

Health Professionals Perception And Beliefs About Drug- Related Problems on Polymedicated Older Adults- A Focus Group Study

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Abstract

Background: Polymedicated older patients are at greater risk of suffering adverse events. For this reason, the detection of both inappropriate polypharmacy and polypharmacy-associated drug-related problems (DRPs) are essential to improve the health and wellbeing of older adults and to reduce healthcare costs. This work aims to explore health professionals' perceptions and opinions about polypharmacy and the handling of medicines by polymedicated older adults.

Methods: Thirteen focus groups with 94 health professionals (20 community pharmacists, 40 general practitioners and 34 nurses) were conducted in primary healthcare centers of the region center of Portugal. Participants were asked to discuss their perceptions and beliefs in relation to DRPs in polymedicated older adults. The sessions were audiotaped. After the transcription and coding of focus group sessions, a thematic analysis was done.

Results: The following four main themes emerged from the 13 focus group sessions: poor compliance and polypharmacy- a vicious cycle perpetuated by the behaviour of older adults, organization of the healthcare system, communication among health professionals, and strategies to prevent inappropriate polypharmacy.

Conclusion: The lack of both an efficient network of information and communication among health professionals makes the detection and/ or prevention of polypharmacy in older adults difficult. The implementation of new models to manage and/or prevent polypharmacy based on health professional perception and beliefs is essential to prevent DRPs and improve compliance among older adults.

Contributions To The Literature

Medicines are one of the most used health technologies, and age-related comorbidities prone older adults to polypharmacy, being a major public-health problem.

We found that not only older patients' behaviour but also the lack of healthcare guidelines and poor communication among health professionals contribute to polypharmacy.

The implementation of a new healthcare model of polypharmacy managing is fundamental to promote compliance and ensure the efficacy of healthcare systems.

Background

The world population is aging, and it is expectable that by 2050 1 in 6 people will be over the age of 65(1). Age-related loss of resilience and the progressive decline across physiologic systems predispose older adults to multiple chronic diseases that often require the prescription of multiple medicines (2, 3). Despite the efforts of health professionals (HP) to balance prescription and the multiple comorbidities,

drug-related hospital admission of older adults still ranges among fifteen to thirty percent of all hospital admissions (4).

United Nations defined as a worldwide priority “*ensure healthy lives and promote well-being for all at all ages*” (5, 6). According to a recent study, although being one of the most aged countries in the world, only 9% of the Portuguese older adults were considered healthy and, almost 50% of them had difficulty to comply with their medication regime (7, 8).

In the last decade, the studies on Drug-related problems (DRPs) have focused on medication errors committed by an HP and attributed medication errors to mistakes in prescribing, preparation, or dispensing (9). However, to our knowledge, the beliefs and concerns of HP regarding polypharmacy in older adult patients have not yet been studied, as well as their opinions on how to approach or prevent DRPs.

Taking this into consideration, qualitative focus group (FG) studies can be a valuable tool, because they allow the identification of all dimensions of a problem, even those that are unexpected (10, 11). Accordingly, this study aimed to explore the health professionals’ perceptions and opinions regarding both polypharmacy and the managing of medicines by polymedicated older adults.

Methods

Design

An exploratory qualitative study using a FG approach was designed to explore the perception of primary care HP, community pharmacists (CP), general practitioners (GP), nurses and about polypharmacy in older patients. FG sessions were moderated by one researcher (FR), following an interview, based on systematic review study.⁶ The moderator interfered only if a topic was not directed or if the discussion came to a stoppage. The Consolidated criteria for Reporting Qualitative research (COREQ) were followed (12).

Setting

The FG sessions took place at 13 public health centers coming under the Center Regional Health Administration (Administração Regional de Saúde do Centro) and encompassing a total of 40,835 registered older patients (age \geq 65 years).

Holding of focus group sessions

FG sessions with CP, GP and nurses were conducted from May to October 2018, and lasted for 60–90 min. All participants signed an informed consent form before participation. The participation of the HP was volunteer, without any incentives.

Analysis

All the sessions were transcribed and coded by a researcher (AIP). Each session was codified with the acronym FG followed by an alphanumeric character. The participants of each session were also codified with the acronym of their FG followed by the acronym CP for community pharmacists, GP for general practitioner, or N for nurses and an alphanumeric character (e.g. FG1CP1). To guarantee trustworthiness, one month after the last hearing, the tape was listened, once again, and the transcription content was revised. A thematic analysis was done⁽¹³⁾. In a first approach, and to allow a better understanding of the content of FGs, all the transcripts were read multiple times by two researchers. After that, initial codes were generated and grouped together into themes. Then themes were revised, and data interpreted and discussed by the team, before emerging the overarching concepts. NVivo qualitative data analysis software (QSR International Pty Ltd. Version 12, 2019) was used to help with the organization and analysis of the data.

Results

Overall, 13 FGs were conducted with a total of 94 HPs enrolled (40 GPs, 20 CPs, and 34 nurses). The sociodemographic characteristics of the participants are summarized in Table 1.

Table 1
Participants characteristics

General Practitioners		
Female (n = 16)	Male (n = 24)	Total (n = 40)
Age		
46.6 (27–65)	53.0 (28–66)	50.5 (27–66)
Nurse		
Female (n = 32)	Male (n = 2)	Total (n = 34)
Age		
45.1 (32–63)	42 (38–46)	44.9 (32–63)
Community Pharmacist		
Female (n = 17)	Male (n = 3)	Total (n = 20)
Age		
40.8 (23–58)	30.7 (24–36)	39.1 ¹ (23–58)

“Please insert Table 1 ”

Qualitative analysis resulted in four major themes: poor compliance and polypharmacy - a vicious cycle perpetuated by the behaviour of older adults, organization of the healthcare system, communication among healthcare professionals and strategies to prevent inappropriate polypharmacy (Table 2).

Table 2
Major themes from focus groups

Theme	Subthemes	Coding concepts
Poor compliance and polypharmacy - a vicious cycle perpetuated by the behaviour of older adults	Polypharmacy	Perception
	Socioeconomic factors	Familial context
		Economic factors
		Literacy
	Knowledge	Identification of medicines
		Duration of treatment
		Adverse effects
	Compliance	Priority
		Patients beliefs
		Difficulties
	Deprescribing	Lack of communication
	Patients-HP communication	TV supplements
	Influencers	Neighbours medication
		Interactions
Herbal products	Handling	
Medicines managing	Generic medicines	
Organization of healthcare system	Healthcare directrices	Prescribing guidelines
		Patients empowerment
	Clinical appointments	Lack of time
Communication among health professional	General practitioner's - Community pharmacists	Trust/mistrust

Theme	Subthemes	Coding concepts
	General practitioner's - Specialist physicians	Lack of communication
		Multiple prescribers
Strategies to prevent inappropriate polypharmacy	Prescribing	managing
		Generic medicines
	Promotion of compliance	Empowerment of patients
		Support teams

"Please insert Table 2"

Poor compliance and polypharmacy – a vicious cycle perpetuated by the behaviour of older adults

According to HPs, aged-related comorbidities prone older adults to multiple prescriptions, and, for this reason, polypharmacy is an unavoidable consequence of aging.

"The presence of multiple comorbidities is a normal consequence of ageing and for this reason polypharmacy in older patients is common practice", FG5GP1.

HPs also perceive that polypharmacy and poor compliance are two faces of the same coin, because polymedicated older adults have difficulties to comply with the therapeutic regime, hampering the achievement of clinical outcomes and leading GPs to prescribe one more medicine.

"polypharmacy leads to poor compliance and the poor compliance conduce to polypharmacy Because if they do not adhere to a therapeutic regime... we prescribe for one situation, after that for other problem", FG13GP1.

Because older adults value medicines and admit that they are essential to promote wellbeing, HPs believe that, in most of the time, medication errors are unwitting and committed due to the lack of knowledge of older adults.

"polypharmacy is closely related with literacy", FG11GP1.

From this point of view, lack of literacy, sociocultural factors, such as the absence of family and/or relatives to take care and help with the management of medicines are the main contributors to medication errors.

“The problem of polypharmacy is the loneliness of the older adults that do not have any young familiar near to help” FG2CP2.

During their daily routine, HPs perceived that because older patients recognize medicines by the colour and/or shape of the pill, duplication mistakes, mainly due to generic medicines confusion, or taking medicines which belong to others, can easily happen.

“One older woman takes to the healthcare center both, their medicines and the medicines of their husbands because they do not recognize their pills”, FG6N3.

“There are several generic medicines for the same active substance (from different holders) and older patients identify the medicines by the colour of the tablet.../if a doctor prescribes to him another medicine or deprescribed that medicine if they have the pill at home, they will continue to take it”, FG1CP1.

During FG sessions, it was also perceived that older adults have some difficulties to understand the duration of treatments, and for this reason, they tend to prolong the treatments for more time than it is recommended by the GP. These mistakes are frequently detected in medicines prescribed for an acute episode that requires an emergency room visit.

“After an emergence visit, we frequently observed that older patients, come to the pharmacy with a specific medication, and a certain point they do not know if they should stop or not with that medicine, and for this reason, they continue taking it” FG1CP1.

According to HPs, difficulties related to the use of some medicines, such as inhalators, can influence on the efficacy of treatments.

“there is a lot of confusion, for example, inhalators, they had difficulties, the device has a counter but they don't know, and sometimes they arrive at the pharmacy and told us that the inhalator is empty but is new, they do not use it”, FG2CP1.

According to HPs, the desire of older adults to achieve better wellbeing makes them easily influenced by the neighbours or even by television commercials that potentiate the consumption of over-the-counter (OTC) drugs, supplements, or even herbal products, that besides interfering with chronic medication, might be contraindicated for their health problems.

They are easily influenced by their neighbours, that say to their: I took this pill and I am feeling very well” FG3GP1.

“hide a lot of information, sometimes there is no medical prescription, it was a recommendation of the neighbours” FG1CP1.

“There are several patients that by on TV calcium pills” FG1FGP1.

HPs believed that polypharmacy per se is a contributor to poor compliance, because older adults take so many medicines that they easily withdraw some that they believe to be less important.

"Sometimes some patient complain that they take more medication than food", FG1CP1.

According to HPs perception, the huge number of pills throughout the day prompts older adults to skip a dose, to give up some medicines that they undervalue, or that they believe might cause adverse effects.

"Polymedicated patients always try to remove one or another pill that they believe does not affect", FG3GP1.

"If someone referred to the side effects of statin, patients automatically stop taking", FG8GP1.

During their practice GPs perceived that fake beliefs of older adults makes the deprescription of medicines difficult.

"Deprescribing some medicines it was almost impossible, for example, trimetazidine was very, very hard", FG3GP1.

"If I want to deprescribe pills that the patient is taking to 30 or 25 years, with which they felt good... we understand that it causing more harm than well... it is very difficult", FG5GP2.

Another important compliance-influence factor that emerged during the FG discussions was the **price** of medicines.

"Price of the medicines also contributes too poor adherence" FG1GP1.

According to HP, patients with economic problems try to adjust the therapeutic regimen to spend less money.

"...a large number of older adults that take oral anticoagulants, the new ones that are more expensive, sometimes instead of taking two pills only take one" FG4GP3.

During FG sessions, it was perceived that the lack of communication between patients and physicians is not only an important polypharmacy-related factor but also an influencer of compliance. Because patients do not report to their GP neither the specialist appointments that they had nor the new prescriptions or other products that they take, inappropriate polypharmacy is harder to detect.

"...older adults do not report their specialist/ emergency room visits to the GP, for these reasons' patients' GP have difficulties in detecting this inappropriate polypharmacy" FG1GP5.

"Teas and other bled beverages that patients buy here or there because of their health problems... One for gallbladder, other to the head, other to the kidney, and all of these substances have an active substance. All of them can cause interactions.... That we cannot control" FG5GP1.

Organization of the healthcare system

HPs perceived that the organization of the health care centers doesn't simplify the identification of DRPs. According to them, the lack of centralization of chronic medication management compromises clinical outcomes and promotes duplication mistakes.

"The lack of centralization of chronic management medication is a problem, because we have many vulnerable older patients...., who have several physicians' appointments, consequently to many prescribers, both in the public and private sector. These physicians have very great freedom to prescribe, which makes that the physician where all the information should converge, theoretical the GP, have difficulties in handling and evaluate all the prescribed medication.... And this then generates situations such as polypharmacy, adverse reaction drug interaction", FG1GP1.

According to HPs, the short time of the clinical appointments' hampers not only the therapeutic review process but also the review of the handling of medicines by older adults.

"The 15 minutes of clinical appointment turns out to be little to explore these issues", FG13GP2.

HP also refer that the lack of time during clinician appointments is an important polypharmacy-related factor that sometimes is undervalued.

"It takes time to see all... and we do not have time" FG2GP5.

The Portuguese National Health system (NHS) guidelines recommend that HPs *"must privilege the use of electronic means to support the processes of prescribing, dispensing and billing of all types of medicines, as well as health products"*(14). According to HPs, these directrices make the empowerment of patients on medication management difficult.

"I think, there is some pressure for physicians to stop printing the treatment guide.... The older population needs the guide treatment written in a paper", FG5N1.

Into the older population that has a cell phone, some do not know how to use it, and they want to see the treatment guide but press the wrong button and once upon a time a treatment guide, they delete all", FG5N2.

Communication among health professionals

HPs believed that in some health care centers the interaction among HPs promotes the detection of Drug-Related Problems (DRPs).

"...yesterday, a pharmacist calls to tell me that a patient bought a statin different that I had prescribed, I appreciate that", FG4GP3.

However, when managing patients' therapeutics, this is not always a reality.

“there are units that make protocols with local pharmacies... the problem is the lack of time” FG1GP1.

“...must-have big management of medicines, and for this is necessary due therapeutic revision and presently GP, perhaps because they lack time, they are not due it”, FG2CP3.

According to GPs, CPs are not doing their job because before selling a medicine they should ensure that patients know how to use the medicines.

If patients had doubts is pharmacist faults.... They must explain well because they sell the medicines, they have all the material”, FG10GP3.

GPs also affirm that some duplication mistakes occur, because CPs replace the original medicines, that they prescribed, by generic medicines. On the other hand, CPs feel undervalued by physicians who tend to forget their role and the fact that their proximity with older patients makes them know patients' needs better. Moreover, CPs affirm that when selling a generic medicine, they do it responsibly and because they know the economic context of the patient.

“ what happens is that GP does not have the perspective of the price of medicines, and they prescribe medicine and, when the patient came to the pharmacy they ask us if we do not have a cheaper medicine, “I do not have money for by this...”/ we are not changing the therapeutic, we are first helping the patients” FG10CP2.

In Portugal, primary health care centers are the gatekeeper of the NHS, so, whenever a patient needs a specialist appointment, the GP requests the appointment and sends all the clinical process of the patients to the specialist. During FG sessions, it was perceived that it is hard to obtain the return information, suggesting that there is a lack of communication between GPs and the other physicians.

“...we are obliged, and even if we were not, we always send complete information with the medication with everything and then we never get the return”, FG4GP1.

“Sometimes happens patients are taking an active principle for hypertension prescribed by the GP, therefore prescribed by myself, in the meanwhile, for any reason they go to the emergency service and comes to the home with other hypertensive medicines from another group, that sometimes, must not be taken with the hypertensive medicine prescribed by me. But the physician, that works at the emergency room, did not take the trouble to see the chronic medication of the patients, and the patients take the pills”, FG10GP1.

This lack of communication becomes more demanding in circumstances such as the deprescribing process.

“I do not feel comfortable to remove some medicines, a cardiologist appointment, patients expect eternity, so they go to a private clinic and, if I call the cardiologist he will say if you want to remove the medicine do it, but is your responsibility”, FG10GP5.

Strategies to prevent inappropriate polypharmacy

According to HPs, polypharmacy could be reduced if GPs were able to act as the manager of all prescriptions, i.e. GP should have the opportunity to validate/ or not a prescription, prescribed by other physicians, before the dispensing.

“All the prescription must have to be authorized and validated by the GP, that managing and planning the health of the patient”, FG1GP1.

During FG sessions it was perceived that HPs admitted that the introduction of the platform of electronic prescription (PEM) promotes the managing of medicines, however, this platform had some gaps that make the detection of DRPs a hard task. GPs affirmed that when using PEM, they find difficulties updating chronic medication. They also believed that all HPs should have access to this platform. HPs believed that the limited access of PEM to the nurses hampers their role in DRPs detection. Moreover, CPs could also have a more active role in DRPs detection, if they could access to PEM. CPs could relieve the burden of primary healthcare centers in terms of time and duration of clinical appointments, through the opportunity to renew the chronic medication.

“If the PEM allows the update of chronic medication and if pharmacist could access to the PEM, the pharmacist can make the renewal of the chronic medication and this in turns relieve the burden that physicians have in terms of patients appointment” FG1GP1.

To avoid DRPs related to duplication of medicines, HPs suggested that the pharmaceutical industry should agree to standardize the boxes of medicines and even, if possible, the colour and form of pills by active substance.

“The boxes of the same active principle should have the same colour...” FG1GP2.

“the pills should also be standardized in terms of shape and colour, FG1N1.

Lastly, health professionals believed that to decrease DRPs it is essential to support, empower the patients and promote health literacy.

“the ideal would be to have a support team not only to make the dressings and emergencies but also to visit the needy patients that live alone, because they often do things on their way because they don't want to ask for help and they don't have support either... The support would be to try to understand if the medication is being well manage”, FG5N1.

“The user comes to the health center, takes the prescription I can even know if he raised the boxes in the pharmacy, but on the home visit, I can find a warehouse of boxes of medicines”, FG5GP1.

“Promote the health literacy”, FG3GP2.

“The awareness campaigns could be a good help to patients and healthcare professional”, FG5N1.

Discussion

Worldwide, one of the consequences of the demographic trends in ageing was the increasing number of ageing-related comorbidities. Because of that, the implementation of new models to deal with the consequences of polypharmacy is fundamental not only to ensure the welfare of the older population but also to guarantee the efficacy of healthcare systems. In this point of view, HPs perceptions and beliefs are fundamental.

To our knowledge, this is the first FG study that encompasses a multidisciplinary team of HPs (physicians, nurses and pharmacists), who daily take care of polymedicated older adults, in order to explore their perception and opinions regarding polypharmacy-associated DRPs in older adults.

HPs believe that the economic/ social context of older adults influences their behaviour, and, in cases of low literacy, low mensal incomes and lowliness, it can trigger the occurrence of DRPs. The short time of clinical appointments, the lack of communication and network between all HPs, the poor communication between HPs and patients were identified as the main gaps in the healthcare system that difficult both the managing of polypharmacy and the detection of DRPs. The decrease of the gaps mentioned above and the empowerment of polymedicated older adults can have positive effects on patient's health outcomes through the improvement of compliance and the reduction of DRPs.

Our study participants consider that the presence of multiple comorbidities associated with the fact that guidelines are based on single chronic diseases makes polypharmacy a recurrent issue among older adults. Moen et al (15) reported that although physicians trust in guidelines, sometimes they felt insecure because older people are underrepresented in the studies on which the guidelines are based. For this reason, physicians perceived that following guidelines for some diseases, such as cardiovascular diseases, might prompt the occurrence of polypharmacy (9). Our results also showed that polymedicated older adults more easily fall into a "prescription cascade" this phenomenon was observed in clinical practice for the first time by Rochon et al in 1995 (16, 17). During our study, HPs also reported that polypharmacy potentiates the occurrence of interactions and they felt that they are "walking on thin ice". Our study demonstrated that media, websites and even patients' peers frequently gave patients "a false awareness of knowledge about medicines and because of that, patients tend to pressure HPs to obtain the products that they wish, and not what they need (18, 19). Both HPs and patients (unpublished data) perceived that: (i) the influence of friends and television advertisements potentiate the consumption of supplements and other products, such as herbal products, which might prone them to quit their prescription medicines, (ii) the lack of knowledge of older patients and the absence of caregivers to help with the management of medicines improve both medication errors and poor compliance with consequently poor health outcomes; (iii) Because older patients recognize their medicines by colour and shape, the lack of standardization of dosage forms, colour and packaging, the change of trade mark drugs by generic drugs or changes of generic drugs holders, is enough for older adults to commit treatment duplication errors when they handle generic medicines. this observation was found in a previous study (20), (iv) older patients attach great value to their medicines, however, when they take

many medicines, they weigh the risks and benefits and might stop taking some, (v) older patients trust in their HPs, but they believe that there is no need to share the use of other products (like OTC) with the GPs; this purposeful omission of information influences treatment efficacy and makes the detection of DRPs difficult. According to Pound et al (21) patients believe that flexibility in taking their medication allows life to continue without too many disruptions. Safran et al (22) reported that older adults with fewer resources are less compliant and tend to skip doses to make their medicines last longer. This observation is congruent with our study. Previously studies reported that there are problems when transferring information between health care facilities and that this problem is critical when they intend to deprescribe medicines (23–26). We believe that the development of health policies directed to polypharmacy as well as the implementation of computerized clinical decisions support systems (27) will not only facilitate the managing of polymedicated older adults by GP but also avoid DRPs such as medicines duplication and drug interactions. As previously reported(28) we believe that CPs could also have a more active role not only on minimization of duplication mistakes due to patients' confusion but also to promote the trust of the patient in generic medicines and perhaps improve medication c due to the lower price of generics.

To decrease limitations associated with FG methodology, FG sessions were undertaken at several healthcare centers located across inland and coast areas of Portugal centre region (29). All sessions were moderated by the same moderator.

Conclusions

Portuguese GPs feel overwhelmed and for this reason, they do not have time to revise the therapeutic of their patients. To minimize DRPs-associated polypharmacy in older adults, GPs, nurses, and CPs should interact in order to facilitate the therapeutic review. The strengthening of communication among HPs, between HPs and patients and the improvement of literacy of older adults regarding the managing of their medicines are all essential to enhance health outcomes among polymedicated older adults.

In 2018, our group initiated the MEdElderly project to improve drug managing among the older population of Portugal's centre region. The results of this FG study were useful to design an educational intervention that aims to address the main DRPs observed in older adults, demystify false beliefs and promote correct management of medicines. ~

Abbreviations

DRPs- Drug-Related Problems; FG - Focus Group; GP - General Practitioners; HP- Health Professionals; NHS- National Health Service; OTC - Over-the-counter

Declarations

Ethics approval: This study obtained the ethical approval of the Central Regional Health Administration (Administração Regional de Saúde do Centro IP/ARS-C) (registry no. 105/2017).

Consent for publication: All participants were informed about the objectives and the methodology of the study, and their participation was voluntary and confidential. A written informed consent was obtained from all participants before taking part in the meeting.

Availability of data and materials: The authors confirm that the data supporting the findings of this study are available within the article.

Competing interests: None to declare.

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Sponsor's role: The sponsor had no role in the design and conduct of the study, collection, management, analysis and interpretation of the data, or the preparation, review and approval of the manuscript.

Authors' contributions: All authors meet all four ICJME criteria for authorship, F. Roque., and MTH. designed the study, FR moderated the focus group sessions. AIP and MTH, transcribed and coded all data, AIP, FR, AF, JLS, and OA Revised the data, AIP and FR wrote the paper with input from all authors.

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