

Medication Reconciliation in Primary Care: Practices, Knowledge and Attitudes in the Lisbon and Tagus Valley Health Region

A Reconciliação da Medicação nos Cuidados de Saúde Primários: Práticas, Conhecimentos e Atitudes na Região de Saúde de Lisboa e Vale do Tejo

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ABSTRACT

Introduction: Despite the importance of medication reconciliation for the continuity of care, there is currently no information on the practices, knowledge, and attitudes of Portuguese family doctors on this subject. This study aimed to characterize the formal medication reconciliation procedures in the Lisbon and Tagus Valley Health Region, as well as the perception of family doctors in this region about what they know, how they think and how they practice medication reconciliation.

Methods: We conducted an observational, cross-sectional and descriptive study, using two observation units: primary health care units (study 1) and family doctors (study 2) in the Lisbon and Tagus Valley Health Region. Data was collected through two self-completed questionnaires, which were made available online.

Results: A total of 89 primary healthcare units and 208 family doctors participated in the study (31% and 12% response rates, respectively). Only one in four units (n = 22/89) had a formal medication reconciliation procedure. Among the units with a formal procedure, there was variability in some parameters, although all procedures included physicians. More than 70% (n = 150; 72.1%) of family physicians reported having previous contact with the term 'medication reconciliation', and a half (n = 104; 50.0%) reported carrying out medication reconciliation in more than 75% of consultations after hospital discharge. No differences were identified regarding the frequency with which family physicians practice medication reconciliation after hospital discharge depending on age, gender, type of unit where they work, and volume of consultations. Most family physicians (n = 155; 74.5%) included the three steps recommended by the Directorate-General for Health at the time and resolved discrepancies without contacting the hospital physician (n = 168; 88.8%). Family physicians recognize the importance of medication reconciliation (more than 95% agree/completely agree), although the level of agreement regarding their responsibility for this practice is lower.

Conclusion: The proportion of primary health care units with a formal medication reconciliation procedure is low. Family doctors in the Lisbon and Tagus Valley Region value medication reconciliation, although they do not include it in all consultations after hospital admission. Communication between levels of care and the standardization of processes are areas with potential for improvement to promote the safe and patient-centered use of medication.

Keywords: Medication Errors/prevention & control; Medication Reconciliation; Patient-Centered Care; Portugal; Primary Health Care

RESUMO

Introdução: Apesar da relevância da reconciliação da medicação para a continuidade dos cuidados, atualmente, não existe informação relativa às práticas, conhecimentos e atitudes dos médicos de família nacionais sobre este assunto. Este estudo teve como objetivos caracterizar os procedimentos formais de reconciliação da medicação em vigor na Região de Saúde de Lisboa e Vale do Tejo, bem como a perceção dos médicos de família desta região sobre o que sabem, como pensam e como praticam a reconciliação da medicação.

Métodos: Foi conduzido um estudo observacional, transversal e descritivo, utilizando duas unidades de observação: unidades de cuidados de saúde primários (estudo 1) e médicos de família (estudo 2) da Região de Saúde de Lisboa e Vale do Tejo. A recolha de dados realizou-se através de dois questionários de autopreenchimento, disponibilizados online.

Resultados: Participaram 89 unidades de cuidados de saúde primários e 208 médicos de família (taxas de resposta de 31% e 12%, respetivamente). Verificou-se que apenas uma em cada quatro unidades (n = 22/89) tinha um procedimento formal de reconciliação da medicação em vigor. Entre as unidades com procedimento formal, existe variabilidade em alguns parâmetros, ainda que todos incluam os médicos. Mais de 70% (n = 150; 72,1%) dos médicos referiram ter contacto prévio com o termo 'reconciliação da medicação', e metade (n = 104; 50,0%) referiu realizar reconciliação da medicação em mais de 75% das consultas após alta hospitalar. Não se identificaram diferenças relativamente à frequência com que os médicos praticam reconciliação da medicação após alta hospitalar em função da sua idade, sexo, tipo de unidade onde trabalham e volume de consultas. A maioria dos médicos (n = 155; 74,5%) inclui no processo os três passos preconizados pela Direção-Geral da Saúde à data, e resolve as discrepâncias sem contactar o médico hospitalar (n = 168; 88,8%). Os médicos reconhecem a importância da reconciliação da medicação (mais de 95% estão de acordo/totalmente de acordo), ainda que o nível de concordância quanto à sua responsabilização sobre esta prática seja inferior.

Conclusão: A proporção de unidades de cuidados de saúde primários com procedimento formal de reconciliação da medicação é baixa. Apesar dos médicos de família da Região de Saúde de Lisboa e Vale do Tejo valorizarem a reconciliação da medicação, não a incluem em todas as consultas após

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internamento hospitalar. A comunicação entre níveis de cuidados e a padronização dos processos são áreas com potencial de melhoria, com vista ao objetivo de promover a segurança da utilização dos medicamentos, centrada no doente.

Palavras-chave: Cuidados Centrados no Doente; Cuidados de Saúde Primários; Erros de Medicação/prevenção e controlo; Portugal; Reconciliação de Medicamentos

INTRODUCTION

Medication reconciliation (MedRec) is the process of identifying an accurate list of all the medicines a patient is currently taking and comparing it with the current medications in use.¹ This list should be accompanied by information on drug allergies, a history of adverse drug reactions and medication support. MedRec allows for the identification of any medication discrepancies and aims to resolve these, i.e. inconsistencies (whether intentional) between the patient's medication and prescribed medication,² with the aim of making the correct medication available to the patient at all transition points in the healthcare system.¹

The implementation of MedRec is associated with a reduction in medication errors in different healthcare settings.³⁻⁸ However, different studies have not consistently shown that it has a significant impact on relevant health outcomes.⁹ The reasons most frequently described for this apparent failure include the difficulty in operationalizing the MedRec concept⁹ and the need to combine it with other strategies for reaching improvements in medication management.^{10,11}

General and Family Medicine (GFM) is characterised by longitudinal care¹² and frequent moments of transition of care occur, in which it is important to ensure the continuity of medication¹³ through MedRec processes. At national level, MedRec is recommended by the Directorate-General for Health (DGS);^{2,14} it is recognized for the assessment of the quality and safety of care and the organizational performance of primary healthcare (PHC) units¹⁵ and is included in Pillar 5 (Safe practices in safe environments) of the most recent National Patient Safety Plan (PNSD 2021 - 2026).¹⁶ Despite this regulatory framework and its relevance to GFM, there is currently no information available on the practice, knowledge and attitudes of family medicine doctors (FM) regarding MedRec in Portugal.

This study was aimed at characterising MedRec procedures in force in the Lisbon and Tagus Valley Health Region (LVT), as well as the perception of family doctors working in this region regarding awareness, in addition to the use of MedRec.

METHODS

This was a mixed-methods sequential explanatory study,¹⁷ describing the methods and presenting the results of the quantitative phase, following the CROSS standards.¹⁸ For this quantitative phase, two studies were carried out on

MedRec, using two different observation units: PHC units (study 1) and family doctors (study 2).

The research project was approved by the Health Ethics Committee of the LVT Regional Administration (Registration no. 073/CES/INV/2022).

Study 1 - Formal procedures in force in Primary Health Care units in the Lisbon and Tagus Valley Health Region

This was an observational, cross-sectional and descriptive study with an exploratory component, aimed at characterising the MedRec procedures in force at PHC units in the LVT Health Region. All the coordinators of the different units [Personalised Healthcare Units (*Unidade de Cuidados de Saúde Personalizados* – UCSP) and Family Health Units (*Unidade de Saúde Familiar* - USF)] in the LVT Health Region were invited to participate through (institutional) email.

Data were obtained using a self-completion questionnaire made available via Google Forms[®] between December 2022 and March 2023. The questionnaire was developed by the research team and subjected to facial validation by family medicine consultants, including questions on the characterisation of the health unit (type, *Agrupamento de Centros de Saúde* - ACES, healthcare unit accreditation), as well as on a routine MedRec procedure in place. In the questionnaire, a formal procedure was 'defined as a written rule (for example, included into an internal procedure manual)'. The applicable items from the TIDieR (Template for Intervention Description and Replication) checklist were considered to characterise the MedRec procedure.¹⁹

It was estimated (Epi Info[®] software) that obtaining a response from 162 PHC units would allow for the assessment of a MedRec procedure, assuming a 5% margin of error and a 95% confidence interval (in the absence of previous information on this subject, a 50% frequency was considered).

A descriptive statistical analysis was carried out, using SPSS[®] v. 28 software and including the calculation of measures of central location and dispersion for the quantitative variables, as appropriate. Frequency tables (absolute and relative) were used for the qualitative variables.

Study 2 – Awareness, practice and attitudes by family doctors in the Lisbon and Tagus Valley Health Region

This study was overlapped in time with study 1 and with a similar typology. The objectives were focused on FM

rather than the functional units and was aimed, on the one hand, at characterising their awareness and self-reported attitudes towards MedRec and, on the other hand, at specifically characterising the use of MedRec at post-discharge follow-up appointments. This was selected as the first critical moment in which MedRec should be used in PHC (according to the DGS standard in force at the time¹⁴).

All physicians working at PHC units in the LVT Health Region were invited to participate in the study. Doctors attending a specific training programme were excluded. The process of sending out the invitation (via institutional e-mail) and reminders followed the same steps as those presented for study 1.

Data collection instrument consisted of a self-completion questionnaire made available via Google Forms®. The initial version of the questionnaire was developed by the research team based on the results of two studies identified in a rapid literature review^{20,21} and following a peer discussion. This version of the questionnaire was then subject to face and content validity by five experts, followed by a pre-test with the participation of 10 FM.

The questionnaire was divided into different sections. The first section regarded the sociodemographic and professional characteristics and prior awareness of the term “medication reconciliation”. This was more detailed for respondents who have described a previous awareness of the term, namely in terms of how it was acquired and their

perception of the degree of knowledge. Respondents who were unaware of the term were presented with the definition of MedRec so that they could continue with the questionnaire. Next, information was collected on the opinion regarding different statements related to the importance attributed to the MedRec process itself, as well as the interaction with other healthcare professionals. The statements related to other professionals are explained by the fact that MedRec is recognised as a multidisciplinary process. Finally, we sought to characterise the MedRec practice by FM, particularly focused on post-discharge follow-up appointments.

It was estimated (Epi Info® software) that the response of 316 FM would allow for the quantification of the frequency of prior awareness of MedRec, assuming a 5% margin of error and a 95% confidence interval (in the absence of prior information on this topic, a 50% frequency was assumed).

Measures of central location and dispersion for the quantitative variables were included in the descriptive statistical, as appropriate. Frequency tables (absolute and relative) were used for the qualitative variables. A bivariate analysis was carried out in the inferential exploratory component, using the chi-square (χ^2) test and Mann-Whitney (U) or Kruskal-Wallis (H) tests, depending on the nature of the variables to be analysed. The statistical analysis was carried out using SPSS® v. 28 software. A *p*-value < 0.05 was considered statistically significant.

Table 1 – Primary healthcare units in Lisbon and The Tagus Valley Health Region

ACES	Units (UCSP and USF)		Family Medicine doctors	
	Total*, n (%)	Participants, n (%)	Total*, n (%)	Participants, n (%)
<i>Almada Seixal</i>	23 (8.0)	9 (10.1)	179 (10.5)	20 (9.6)
<i>Amadora</i>	11 (3.8)	4 (4.5)	77 (4.5)	21 (10.1)
<i>Arco Ribeirinho</i>	17 (5.9)	7 (7.9)	89 (5.2)	8 (3.8)
<i>Arrábida</i>	23 (8.0)	4 (4.5)	105 (6.2)	10 (4.8)
<i>Cascais</i>	17 (5.9)	6 (6.7)	112 (6.6)	9 (4.3)
<i>Estuário do Tejo</i>	18 (6.3)	3 (3.4)	80 (4.7)	12 (5.8)
<i>Lezíria</i>	21 (7.3)	7 (7.9)	85 (5.0)	4 (1.9)
<i>Lisboa Central</i>	18 (6.3)	10 (11.2)	155 (9.1)	34 (16.3)
<i>Lisboa Norte</i>	14 (4.9)	4 (4.5)	127 (7.4)	21 (10.1)
<i>Lisboa Ocidental e Oeiras</i>	19 (6.6)	7 (7.9)	139 (8.1)	15 (7.2)
<i>Loures/Odivelas</i>	25 (8.7)	7 (7.9)	161 (9.4)	13 (6.3)
<i>Médio Tejo</i>	21 (7.3)	10 (11.2)	94 (5.5)	12 (5.8)
<i>Oeste Norte</i>	16 (5.6)	3 (3.4)	77 (4.5)	13 (6.3)
<i>Oeste Sul</i>	16 (5.6)	1 (1.1)	78 (4.6)	6 (2.9)
<i>Sintra</i>	27 (9.4)	7 (7.9)	149 (8.7)	10 (4.8)
Total	286 (100)	89 (100)	1707 (100)	208 (100)

* Units (UCSP and USF)

ACES: *Agrupamento de Centros de Saúde*; UCSP: *Unidade de Cuidados de Saúde Personalizados*; USF: *Unidade de Saúde Familiar*.

RESULTS

Study 1 - Formal procedures in force in Primary Health Care units in the Lisbon and Tagus Valley Health Region

Responses were obtained from 31% (n = 89) of the total number of PHC units in the LVT Health Region (n = 286, according to the BI-CSP for September 2023). The sample included units from all the ACES (Table 1), mostly model-A USF (n = 38) or model-B USF (n = 40). Seventeen units were accredited by the Directorate-General for Health/ *Agencia de Calidad Sanitaria de Andalucía* (ACSA) (17 USFs: 15 model-B units; two model-A).

From the 89 participant units, 22 (all USFs, seven with DGS/ACSA accreditation) have described a formal internal

MedRec procedure in place. These units are included into 11 different ACES. These came into force between 2016 and 2023. The three steps defined in DGS standard no. 018/2016 in force at the time of the study were included by almost all of these (19/22). FM were actually involved in all procedures. Thirteen of these 22 units defined that MedRec should take place at every medical appointment, while another eight units choose to define specific times for MedRec to take place (such as at post-discharge follow-up appointments). Face-to-face and home visits were mostly described by seventeen of these 22 units. The characteristics of MedRec internal procedures, according to the responses obtained, are shown in Table 2.

Table 2 – Characteristics of medication reconciliation procedures in Primary Health Care units in the Lisbon and Tagus Valley Health Region that have described a formal internal procedure in place

Type of USF (n = 22)	Entry into force	Steps			Sources of information					Professional involved			
		Collection	Comparison	Correction	Clinical notes ^b	RSE	Discharge clinical summary ^c	Interview	PEM	Physician	Nurse	Administrative assistant	Pharmacist ^d
B	2016	•	•	•	•	•	•	•	•	•	-	•	-
B	2017	•	•	•	-	•	•	•	•	•	•	-	-
A	2018	^a	^a	^a	•	•	•	•	•	•	•	-	-
B	2019	•	•	•	-	•	•	•	•	•	-	-	-
A	2019	•	•	•	•	•	•	•	•	•	•	-	-
B	2020	•	•	•	•	•	•	•	•	•	•	•	-
B	2020	•	•	•	•	•	-	•	•	•	•	-	-
A	2021	•	•	•	-	•	•	•	•	•	•	-	-
B	2021	•	•	•	•	•	-	-	•	•	•	-	-
A	2022	•	•	•	•	-	-	-	-	•	•	-	-
B	2022	^a	^a	^a	•	-	-	-	-	•	•	-	-
A	2022	•	•	•	•	-	•	•	•	•	-	-	-
A	2022	•	•	•	•	•	•	•	•	•	-	-	-
A	2022	•	•	•	•	•	•	•	•	•	-	-	-
B	2022	•	•	•	-	•	•	-	•	•	-	-	-
A	2022	•	•	•	•	•	-	•	•	•	-	-	-
A	2022	•	•	•	•	•	•	•	•	•	-	-	-
A	2023	•	•	•	•	-	-	•	•	•	•	-	-
B	2023	•	•	•	•	•	•	•	•	•	-	-	-
A	-	•	•	•	•	•	-	•	•	•	-	-	-
B	-	•	•	•	•	•	-	-	•	•	-	-	-
B	-	-	-	•	-	-	-	-	•	•	•	•	-

^a: Still undefined; ^b: Follow-up notes; ^c: Discharge summary in paper; ^d: Community pharmacy or at the unit; ^e: Upon discharge or attending public or private doctor; ^f: Or home visit; ^g: Undetermined.

RSE: *Registo de Saúde Eletrónico* (Electronic Health Record); PEM: *Prescrição Eletrónica de Medicamentos* (Electronic Prescription of Medication)

Study 2 - Perception of awareness, practice and attitudes by family medicine doctors in the Lisbon and Tagus Valley Health Region

Responses were obtained from 12% (n = 208, mostly female – n = 159; 76.4%; training completion between 2016 and 2022 – n = 100; 48.1%; 31-40 median age group) of the total number of family medicine doctors working in PHC units in the LVT Health Region (n = 1,707, according to the BI-CSP, for September 2023). Around 90% of the participants worked at a USF, and more than half have described a weekly 41-hour schedule. The sociodemographic and professional characteristics of the FM are shown in Table 3.

Prior awareness

Around 70% (n = 150) of the respondents have described prior awareness of the term “medication reconciliation”, with no significant differences according to age group

[χ^2 (2) = 3.334; p = 0.189], gender [χ^2 (1) = 0.207; p = 0.649], and type of unit [χ^2 (2) = 3.498; p = 0.174]. Among the participants with prior awareness, 40.0% had received training in this context (n = 60), 35.3% (n = 53) followed a formal procedure in place in the unit and 46.0% (n = 69) were aware of a DGS standard on the subject. Most of the latter have learnt about the standard through the unit (UCSP/USF) where they were working (n = 33). In addition, among those respondents who have described prior awareness, 46.7% (n = 70) were fully aware of the definition of MedRec.

Attitudes

Over 95% of the respondents not only agreed/strongly agreed on the importance of medication collection and the relevance of MedRec for medication safety and adherence to therapy but have also consider that the time spent updating the medication list was worthwhile.

	Timing ^a					Type of appointment				Previous audit		
	At all times	Post-discharge	Post-discharge from other specialty	After attending Emergency	After attending other specialty	Face-to-face ^b	Indirect	Teleconsultation	Nurse	Internal	External	No
	-	•	•	•	•	a	a	a	a	•	-	-
	-	•	•	•	•	•	-	-	•	-	-	•
	•	-	-	-	-	•	-	-	•	-	-	•
	•	-	-	-	-	a	a	a	a	-	-	•
	•	-	-	-	-	•	•	•	•	-	-	•
	•	-	-	-	-	•	•	•	-	-	-	•g
	-	•	•	•	•	•	•	•	-	•	-	-
	-	•	•	•	•	•	•	•	•	-	-	•
	•	-	-	-	-	•	•	•	•	•	-	-
	•	-	-	-	-	•	-	-	-	-	-	•
	a	a	a	a	a	•	-	-	•	-	-	•
	-	•	•	-	-	a	a	a	a	-	-	•
	•	-	-	-	-	•	•	•	-	-	-	•
	•	-	-	-	-	•	•	•	-	-	-	•
	-	•	•	•	•	•	-	•	-	-	-	•
	-	•	-	•	•	•	•	•	-	•	-	-
	•	-	-	-	-	•	•	•	-	-	-	•
	-	•	•	•	•	a	a	a	a	-	-	•
	•	-	-	-	-	•	-	-	-	-	-	•
	•	-	-	-	-	•	-	-	-	•	-	-
	•	-	-	-	-	a	a	a	a	-	•	-
	•	-	-	-	-	•	-	•	•	•	-	-

Around 10% of the respondents agree/totally agree with not taking on the responsibility regarding the reconciliation of medicines prescribed by other doctors. Around 80% agree/totally agree that MedRec is the responsibility of each FM. Most respondents (around 70% disagree/strongly disagree) did not agree that MedRec would be better dealt with by pharmacists. The attitudes towards MedRec are shown in Table 4.

Medication reconciliation at post-discharge follow-up appointment

Most FM ($n = 178$; 85.6%) were usually involved in less than five post-discharge follow-up appointments per month. Around 73% ($n = 152$; 73.1%) have described the use of MedRec in at least half of these.

The distribution of FM according to the ratio of post-discharge follow-up appointments in which they perform MedRec and the frequency with which they find discrepancies is shown in Fig. 1, showing significant differences between the groups [$H(4) = 14.644$; $p = 0.006$]. No significant differences in the distribution of the frequency of MedRec use were found, according to the following characteristics of the FM: age group [$H(2) = 1.874$; $p = 0.392$], gender ($U = 3205.000$; $p = 0.169$), type of unit [$H(2) = 2.082$; $p = 0.353$], number of (adult) consultations in a four-hour period [$H(2) = 1.146$; $p = 0.564$] or prior awareness of the term “medication reconciliation” [$U = 3685.500$; $p = 0.076$]. The results were obtained using the Mann-Whitney and Kruskal-Wallis tests (as applicable) and should be interpreted with caution as the differences found may be due to differences in the way the variables are distributed.

Most FM ($n = 155$; 74.5%) have complied with the three steps recommended by the DGS in the process (taking the best possible medication history, comparing it with the list in the medical file, and reconciling the differences).

Whenever a discrepancy was found, most respondents ($n = 168$; 80.8%) have solved it without contacting the hospital doctor. Around a third of the respondents ($n = 68$; 32.7%) have described never being able to contact the hospital doctor.

DISCUSSION

To the best of the authors' knowledge, this is the first study carried out in Portugal on the practice, awareness and attitudes of doctors towards MedRec.

A total of 89 PHC units were involved (31% of all LVT units). It was found that a routine MedRec procedure was only followed in one in four of these units. The high percentage of USFs in the sample (88%), higher than in the LVT Health Region at the time,²² would suggest that a higher proportion of CSP units had formal procedures in place, given that MedRec is included in the DiOR-CSP grid (Diagno-

Table 3 – Sociodemographic and professional characteristics of the participating family medicine doctors

	n (%)
Gender	
Male	159 (76.4)
Female	47 (22.6)
Unanswered	2 (1.0)
Age group	
≤ 30	3 (1.4)
31 - 40	120 (57.7)
41 - 50	53 (25.5)
51 - 60	10 (4.8)
≥ 61	22 (10.6)
Training completion	
1981 - 1994	21 (10.1)
1995 - 2008	24 (11.5)
2009 - 2022	163 (78.4)
Type of unit	
UCSP	20 (9.6)
Model A - USF	79 (38.0)
Model B - USF	109 (52.4)
Weekly schedule (hours)	
≤ 20	9 (4.3)
21 - 40	87 (41.8)
≥ 41	112 (53.8)
Number of adult consultations in each 4-hour period*	
≤ 11	42 (20.2)
12	117 (56.3)
≥ 13	48 (23.1)
Unanswered	1 (0.5)
Consultations to users with no specific family medicine doctor	
Yes	82 (39.4)
No	125 (60.1)
Unanswered	1 (0.5)

* The average number of adult consultations completed per each four-hour period was inquired (including face-to-face, telephone consultations of home visits).

ACES: Agrupamento de Centros de Saúde; FM: family medicine doctor; UCSP: Unidade de Cuidados de Saúde Personalizados; USF: Unidade de Saúde Familiar.

sis of Organisational Development in CSP - *Diagnóstico de Desenvolvimento Organizacional nos CSP*; at Dimension 2.2. Citizen-Centred Organisation- *Organização Centrada no Cidadão* –Criterion L).¹⁵ The ratio of PHC units with formal MedRec procedures may actually be even lower than what was found in this study, given the known risk of participation bias.²³ It should be noted, however, that one in three FM who had prior awareness of the term “medication reconciliation” have described a procedure in place in their

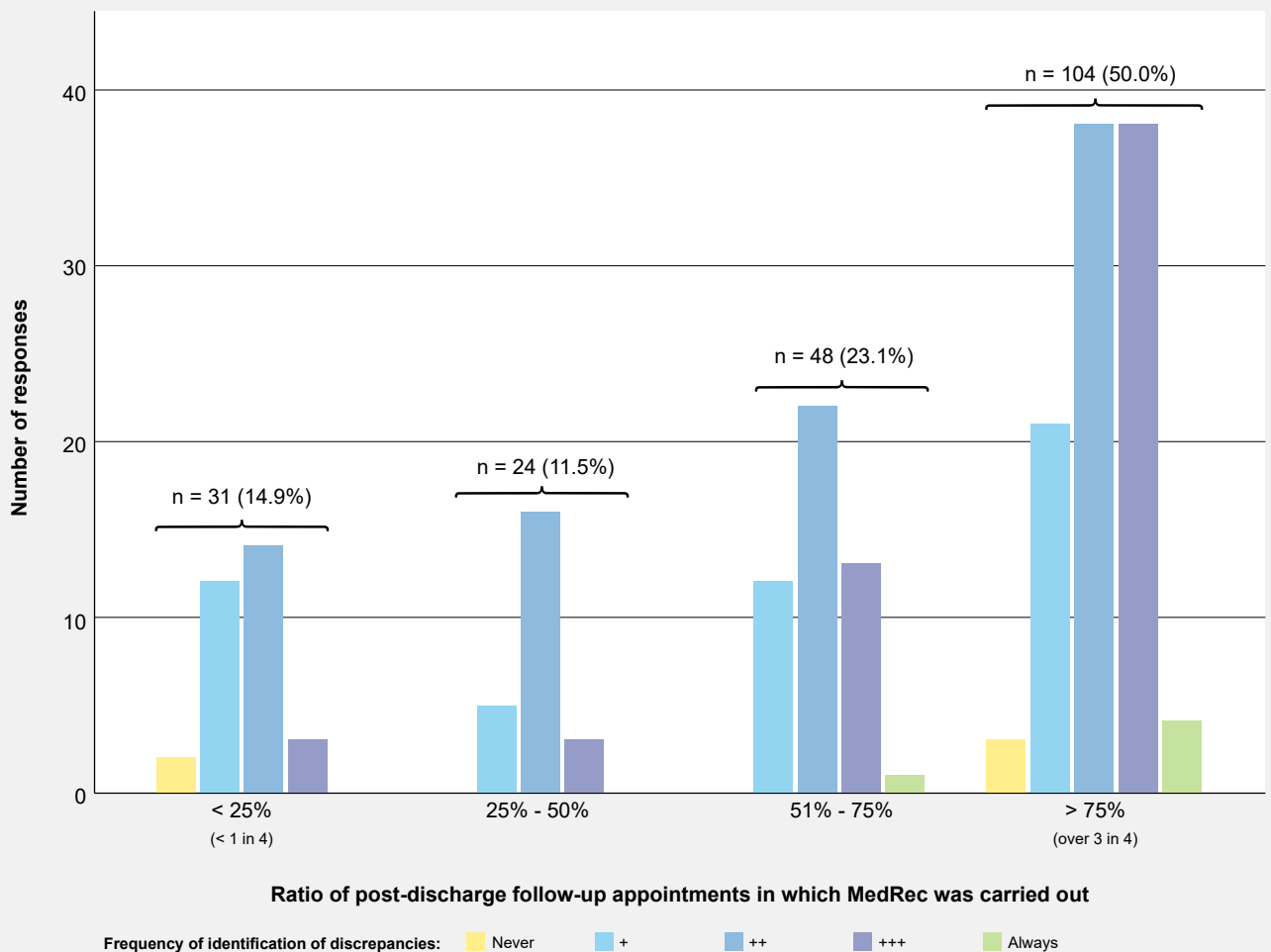


Figure 1 – Distribution of participants according to the ratio of post-discharge follow-up appointments in which medication reconciliation is performed and frequency of the identification of discrepancies

Note: 207 total responses, as one participant did not respond to the item regarding the ratio of post-discharge follow-up appointments in which MedRec was carried out.

units. However, it is not possible to exclude that these participants were not working at the units that participate in the study, since the level of characterisation carried out does not allow for this granularity, in the sense that the identification of participants was not available.

Regardless of an accurate estimate, the results allowed for reaching the conclusion that, at least in the LVT Health Region, the percentage of PHC units with a formal MedRec procedure is very low (probably less than 25%) and lower than it would be desirable. This study was not designed to assess the reason(s) for the absence of internal procedures (as was found in 75% of the CSP units that participate in the study), but this could be due, on the one hand, to the fact that no need was found by the units, or that the responsibility for standardisation should fall to other entities (e.g., the DGS). The standardisation of the MedRec process, with

local adaptations, is recommended by the World Health Organisation to improve patient safety.²⁴ In fact, in different contexts, the presence of inconsistencies and the lack of standardisation have been identified as constraints to the practice of MedRec.^{20,21,25,26}

It is worth mentioning that a formal internal procedure alone is not enough to ensure the quality of MedRec. In a study carried out in Ireland, around 60% of the total of 554 respondents have described the absence of a formal medication reconciliation procedure in their clinical practice, although around 75% considered their MedRec standards to be good/excellent.²¹

Among the PHC units with formal procedures, different parameters related to MedRec (for example, the time and type of consultation at which it should be carried out) are used. However, all these units involve doctors and the three

steps for MedRec are complied with the DGS standard in force at the time.¹⁴

A lower response rate of FM was found when compared to the PHC units (12 vs. 31%), and 208 respondents working at the LVT Health Region were included in the study. A 31 - 40 median age was found and around 90% of the respondents worked at USFs. These data suggest an over-representation of younger consultants in the sample.²⁷

Over two-thirds of the FM (72.1%) have described prior awareness of the term “medication reconciliation”, and half (50.0%) have described carrying out MedRec in most post-discharge follow-up appointments, a critical moment in the transition of care in PHC, according to literature.¹⁴ These estimates may be overestimated due to participation bias, as is the case for PHC units. In this study, there was no significant association ($p = 0.076$) between prior awareness and the use of MedRec, most likely due to the study's low sample size. In fact, almost all physicians recognised the relevance of MedRec when asked to define this process. In other words, doctors may not be familiar with the exact term “medication reconciliation”, but they do incorporate this process into their practice. In this context, it could be questioned whether what is practised by FMs corresponds to MedRec. However, three out of four FMs have described the inclusion of the three steps recommended by the DGS at the time of this study (taking the best possible medication history, comparing it with the list in the clinical file, and reconciling the differences).¹⁴ In addition, different reasons may exist - which was not an integral part of this study - that could explain why MedRec was not carried out in 100% of

these follow-up appointments, namely the absence of new medication prescribed.

The absence of significant differences found in our study regarding the frequency of use of MedRec by FM in post-discharge follow-up appointments according to different characteristics (including age, gender, type of unit, number of post-discharge appointments and adult consultations per four-hour period), suggests that the demographic factors and aspects related to the clinical practice do not represent constraints to the practice of MedRec.

However, the frequency with which MedRec is carried out is associated with the frequency with which discrepancies are found. This result is expected and coherent, as discrepancies are only found by those who carry out MedRec. In the presence of discrepancies, these were mostly solved (80.8%) without involving the hospital doctor, probably because around a third of the respondents (32.7%) never managed to contact the hospital doctor anyway. Difficulties in communication between levels of care are not exclusive to the Portuguese SNS (*Sistema Nacional de Saúde* – National Health System).^{20,21,28,29} For example, communication constraints between primary care and hospital professionals were described in a Spanish qualitative study, related to inefficient communication channels and difficulties in collaboration between professionals.²⁸

The results found in our study suggest that FMs considered shared responsibility, even though more than two thirds of respondents (69.8%) did not agree that MedRec would be better managed by pharmacists. In practice, collaboration between FMs and pharmacists could even

Table 4 – Attitudes of participants towards medication reconciliation

Attitude	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Medication reconciliation during clinical practice is crucial to improve medication safety.	0.5%	0.0%	0.5%	7.2%	91.8%
It is important for patients to collect their medication list.	0.0%	0.0%	0.0%	5.8%	94.2%
Reconciling medication lists with patients is an important way to improve adherence to therapy.	0.0%	0.0%	0.5%	18.8%	80.8%
The time that the family doctor spends with the patients updating the medication list is worthwhile.	0.0%	0.0%	2.4%	27.9%	69.2%
Medication reconciliation is the responsibility of the family doctor.	0.5%	6.7%	13.5%	45.7%	33.7%
For the patients on my list, I cannot take responsibility for reconciling medications that have been prescribed by other doctors.	13.0%	53.4%	23.6%	7.2%	2.9%
Medication reconciliation is a responsibility that would be better dealt with by pharmacists.	23.6%	46.2%	26.0%	3.4%	1.0%

be extended to other healthcare professionals in the unit and community pharmacies, although the clear definition of roles is crucial, in addition to communication channels and expectation management, not only of patients and caregivers, but also of the healthcare professionals themselves.³⁰

Limitations

This study was a contribution to new awareness of the practice and attitudes regarding MedRec in PHC in the LVT Health Region, the largest in Portugal.³¹

Despite the efforts made, the ratio of participants and their characteristics did not ensure the representativeness of the samples (either in PHC units or in FM). However, we were able to include observation units from all the ACES in the region. A lower response rate (12%) when compared to literature regarding the national FM participation in studies involving questionnaire data collection has been found.³² However, there is still significant heterogeneity, with studies (on other subjects) showing lower national participation.^{33,34} In addition, publication bias cannot be ruled out. The participation rate in our study was, however, in line with another study on this subject carried out in Ireland.²¹

The time context in which the study was carried out, namely after a period of intense professional demand following the COVID-19 pandemic, may have negatively affected the participation in the study. Although participation bias cannot be ruled out, social desirability bias,³⁵ on the other hand, may have been mitigated by self-completion and anonymity of the questionnaire.

Finally, although unlikely, the way the questionnaires were administered did not prevent a multiple participation by the same participant.

Despite these limitations, participation (89 units and 208 FM) was still significant, allowing some conclusions to be reached, as well as hypotheses for further studies, supporting a joint reflection on MedRec in Portugal.

Implications for practice and further research

This publication comes at an important stage in the restructuring of the *Sistema Nacional de Saúde* (SNS). The 'great reform'³⁶ of 2024 generalises the model of local health units, favouring integration between primary health care and hospital care. For this reason, continuity of care strategies such as MedRec are particularly relevant. For their effectiveness, it will be important to ensure communication between professionals which, according to this study, is not yet a reality.

On the other hand, the announcement that new communication tools will be made available between the prescribing doctor and the pharmacist as part of the change to chronic medication renewal regime³⁷ could favour horizontal

integration of care.

The presence of different players and the recognition of MedRec as a multidisciplinary process may however represent a constraint to its implementation.³⁸ The need for a clear definition of the roles of the different healthcare professionals shows the importance of standardising processes for patient safety, as previously described. This and other aspects are focused in the 2024 update of the DGS standard,² which will continue to play an important role in Portugal. This study also suggests the need to improve the disclosure³⁹ of standards, with PHC units acting as facilitators.

Despite identifying these areas for improvement, the study did not directly address the identification of constraints and facilitators to the practice of MedRec in PHC. To this purpose, a qualitative study is underway by the same authors which, based on the results shown here, will be aimed at identifying and understanding the constraints and facilitators to the practice of MedRec in Portugal, from the point of view of the FMs. It is also important understanding the view of users/caregivers, recognising MedRec as a patient-centred process.

In the future, the results of this and other studies will shape the design of strategies to implement MedRec in PHC in Portugal, aimed at improving patient-centred safety in the use of medication.

CONCLUSION

Although MedRec was valued by physicians working in the Lisbon and Tagus Valley region, it was not used as a routine in post-discharge follow-up appointments, a critical moment in the transition of care. Communication between levels of care and the standardisation of processes were identified as areas with potential for improvement.

The identification of the constraints and facilitators to the practice of MedRec is crucial to ensure the continuity of care and safety in the use of medication in primary care.

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AUTHOR CONTRIBUTION

RA: Data analysis and interpretation, writing, critical revision and approval of the final version of the manuscript.

MA: Data analysis, writing, critical revision and approval of the final version of the manuscript.

CR, PB, JC: Writing, critical revision and approval of the final version of the manuscript.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the 2024 update of the Helsinki Declaration of the World Medical Association.

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DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working centre regarding patients' data publication.

COMPETING INTERESTS

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