Identification of the multimorbidity training needs of primary care professionals: Protocol of a survey

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Abstract

Background: Current epidemiological situation has prompted the consideration of multimorbility (MM) as a prevalent condition, influenced by age, educational level and social support, related to unfavorable social and health determinants. Primary Care (PC) has a key role in its approach but further training of professionals in MM is required. The evidence on the effectiveness of training interventions in MM is still limited. Knowing the experiences, opinions and training needs of professionals is essential to enhance training interventions. Objectives: Identify perceived training needs by PC health professionals (doctors and nurses) in MM and polypharmacy. Methods: Design: Cross-sectional study based on an online survey (anonymous-ad hoc questionnaire). Participants and recruitment: 384 doctors and nurses working in healthcare centers and out-of-hospital emergencies of the Spanish National Health System. Non-probabilistic convenience sampling via email addressed to Health Institutions, and social networks. Data: Demographic characteristics and professional profile data (close-ended and multiple-choice questions) will be collected. Open-ended questions will be used to identify training needs, difficulties and resources about MM; required skills to care patients with MM will be assessed using a 4-item ordinal scale. Analysis: Coding of data prior to analysis. Descriptive statistical analysis, participation and completion rates of the questionnaire and estimation of absolute and relative frequencies and 95% confidence intervals in close-ended questions. Content analysis with inductive methodology in open-ended questions. Ethics: Ethical approval, Online informed consent. Conclusions: The identification of training needs of health professionals who care for patients with MM will be necessary data for developing highly effective training activities.

Keywords

Multimorbidity, polypharmacy, primary health care, learning, medical education

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Introduction

Background and rationale

Multimorbidity (MM) is a phenomenon that has received considerable attention in recent years[1] due to multiple factors, including demographic and epidemiological changes and the emergence of new clinical profiles and social and healthcare needs. Aging and the rising burden of chronic disease have created a shift in the distribution of disease and death to older ages and it leads to an expanding need and demand for care.[2–5]

The definitions of MM used in the scientific literature are numerous and diverse. Examples include the coexistence of two or more chronic diseases or chronic health conditions in the same individual,[4] and the combination of a chronic condition with at least one other health condition (acute or chronic), whether physical, mental, developmental, psychosocial, or somatic.[6–8] According to some authors, the latter definition excessively increases the prevalence of MM by including acute conditions, although it also takes into account fundamental determining factors.[9] It has been demonstrated that there is a nonrandom association among chronic conditions, forming so-called MM patterns, suggesting the existence of common underlying pathophysiological mechanisms.[5,10] However, groups of patients identified based on concurrent conditions and MM patterns can differ significantly in terms of sociodemographic, lifestyle, and clinical and functional profiles.[11]

The population prevalence of MM is as heterogeneous as the conceptual and methodological definitions applied and the characteristics of the studied population or data sources.[12] Rates reported in the available literature range from 3.5% to 100%, depending on the age range and sample characteristics considered.[13] Prevalence increases with age and is influenced by factors such as educational level, social support,[13–15] and continuity of care.[16] In 2019, one of the largest systematic reviews of the global prevalence of MM conducted to date estimated a prevalence of 33.1%.[17]

MM has been associated with various negative consequences both for the individual and the health system. These include increased disability and functional deterioration[18–20] leading to poorer quality of life[19–21] and greater psychological distress,[22] in addition to greater use of primary care (PC) services[21,23] and increased hospital admissions.[16,23,24] This in turn translates into a progressive increase in healthcare costs with each additional chronic disease.[14,23,25,26]

MM also predisposes affected individuals to polypharmacy (simultaneous treatment with more than 5 drugs) and the consumption of more drugs than clinically appropriate,[27] with consequent risks of interactions, increased adverse effects, decreased therapeutic adherence, greater likelihood of inadequate prescribing, and even increased mortality.[28–31] For healthcare professionals, MM gives rise to many situations that complicate the management of polypharmacy: not knowing which medication to prioritize in a patient with multiple chronic diseases in which treatments overlap gives rise to uncertainty, and the widespread belief that chronic diseases require life-long treatment discourages making changes to patients' medication regimens.[32]

Prescribing should be oriented towards the most important objectives for the patient (e.g. improving quality of life).[33] However, the needs of patients do not always coincide with those perceived by health professionals. This causes discrepancies between the expectations of the health professional and those of the patient.[34]

The PC setting has an important role to play in the management of MM. In PC, medical and nursing professionals, which constitute the core of the patient's care team at this level of care, must provide accessible, longitudinal, and comprehensive care. Furthermore, they must simultaneously manage multiple problems and acute and chronic conditions; coordinate and prioritize care with other health professionals; minimize iatrogenesis; and take into account the needs, lifestyle, preferences, and health priorities of each patient.[35,36] This entails managing a large amount of clinical information, assessing the risks associated with polypharmacy and diagnostic procedures, and adapting treatment plans according to the patient's circumstances.[30,34–40] Managing MM therefore represents a major challenge for PC health professionals, and is complicated by disorganization and fragmentation of the health system; the lack of institutional recognition of the leadership of the PC provider in comprehensive patient care; ineffective communication with other healthcare levels; limited time per consultation; traditional teaching methods based on specific diseases; inadequate clinical practice guidelines focused on individual diseases without considering combinations thereof; and difficulties implementing shared decision-making with patients and patient-centered care.[6–38,40–43] There is a need to identify, evaluate, and implement interventions that facilitate MM management using a comprehensive, community-supported approach and thereby improve the quality of life of these patients and reduce treatment burden, adverse events, and fragmented care, all of which are associated with increased healthcare utilization and costs.[6,38,44–47]

A growing body of evidence supports the effectiveness of interventions for patients living with MM.[13,44,45,48–53] It is important to have a solid knowledge of the experiences, opinions, and learning needs[54] of healthcare professionals in order to continue developing and evaluating these interventions and to ensure that participants receive the maximum practical benefits.[44] The training of healthcare professionals, residents, and students of medicine and nursing has been based on traditional models of specific diseases and the establishment of a single diagnosis, rarely adjusting to the circumstances of the patient.[32,38,39,42,43] A systematic review by Lewis et al.[44] proposed relevant content for a curriculum that focuses more on MM, including

skills in clinical practice, communication, critical evaluation, teamwork, information technology, and clinical management. This review emphasized the importance of identifying the training needs of individuals who will participate in the educational intervention so that they are adequately addressed in the different teaching objectives included in the intervention. These authors also suggested that initial assessment of training needs is essential for educators to offer practical, relevant, evidence-based, longitudinal, and indicator-oriented training that helps address the challenges posed by patients with MM, change practices, and improve clinical outcomes. Furthermore, identification of training needs is essential to ensure meaningful learning on the part of healthcare professionals.

However, formal needs assessments can be limited and can overlook important aspects in professions with high levels of unpredictability and uncertainty, resulting in a mismatch between the perceived training needs and the true knowledge gaps of the subject. Therefore, training should not focus exclusively on identified needs, nor should other more general learning be discouraged, even if it does not appear to address any specific training need.[55] Moreover, assessments should not be limited to identifying the most appropriate training content, but should also determine which format is most acceptable among healthcare professionals and will have the greatest impact on clinical practice.[44]

The MULTIPAP study encompasses several projects, the first of which was a clinical trial[56] evaluating a complex intervention that was based on the Ariadne Principles and targeted PC professionals,[57] with a goal of improving the adequacy of prescribing in a population of young-old patients (65–74 years) with multimorbidity and polypharmacy. Part of this intervention consisted of an online course (eMULTIPAP) that has been proven effective in an analysis using Kirkpatrick's 4-level evaluative model (evaluating the reaction, learning, behaviour, and results of the intervention). This analysis revealed improvements in the knowledge of the participating healthcare professionals and effective transfer of the acquired knowledge to healthcare practice, resulting in positive changes in patient health outcomes.[58] To guide the design of the training content, an informal assessment of training needs was conducted among the facilitators (doctors and nurses with long-term experience in caring for patients with MM and polypharmacy). The objective of the present study was to use a broader, survey-based approach to identify the perceived training needs of a larger sample of PC medical and nursing professionals in the context of MM and polypharmacy.

Objectives

The primary objective of this study was to identify the training needs of PC medical and nursing professionals in the context of MM and polypharmacy.

The secondary objectives were as follows: (i) to explore differences in training needs in MM and polypharmacy between different professional profiles; (ii) to determine the preferred format of training material; (iii) to identify the main difficulties in caring for patients with MM and polypharmacy in PC; (iv) to determine which definition of MM is most endorsed by the respondents; (v) to evaluate the importance attributed by the respondents to the different skills proposed for the management of MM in daily clinical practice; (vi) to characterize the demographic and professional characteristics of the respondents; (vii) to compare the training needs identified by the respondents with the contents of the eMULTIPAP training activity. The flowchart in Figure 1 outlines the study design and the survey objectives.

Methods

The Checklist for Reporting Results of Internet E-Surveys (CHERRIES) will be used to guide the reporting of the study.[59]

Study design

Observational, descriptive, cross-sectional exploratory study based on an online survey.

This project is part of the MM research line of the MULTIPAP and MULTIPAP PLUS clinical trials, both of which received funding from the Health Research Fund of the Instituto de Salud Carlos III (ISCIII), and was co-financed with FEDER funding awarded to the MULTIPAP Study.

Eligibility criteria

PC doctors and nurses working in any of the autonomous communities of Spain in PC centers, emergency departments, or outpatient emergency services will be eligible for inclusion. All participants will be required to provide informed consent (IC) in order to participate in the online survey.

Participants will be selected through non-probability convenience sampling, without a specific sampling frame. Participants will be contacted by email, addressed to the health districts, health management areas, or equivalents of different autonomous communities in Spain, and via social networks (WhatsApp, Email, Twitter, and Facebook). The body of the email will include an invitation to participate in the survey, and will outline the eligibility criteria and provide access to the questionnaire once IC is provided.

Given the nature of data collection via online surveys, a low response rate and a potential selection bias are expected. Data available in the literature do not predict response rates higher than 40% in healthcare-related online surveys, and rates as low as 10% have been reported.[60,61] For this reason, it is recommended to send a maximum of
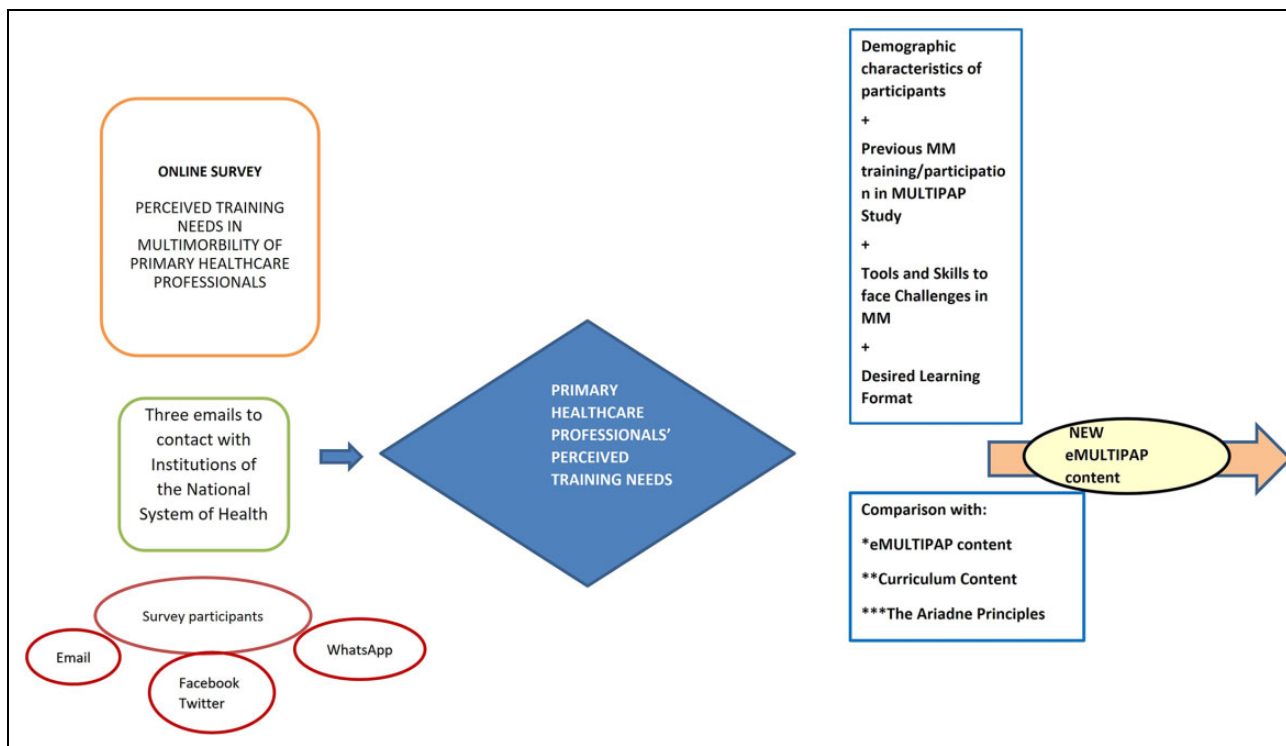
Figure 1. Flow diagram and objectives of the research project.

3 monthly email reminders about the survey, and to leave open the possibility of mass dissemination of the survey by recipients through their own social networks (Facebook, Twitter, email, and/or instant messaging applications) in order to achieve greater participation and to reach the required sample size (Figure 1).

Survey methodology

The training needs of the participants will be explored through an online survey that has been prepared after a review of the literature on MM, training strategies for healthcare professionals, and online survey techniques to ensure maximum validity (Appendix 1).

The questionnaire, which is the basic instrument of our research, will be pilot tested on 10 healthcare professionals with characteristics similar to those of the target participants. They will be invited to answer the online survey, and to evaluate the clarity of the questions, if the order is adequate and to quantify the time taken to give all answers and the usability and technical functionality of the electronic questionnaire.

The questionnaire consists of 5 distinct sections: (i) sociodemographic and occupational characteristics of the participants; (ii) prior training in MM, opinions on the definition of MM, and previous involvement in any of the MULTIPAP Study projects; (iii) tools used to address challenges in caring for patients living with MM and importance attributed to a series of predefined skills to improve MM care; (iv) opinions on professional training needs; and (v) the preferred teaching method to address said training needs.

The electronic questionnaire was created using a free online tool (Google Form®), which provides an automated method of capturing survey responses in a spreadsheet format. The questionnaire is hosted on a website linked to an analytical tool (Google Sites® and Google Analytics®) in order to acquire the necessary metrics to determine the number of views and the survey completion rate and to identify unique users by IP (Internet Protocol) address. The questionnaire is anonymous, and email addresses are not collected; to avoid duplication of responses, the tool used to create the survey requires to log into a Google account, but in no way makes this information available to the survey creator. The average time required to answer the survey will be estimated in the pilot study. The survey consists of 2 pages: the first contains the IC form, completion of which is an essential requirement; and the second contains 32 items with closed questions and/or multiple-choice questions with a range of responses, with or without an open item, open questions, and questions with a 4-item ordinal scale. The repeated use of the same response options in the section of the questionnaire about tools used to care for patients with MM could give rise to invariable response bias. The short length of the questionnaire aims to minimize fatigue on the part of the respondent. Furthermore, the number of items has been kept even to eliminate neutral options. Finally, questions on similar topics will be

randomly distributed throughout the questionnaire.[62] The configuration of the questionnaire provides the respondent with the option of editing all answers up to the moment of submitting the completed questionnaire, and prevents return of an incomplete questionnaire. All received questionnaires will be analysed. Questionnaires will be sent to prospective participants 3 times on a monthly basis, via health institutions, in order to achieve the required sample size.

Outcome measures

Table 1 provides a summary of the study variables and the analytical methods.

The route through which the respondent receives the questionnaire will be recorded in each case. The view rate (number of total unique users who visit the first page of the survey, divided by the number of unique users who visit the website), the participation rate (total number of unique users who agreed to participate divided by the number of users who visit the first page of the survey), and the completion rate (total number of people who return the completed last page of the questionnaire divided by the total number who agreed to participate) will also be recorded.

Sociodemographic and work-related variables that will be recorded include province of origin, age and gender, profession (doctor, nurse), number of years working in PC, position held (health center team, emergency department, or both), and workplace location (rural, urban, or both).

Variables relating to prior training in MM will also be included to determine whether participants received any such training, the type and duration of the training activity, the curriculum content, and time elapsed since training. The definition of MM used by healthcare professionals will be assessed using a closed question with three proposed definitions, that corresponds to the most used ones from the WHO,[4] the European General Practice Research Network[7] and a systematic review by Fortin et al.[63]: (i) the combination of a chronic disease with at least one other acute or chronic health condition, whether physical, mental, developmental, or a psychosocial or somatic factor[7]; (ii) coexistence of two or more chronic health conditions in the same individual[4]; (iii) coexistence of three or more chronic health conditions in the same individual.[63] This section also includes a dichotomous question about prior participation in the MULTIPAP Study.

Variables relating to the main difficulties identified in caring for patients with MM and the tools used by the respondents to address these difficulties are assessed through a series of open questions. The importance attributed to a series of predefined skills (established after literature review and discussion among researchers to reach consensus) to improve said care is measured using affirmative statements that the respondent is required to rate on an ordinal scale of 1 ("no importance") to 4 ("maximum importance"). This part of the survey includes the following 12 skills: shared decision-making, time management, design of care plans for complex patients, teamwork for continuity and coordination of care, patient and/or caregiver communication and support, management of drug treatment, risk management, computerized records and information gathering, critical reading for research and problem solving, application and adaptation of clinical practice guidelines, communication and promotion of healthy lifestyles and self-care, and patient-centered care.

Finally, respondents are asked to state 3 training needs relating to the care of patients with MM and polypharmacy (open question), and about the contents (open question) and preferred format (videos, texts, in-person courses, blended courses, online courses, other) of training to address the identified needs.

Sample size. For the dichotomous questions, the required sample size, assuming maximum indeterminacy ($p = 50\%$) with a confidence level of 95% and a precision of 5%, is 384 respondents.

For questions evaluated using a Likert scale, the required sample size was estimated following the method described by Rositas.[64] According to the typical variances based on the number of points in the Likert scale (in this case 4 points), the mean tends to 2.5 and the variance in the uniform distribution tends to 1.3. Assuming a 95% confidence level, the final sample size is 104 respondents.

Based on these calculations, the final required sample size is 384 respondents. In the case of open questions, responses will be evaluated to determine whether saturation has occurred.

Analytical methods

Quantitative

Statistical analyses of the data will consist mainly of a descriptive analysis. For quantitative variables, measures of central tendency, position, and dispersion will be used. All data will be presented with 95% confidence intervals.

Bivariate analyses are proposed using tests appropriate to the data distribution. The Kolmogorov-Smirnov and Shapiro-Wilk tests will be used to verify the normality of the data. The Chi-squared test, analysis of variance (ANOVA), Kruskal-Wallis test, and Mann-Whitney U-test will be applied as appropriate depending on the distribution of the data.

Variables will be grouped into categories in order to perform a multivariate analysis, considering as dependent variables the definition of MM and the main skills needed to face the MM challenges. Age, gender, profession, job characteristics and previous training on MM characteristics will be considered as independent variables.

Table 1. Summary of outcomes, variables, measures and method of analysis.

Outcome	Variable	Measure/scoring	Methods of analysis
Dissemination	*Receiving route*	– Institutional email – Non-institutional email – Social networks – Instant messaging – Other	Per cent and frequencies for categories
Response rates	*View rate*	Number of total unique users who visit the first page of the survey, divided by the number of unique users who visit the website	Per cent and frequency
	Participation (Recruitment) rate	Total number of unique users who complete the first page of the survey divided by the number of users who visit the first page of the survey	Per cent and frequency
	Completion rate	Total number of people who return the completed last page of the questionnaire divided by the total number who agreed to participate	Per cent and frequency
Sociodemographic characteristics and Job characteristics	*Province of origin*	Open answer	Different answers will be listed as categories
	Age	Years completed by the respondent at the time of the survey	Means, medians, SDs, range
	Gender	Male; Female; Other	Per cent and frequencies for categories
	Actual profession	Doctor; Nurse	
	*Years working in primary care**	Numerical values	Means, medians, SDs, range
	Job currently held	– Primary Care Team – Primary Care Emergency Service – Both of them – Hospital/out-of-hospital emergencies – Other	Per cent and frequencies for categories
	Workspace	– Rural – Urban – Both of them	

Table 1. (continued)

Outcome	Variable	Measure/scoring	Methods of analysis
Multimorbidity training and Participation in MULTIPAP Project Multimorbidity training and participation in MULTIPAP Project (continued)	*Specific training in multimorbidity* Type of training received	Yes/no – Classroom course – Online course – Unique talk or seminar – Self-training – Other (specify)	Per cent and frequencies for categories
	Training moment	– During last year – Between 1–5 years – > 5 years ago	
	Length of training period	– < 30 hours – > 30 hours	
	Course contents	– Communication skills – Clinical skills – Management skills – Critical assessment skills – Teamwork – Information technology skills – Others (specify).	
	Definition of multimorbidity	Open answer	Answers will be read and reread by 2 researchers independently, with subsequent triangulation. Segmentation of quotes and generation of codes to establish thematic groupings or categories
	Participation in MULTIPAP Project	Yes/no	Per cent and frequencies for categories

(continued)

Table 1. (continued)

Outcome	Variable	Measure/scoring	Methods of analysis
Training needs in multimorbidity (MM)	*Main difficulties and challenges in the care of patients with MM*	Open answer	Per cent and frequencies for categories
	Tools and resources used to face difficulties in caring for patients with MM	Open answer	Different answers will be listed as categories
	Perception of the importance in the approach of multimorbidity in the clinical practice of 12 skills based on the curricular proposal of a recent systematic review on the subject[39]	• shared decision-making • time management • design care plans for complex patients • teamwork for continuity and coordination of care • support to patient and/or caregivers • management of pharmacological treatment • risk management • computer registration and information gathering • critical reading for research and problem solving • application and adaptation of guides • promote healthy and self-care lifestyles • patient-centered care	Per cent and frequencies for categories
Perceived training needs	*Perceived training needs in relation to the care of patients with MM and polypharmacy*	Open answer	Different answers will be listed as categories
Desidered learning format	*Course contents preferences* *Desired learning format*	– Videos – Texts – Face-to-face courses – Blended courses – Online courses – Others	Different answers will be listed as categories

MM: Multimorbidity; SD: Standard Deviation. Primary Care* includes: health centers, out of Hospital emergency and Primary Care Emergency Services.

All analyses will be performed using SPSS software (version 22). Statistical significance will be established at $p \leq 0.05$.

Qualitative

Responses to the open questions will be evaluated independently by two researchers through inductive analysis of the thematic content.[65] Answers will be read and reread by two researchers independently, followed by segmentation of quotes and generation of codes to establish thematic groupings or categories, with subsequent triangulation, considering the concept of reflexivity, since the researcher is located within the research in continuous interaction with the data as a function of his or her previous experience and training. Responses that cannot be included in any of the established categories will be classified as "other responses." Responses in this group will not exceed 5% of the total number of responses. Conflicts will be resolved by a third researcher.

Ethics

The study has been approved by the Research Ethics Committee of Malaga, and will be conducted in accordance with the principles established in the Declaration of Helsinki, the Council of Europe Convention on Human Rights and Biomedicine, and the requirements established in Spanish legislation. The study conforms to the norms of good clinical practice (art. 34 RD 223/2004; Community Directive 2001/20/CE) and the provisions of Regulation 2016/679 of the European Parliament and of the Council of April 27, 2016 on Data Protection (GDPR). All participants must express their agreement to participate in the survey by providing IC before beginning the questionnaire (Appendix 1).

Discussion

This article describes the design of an exploratory and descriptive study using an online survey of PC medicine and nursing professionals to identify perceived training needs, difficulties encountered, and available tools in the context of MM and polypharmacy.

The increase in the prevalence of MM and its impact on patients, healthcare professionals, and health systems has spurred research seeking to better understand this problem. A series of MM research priorities have been recognized, including maximizing the benefits and limiting the risks of treating patients with MM, and organizing health systems to better manage these patients.[66] In the clinical management of MM, training of health professionals should play an important role.

The manner in which health systems, clinical practice guidelines, and healthcare training and research are oriented around discrete diseases is commonly recognized as one of the primary problems in current approaches to

managing MM. Consequently, professionals must deal with uncertainty, insecurity, conflicts, and scarce supporting evidence in a fragmented and hyper-specialized healthcare context, making shared decision-making difficult. Another complaint is that current consultation times in PC are insufficient to allow comprehensive management of multiple conditions and a lack of interprofessional coordination acts as a source of iatrogenesis and added uncertainty, in addition to negatively influencing the patient's perception of their healthcare.[57,66,67] However, PC professionals recognize that longitudinality and continuity in the relationship with patients is a useful tool that can help address the challenge of MM and facilitate the adaptation of diagnostic and therapeutic plans and shared decision-making processes. PC workers have also proposed a range of improvements, including better working links with pharmacists to improve medication revision and the need for more training and education in the management of MM and its consequences.[65] While training deficits may appear to be one of the easiest aspects to address, in reality there is little evidence demonstrating how such training can be effectively provided to PC professionals in a manner applicable to the PC context.[44,52,53,58]

A systematic review published in 2016[44] identified 2 studies of sufficient quality on the education of doctors in MM. The first was a pilot program[38] that consisted of a 2-h workshop for general practitioners (GPs) based on simulated clinical cases, in which a before-and-after analysis revealed an increase in knowledge about the definition and characteristics of MM, as well as greater confidence among GP trainees in their ability to clinically manage patients living with MM. This study did not evaluate the long-term impact of the workshop. The second[68] described a workshop in which a large group of professionals were presented with up-to-date clinical evidence, and subsequently worked in small groups to establish diagnosis and treatment plans in various complex clinical settings involving patients living with MM. The results were compared with a control group and the authors found that immediately after the educational intervention the participants in the intervention group had more knowledge and greater confidence in their ability to solve clinical cases.

The PRIMUM study[52] evaluated the effectiveness of a complex intervention aimed at improving the adequacy of prescribing in patients with MM. One of the components of the intervention was a 90–120-min instructive activity in which GPs conducted interviews with patients about problems related to medication, were provided with examples of clinical cases and recommendations on the management of polypharmacy, and used a computerized decision support system to optimize medication. The authors found no significant differences between the intervention and control groups, possibly due to the limited room for improvement; the patients included in the study had already received adequate prescriptions at the beginning of the study and reported good quality of life.

The recently published 3D randomized controlled trial[50,53] consisted of a training activity with case-based discussions, demonstration of the model proposed by the project, reflection, and task completion prior to a complex intervention in which each patient underwent three different reviews every 6 months performed by a nurse, a pharmacist, and a doctor. This intervention did not result in any improvement in quality of life or other secondary variables such as perceived burden of disease or treatment, although it was associated with an improvement in the patients' perception of the quality of their care as compared with standard practice in health centers in England and Scotland.

Similarly, within the framework of the MULTIPAP study, the 4-week, 4-module, online eMULTIPAP course,[58] which is based on the Ariadne Principles, has demonstrated a significant improvement in knowledge among healthcare professionals and successful transfer of this knowledge to healthcare practice, resulting in better health outcomes in patients with MM and polypharmacy.

The ongoing SPPiRE study[69] aims to reduce inappropriate prescribing and polypharmacy in patients with MM through an intervention that includes the training of GPs using videos hosted on the project website and structured reviews of pharmacological treatments.

Strengths and limitations

The present project has several strengths. Although previous studies have sought to identify the training needs of GPs,[70] this study is the first to do so specifically in the context of MM and to include the opinion of PC nurses, since both doctors and nurses play fundamental roles in this healthcare context.

Another strength of the project is the use of open questions, which provide a large amount of information and give complete freedom to the respondent. However, a limitation of this approach is that it also increases the effort required on the part of the respondent and the complexity of subsequent coding of the response. The number of open questions was limited in order to minimize these drawbacks.

To ensure rapid, cost-effective participation, the questionnaire will be disseminated online in an anonymous manner, and therefore the professional profile of the respondents could not be externally validated. This limitation could be addressed by also disseminating the questionnaire via professional networks. The use of a non-probabilistic sampling method for the sake of convenience may also result in a lack of representativeness of the study sample. However, although responses will be obtained from different geographic areas, the homogeneity of the healthcare model throughout most of the Spanish state means that the information obtained can be considered valid.

Professionals who decide to participate in the survey may be more interested in the subject and therefore have more training in the aspects evaluated in the questionnaire, thereby reducing the identification of training needs or very specific needs. Moreover, the fact that the survey is received and completed electronically may skew the respondent profile towards those with more technological skills and interests. The mandatory use of Gmail to complete the survey excludes professionals without a Gmail account, but enables the avoidance of bias due to duplicate responses. To minimize these limitations, the health districts and/or equivalent entities will be asked to disseminate the questionnaire electronically among all medical and nursing professionals in their area, and completion of the questionnaire will be as intuitive as possible and facilitated by the addition of an explanatory text (Appendix 2).

Implications for research

The identification of the MM training needs of the target population, as well as the preferred learning modality, will be taken into account when developing, refining, optimizing, modifying, and adapting interventions, which will consist of activities or a combination of elements designed to improve health outcomes.[71] Likewise, identifying barriers, appropriately selecting the components of the intervention, and involving the participants are fundamental aspects of the design of interventions to generate change.[72] After implementation of the teaching intervention, its effects can be evaluated through a structured procedure such as the Kirkpatrick's model,[73] which assesses four levels (reaction of the participants to the training activity; learning or acquisition of knowledge; changes in behaviour and application of the knowledge acquired in a clinical setting; and results of the training program).

Adequate planning and development of interventions to train healthcare professionals is essential to ensure success and translation into quality clinical care and better health outcomes for patients living with MM.

Implications for practice and policy

Caring for patients who have multiple pathologies and are being followed up by other specialists poses major challenges to doctors and nurses in terms of minimizing iatrogenesis, prioritizing the patient's preferences, and emphasizing the importance of adherence to prescribed medications. Failure to adequately perform these tasks can lead to avoidable side effects, loss of pharmacological efficacy, the addition of unnecessary treatments, and poorer therapeutic adherence. This in turn contributes to poorer control of chronic diseases, with consequent increases in the number of hospital readmissions and negative effects on healthcare spending. It is therefore crucial to improve the doctor–patient relationship by creating a bond of trust and harmony that favours patient-centered care and shared decision-making, and to optimize patient care management to control avoidable admissions and readmissions and reduce mortality and healthcare costs. These goals can be

pursued through the optimization of educational plans and reinforcement of the training of health professionals in the field of MM.

Training healthcare professionals in the multiple aspects of MM management and designing appropriate educational interventions integrated into healthcare practice are crucial goals, the achievement of which can be greatly facilitated by delving into the experience of PC professionals in this area, and more specifically the deficits they perceive. Designing training programs in response to identified needs helps to address real challenges and make learning more effective.[44,68]

Conclusions

Patients living with MM pose multiple challenges to the healthcare professionals who care for them. The identification of perceived training needs, as well as recognized difficulties and tools available to professionals who manage these patients on a daily basis must be considered in order to develop efficient training interventions, which can ultimately aid the creation of a patient-centered healthcare model that also translates into better clinical outcomes. The online, nationally disseminated survey proposed here seeks to obtain relevant quantitative and qualitative information from medical and nursing professionals working regularly in PC in Spain.

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Supplemental material

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