2010;5(9):522-7.

10. Carter SR, Moles R, White L, Chen TF. The impact of patients' perceptions of the listening skills of the pharmacist on their willingness to re-use Home Medicines Reviews: a structural equation model. Res Social Adm Pharm. 2015;11(2):163-75.
11. Makoul G, Krupat E, Chang CH. Measuring patient views of physician communication skills: development and testing of the Communication Assessment Tool. Patient Educ Couns. 2007;67(3):333-42.
12. Mercer LM, Tanabe P, Pang PS, Gisondi MA, Courtney DM, Engel KG, et al. Patient perspectives on communication with the medical team: pilot study using the Communication Assessment Tool-Team (CAT-T). Patient Educ Couns. 2008;73(2):220-3.
13. Scala D, Mucherino S, Wirth F, Orlando V, Polidori P, Faggiano ME, et al. Developing and piloting a communication assessment tool assessing patient perspectives on communication with pharmacists (CAT-Pharm). Int J Clin Pharm. 2022;44(4):1037-45.
14. Haley AD, Powell BJ, Walsh-Bailey C, Krancari M, Gruß I, Shea CM, et al. Strengthening methods for tracking adaptations and modifications to implementation strategies. BMC Med Res Methodol. 2021;21(1):133.
15. Bunchuailua W, Samprasit N, Kotirum S, Kapol N. Impact of Pharmacist Activities in Patients with Depression: A Systematic Review and Meta-analysis of Randomized Controlled Trials. Ann Pharmacother. 2022;56(5):556-64.
16. Bruggmann C, Adjedj J, Sardy S, Muller O, Voirol P, Sadeghipour F. Effects of the Interactive Web-Based Video "Mon Coeur, Mon BASIC" on Drug Adherence of Patients with Myocardial Infarction: Randomized Controlled Trial. J Med Internet Res. 2021;23(8):e21938.
17. Gautier JF, Boitard C, Michiels Y, Raymond G, Vergez G, Guedon G. Impact of personalized text messages from pharmacists on medication adherence in type 2 diabetes in France: A real-world, randomized, comparative study. Patient Educ Couns. 2021;104(9):2250-8.
18. Ahmed A, Saqlain M, Tanveer M, Blebil AQ, Dujaili JA, Hasan SS. The impact of clinical pharmacist services on patient health outcomes in Pakistan: a systematic review. BMC Health Serv Res. 2021;21(1):859.
19. Falch C, Alves G. Pharmacists' Role in Older Adults' Medication Regimen Complexity: A Systematic Review. Int J Environ Res Public Health. 2021;18(16):8824.
20. Osuna E, Pérez-Carrión A, Pérez-Cárceles MD, Machado F. Perceptions of health professionals about the quality of communication and deliberation with the patient and its impact on the health decision making process. J Public Health Res. 2018;7(3):1445.
21. Ilardo ML, Speciale A. The Community Pharmacist: Perceived Barriers and Patient-Centered Care Communication. Int J Environ Res Public Health. 2020;17(2):536.