Artículo de revisión / http://dx.doi.org/10.15446/rcciquifa.v46n3.69469

Towards a transformation in the pharmacist care paradigm: A scoping study

José Julián López[1], José Gilberto Orozco[2]

[1] Grupo RAM, Red para el uso Adecuado de Medicamentos, Departamento de Farmacia, Universidad Nacional de Colombia, Cra. 30 No. 45-03, Bogotá, D. C., Colombia. E-mail: jjlopezg@unal.edu.co

[2] Facultad de Medicina, Universidad Nacional de Colombia, Cra. 30 No. 45-03, Bogotá, D. C., Colombia. E-mail: jjlopezg@unal.edu.co

Received: September 5, 2017.

Accepted: November 3, 2017.

Summary

Introduction: In a paper published by Hepler, it is mentioned that the Pharmaceutical Care constitutes a change in the paradigm of the profession, an affirmation that it is necessary to clarify since apparently, this concept is not used from the philosophy or the social sciences. *Methodology:* A scoping study was performed from systematics reviews of literature and meta-analysis published in MEDLINE, EMBASE and LILACS, which the role of the pharmacist in the different settings of health care was studied. It was not restricted by language or date of publication. *Results:* The selection process identifies 86 reviews published between 1998 and 2014, of which 84.9% are Systematic Review (SR). It was studied all care settings 23.3%, community 22.1%, and ambulatory setting 22.1%. According to the title, 65% referring to the role of the pharmacist, 21% with pharmaceutical care or other related terms and 14% with clinical pharmacy services. There is no uniformity in the concepts of pharmaceutical care or drugs related problems. *Conclusions:* It is necessary to construct the knowledge object of pharmaceutical care activities from a paradigm that allows another understanding of pharmacist interventions, construct values in the patient-pharmacist relationship supported in Latin American bioethics and a methodology of research that transcends the findings of the performed studies using the designs of classical epidemiology.

Key words: Pharmaceutical care, pharmaceutical services, drug related problems, systematic review.

Resumen

Hacia una transformación del paradigma del farmacéutico asistencial: una revisión de alcance

Introducción: en un artículo publicado por Hepler, se menciona que la atención farmacéutica constituye un cambio en el paradigma de la profesión, afirmación que es necesario aclarar, ya que, aparentemente, este concepto no se utiliza desde la filosofía o las ciencias sociales. *Metodología:* se realizó un estudio de alcance a partir de revisiones sistemáticas de literatura y metanálisis publicadas en MEDLINE, EMBASE y LILACS, en las que se estudió el papel del farmacéutico en los diferentes contextos de atención de la salud. No se restringió por el idioma o fecha de publicación. *Resultados:* el proceso de selección identificó 86 revisiones publicadas entre 1998 y 2014, de las cuales el 84,9% son revisiones sistemáticas. Se estudiaron todos los ámbitos de atención en el 23,3%, comunitario 22,1% y ambulatorio 22,1%. Según el título, el 65% se refiere al papel del farmacéutico, el 21% con atención farmacéutica u otros términos relacionados y el 14% con los servicios de farmacia clínica. No se evidencia uniformidad en los conceptos de atención farmacéutica ni problemas relacionados con medicamentos. *Conclusiones:* es necesario construir el objeto de conocimiento de las actividades de atención farmacéutica a partir de un paradigma que permita otra comprensión de las intervenciones farmacéuticas, construir valores en la relación paciente-farmacéutico apoyada en la bioética latinoamericana y una metodología de investigación que trascienda los hallazgos de los estudios realizados desde la epidemiología clásica.

Palabras clave: atención farmacéutica, servicios farmacéuticos, problemas relacionados con medicamentos, revisión sistemática.

Introduction

The activities of the pharmacist have introduced a significant change since the 1990s, which has been described by Hepler as a change in the paradigm of the profession. However, it must be clarified that this implies a different conception of the health-disease concept, the drug, and the process itself of pharmaceutical care.

The main activity of the new professional pharmacist was the artisanal manufacture and personalized distribution of the medicine in the seventeenth century. This situation remained until the end of the 19th century when the industrialization processes

reached the field of medicine, and the pharmacist had to leave the apothecary aside to make way for the pharmacy-drugstore. In the middle of the 20th century, due to a series of political, social, and economic facts, the professional pharmacist faces a different relationship with people who use medicines, which we will call in this document "Pharmaceutical Care Activities (PCA)." The reason for the shift in the relationship was the pharmacist's role: in the pharmaceutical industry to design new pharmaceutical forms, production, quality control of medicines, and in the community pharmacy to the distribution, procurement, and dispensing of medications [1-3]. This relationship was born, at least in part, with the aim of controlling and reducing the medicine's toxic effects and improving their effectiveness when their production and availability in the market increased. Although it was initially insisted that this constituted a commitment and a responsibility of the pharmacist with the patient to maximize the chances of therapeutic success with minimal adverse effects; the economic background in this undertaking is perceived as such [4, 5].

Hepler attributes a change to this new activity in the paradigm of the profession. An affirmation that is necessary to clarify since this concept acquires different meanings, for example, for Plato the paradigm is a case of the model or the rule; for Aristotle, is the argument that is destined to be generalized; for Kuhn, they are the models that establish the form in which the scientific investigation is realized, these models are constituted by laws, theories, application, and tools necessary for their demonstration; for Morín, it is "... a mental and cultural structure which one looks at the reality, and because of being cultural, are unconscious"; and finally, for the Social Sciences, it consists of a "set of opinions and beliefs that make up the general image or concept of the world that a person, time, or culture has, from which a person interprets its nature and everything that exists" (world's view). In any case, every paradigm contains hidden a small nucleus of postulates and principles of knowledge; which rules and controls the entire cognitive field of reference, and constitutes the set of beliefs, imaginaries, discursive practices, concepts, ideas, recognized values, techniques, and truth criteria of a community [6-9].

For the development of PCAs, the concepts of 'health' and 'health care' must be taken into account. In one hand, it is necessary to clarify that 'health' is not the antagonist of illness and it is rather constituted of a relational matter that affects the daily life of social groups, and it is part of a process in which subjectivity is constructed collectively. The social response to the disease (care) is also a common and frequent fact that contributes to the formation of an essential structure for the production and reproduction of society [10, 11]. The disease and the response that it originates are fundamental processes in all social systems and groups that produce representations and practices, and constitute a piece of knowledge that allows them to understand, confront, solve

and, in many cases, pretend to eliminate diseases. For that reason in the social medicine field the term, Health-Disease-Care process is used since these events cannot be disconnected [12, 13]. Concerning the care process for our case, it is composed of drugs and pharmaceutical care (PC). For the first, drugs are considered a chemotherapeutic agent that presents an ontological dichotomy (merchandise and symbol) that is studied from different perspectives: experimental pharmacology, clinical trials, pharmacoepidemiology, and pharmaceutical technology, among others. About PC, it has been established as the paradigm (according to Plato and Aristotle) of PCA. The concept was proposed in 1990 by Hepler [4], in the United States from a term used by Mikeal *et al.* in 1975 as an approximation of the definition analogous to medical care, then it was spread to Europe and Latin America, and since that moment, it has been subject to changes and proposals, mainly methodological ones. Both the health-disease concept and the care activities have undergone transformations throughout the human history depending on the current paradigm.

It is proposed to reflect on the paradigmatic basis, concept, approaches, and methodology of the PCA to contribute to the construction of the knowledge object in a different way that recognizes and stimulates the existence and manifestations of diverse perspectives, to understand and to debate them, for which the following elements are required: 1) To recognize and identify the person as an individual immersed in complex social relationships that make him/her more than the sum of cells, tissues, organs, and systems, 2) To use the term *cuidado* ("care" in Spanish) that includes many other aspects such as commitment, responsibility, and needs assessments that left out in the term *atención* (current translation into Spanish of the word "care"), 3) To construct the drug related problems (DRP) from the perspective of social medicine and taking into account the priority of the patient's needs according to the proposal of Maslow, and 4) To propose the use of social epidemiology and other qualitative methodological approaches (participatory action research, for example) for research and professional practice that allow individual and collective interventions from the social paradigm.

Methodology

Design: a scoping study was carried out using tools of the Reviews of Reviews.

Question for the review: what are the approaches, methodologies, and results obtained in the different systematic reviews and meta-analyses on PCAs?

Inclusion and Exclusion Criteria: papers that had a SR or Meta-Analysis (MA) as a research design, which was already published at the time of the search, and that described or evaluated the PCA in any setting (community, ambulatory or hospital)

were included. The papers were classified as SR if it includes at least the following characteristics: a described search strategy, the use of at least two databases, and selection of papers in pairs. Those studies in which the pharmacist's intervention was not sufficiently clear in the full text or that has been carried out by pharmacy students were excluded since it is intended to identify the PCA from a professional performance perspective and not from the academic standpoint.

Information Sources: the MEDLINE, EMBASE, LILACS databases were used. Besides, the papers cited in the articles obtained to detect more relevant articles, and in turn, the references of those articles were reviewed until that strategy was exhausted. It was used the bibliographic material the authors had and was found in publications that are unique to the topic in the following journals: *Research in Social and Administrative Pharmacy, Pharm Care Esp, American Journal of Health-System Pharmacy, American Journal of Hospital Pharmacy.*

The searching strategy included:

MEDLINE: (Pharmaceutical services [MeSH] OR "Pharmaceutical care" [tw] OR "Drug Therapy Management" [tw]) AND ("Systematic review" [tw] OR "Meta-analysis" [tw]).

EMBASE: 'pharmaceutical services' / exp OR 'pharmaceutical services' OR 'community pharmacy services' / exp OR 'community pharmacy services' OR 'pharmacy service, hospital' / exp OR 'pharmacy service, hospital' AND (systematic review 'AND' systematic review (topic) '/ OR' meta-analysis').

LILACS ("pharmaceuticalcare" OR "atención farmacéutica") OR "pharmaceuticalservices" OR "servicios farmacéuticos". Limited to systematic reviews and meta-analyses.

Studies Selection: two reviewers independently pre-selected the references by titles and abstracts, and then, the pre-selected reviews were evaluated with the full text. If the study did not meet all the inclusion criteria or if it had any exclusion criteria; it was classified as an 'excluded study,' justifying the reason for disqualification. Disagreements between the reviewers were solved after discussion with the authors, and in any case, an external evaluator was required.

Data collection: data were extracted from published studies using a pre-piloted Microsoft Excel® format, initially based on the variables contained in the Data Collection Checklist of the Cochrane Effective Practice and Organization of Care Review Group (EPOC), which was refined, based on the work objectives and the reference framework presented. The extraction of data from each article was carried out by three inde-

pendent reviewers (including the authors), who resolved their disagreements through the author's participation in the review of reviews.

Results and discussion

This section presents a general description of the type of review, the settings of care, and the terminology used in the title to describe care activity. Subsequently, the results of the approach are presented, then the construction of the knowledge object and finally the methodology used.

Scoping studies offers a good alternative since they are used when a literature volume has not yet been extensively reviewed or exhibits a large, complex, or heterogeneous nature that is not amenable to a more accurate systematic review [18, 19]. Other designs were not adequate to perform our review [14-17].

Figure 1 describes the selection process where 86 reviews published between 1998 and 2014 were finally included; of which 73 (84.9%) were SR and 13 (15.1%) were MA. These SR/MA studied all care settings (n = 34, 39.5%), community (n = 19, 22.1%), ambulatory setting (n = 19, 22.1%), and hospitality setting (n= 14, 16.3%). Care setting refers to the place where the practitioners perform their activities. Thus, ambulatory setting is outside of hospitals, hospitality setting is in the hospital and community setting refers to the neighborhood pharmacy. According to the title, 7 reviews were recovered with *pharmaceutical care*, 4 with *pharmacist care*, 56 referring to the role of the pharmacist (29 explicitly mentioned the intervention), 8 with *clinical pharmacy services*, 4 with *pharmaceutical/pharmacist/pharmacy service*, 3 with *medication review*, 2 with *medication management*, 1 with *pharmacotherapeutical follow-up*, and another *with pharmaceutical patient assistance programs.*

PCAs approaches

Due to the concept of approach can be interpreted in several ways; this review will consider: first, the used definition of PCA, and second, the ideology of care. Regarding the definition of PCA, it was take into account whether it is used some term related to PCAs (PC, clinical pharmacy, pharmacotherapeutic follow-up, etc.), and second, if the approach used the ideology of care proposed by Bjorkman Bernsten and Sanner [20], which identified patient-centered care (PCC) and evidence-based medicine (EBM) as the basis of four recognized methodologies: Strand, Granada, Pharmaceutical Care Network European (PCNE), and Apoteket. Since this ideology as such is not described in any review, it was searched its presence in the SR/MA of some of the methodologies mentioned above. This analysis found that in 31.4% (27/86) of all selected reviews,

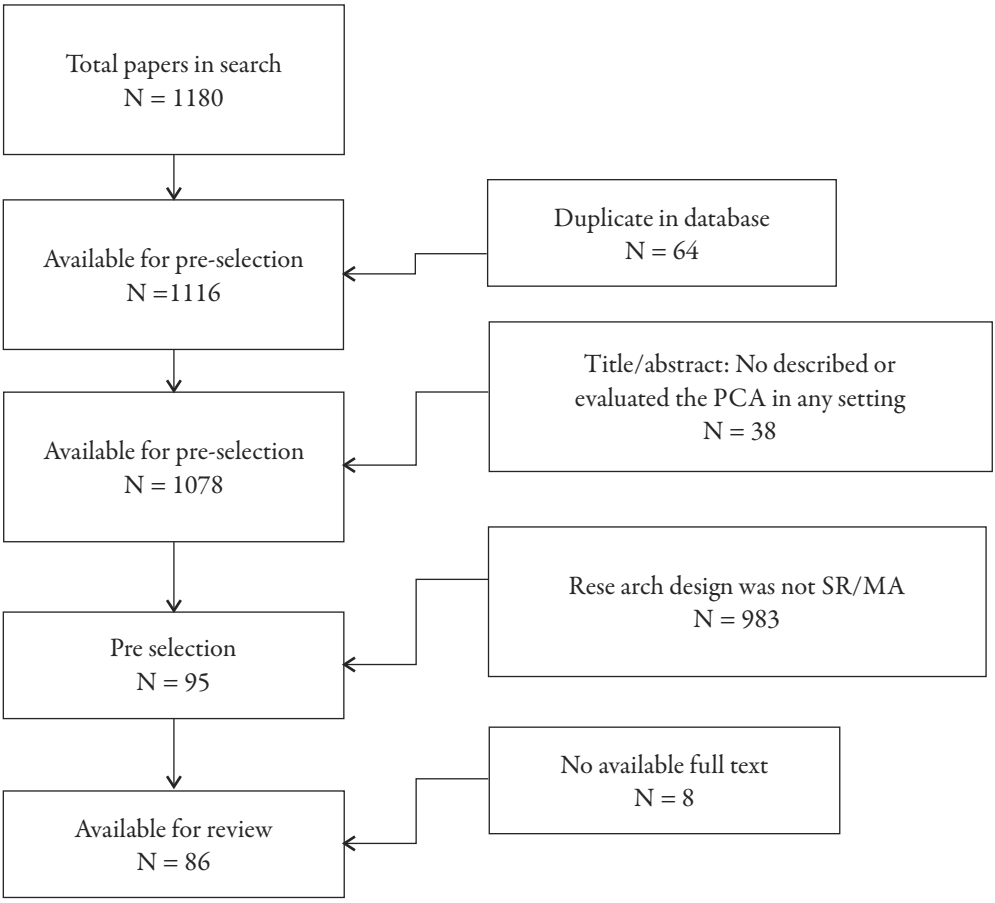

Figure 1. Scheme of inclusion and exclusion criteria of studies.

some of the concepts previously described were mentioned. The 17.4% (15/86) of the reviews were identified using the Hepler/Strand/Cipolle methodology (unique to the PCC approach), and 3.5% (3/86) with the Granada methodology which was discussed with that of Hepler and Strand. Other practices such as Clinical Pharmacy, Pharmaceutical Assistance, and Medication Management were present in 5.8% (7/86) of the publications, while in 2.3% (2/86) the term PC was mentioned, but there was no methodology the authors of the review are identified with.

As in the reviews by Melchiors *et al.* and Kennie *et al.* [21, 22], it is identified the misuse of the term PC, the incorrect indexing, lack of definition in the study methodology, and some reviews only describe patient counseling, clinical pharmacokinetic services, and review of the medication use. Occasionally it could be thought that the justifica-

tion for their presence in the health team is rather sought, as mentioned by Oliveira *et al.* [23]. This disagreement with the term PC may be related to the following aspects:

– According to Hepler [24], the concept of PC stimulates the pharmacists' imagination, causing the pharmacist to emphasize more some ideas than others and forgetting that medication therapy cannot be provided without the collaboration of the patient and other health professionals. Its evidence is that Van Mil and Fernandez-Llimos [25], Machuca *et al.* [26], Blackburn *et al.* [27], Alina Martínez [28], have debated the PC concept, and recently, Allemann *et al.* [29] performed a review of the PC's definitions found in the literature, in order to construct one that includes all existing ones.

– Cipolle *et al*. [30] mention that it is possible that the differences in the conception of the term PC are related to the cultural characteristics, higher education training centers, and health systems of each country.

– Although PC is accepted by most pharmacists, precise information is needed on the roles and responsibilities that pharmacists assume in providing this service. In published studies, the adopted definition or the title does not always coincide with the concept and philosophy of the practice, defined by Hepler and Strand. Although, it could be thought that they perform similar methods [21, 22, 31].

– Several authors [20, 32, 33] have mentioned that the pharmacist possesses knowledge that no other professional has; and the difference in the terms that describe the PCAs is in its application and who benefits from that knowledge: if it is the group of health professionals, it is called a clinical pharmacy; if it is the patient, it is called PC; if it is the community health, it could be the pharmacy cognitive services.

– Van Mil and Fernandez [25] claim that there is also a problem in the translation into Spanish of the term 'pharmaceutical'. Since 'pharmaceutical' is associated with the field of medicine design and development, while 'pharmacist' refers to the professional and includes activities related to the prevention and promotion of health from the field of medicines; they propose to use the term *Cuidado del Farmacéutico* in exchange for *Atención Farmacéutica* in Spanish. Gastelurrutia [34] also discusses the problem of translating from English into Spanish and proposes that the original term (Pharmaceutical Care) should be maintained so that it does not lose its meaning. The question arises whether PC is focused on the pharmaceutical product or the patient.

– In the practice of PCA, there is a predominance of the administrative-managerial-technological perspective in the provision of health services above the

humanistic-educational-legislative perspective, without consideration of the paradigmatic due to it is not being under discussion for the majority of researchers, legislators, and administrators.

The second aspect of analyzing is related to the ideology of care, so it is necessary to discuss the interpretation of the word *atención/cuidado* (care) and its subsequent implementation in the identification of needs, problems, and anguish of the patient. For this the following aspects are considered:

– The meaning of 'care' when translated into Spanish as *atención* loses its sense of integrality, horizontal, symmetrical, participatory relationships, and intersectorality, as well as being interested in something or someone, giving importance, caring, or worrying [13].

– According to Cipolle *et al*. [30], there are two ways of using the word 'care' (*cuidado*) in the realization of PC: the first one is considered as the technical dimension to care patients that is the guiding axis of care (*atención*) centered on users, where the level of analysis of the user-pharmacist relationship is related to the ways of services organization, connecting the clinical dimension with the management dimension. The second one is to demonstrate that taking care of a patient is to be concerned with the patient's welfare. An approach that is consistent with what was stated in the Alma-Ata Declaration, the term 'care' is understood as the health care task that goes beyond care (*atención*) [13, 30]. The use of this word in the care process is an advance in the realization of the practice of PC, since it takes into account the needs, culture, environment, and commitment to the patient's welfare, although implicitly reflects the lack of patient autonomy.

– Care (*cuidado*) can also be understood as the non-formal health practices (preventive or curative) performed by people outside the health system. According to this, care can be developed individually (self-care: diets and physical exercise) or care by other caregivers. From Latin American social medicine and collective health approach or perspective, it has been argued that this meaning brings up a risk for the individuals and families, as being held responsible for caring or neglecting their health, thus individualizing and privatizing this function, disconnecting it from its historical, political, economic, and collective construction dimensions, and exempting the States in their responsibility of caring for people [13, 35].

– Care from the bonding-affective approach, used by the professional nursing, involves not only the patient care tasks but also a tacit work of emotional attachment to the patient [13]. The nursing profession has developed at least three

models of care: naturalistic, substitutive or helping, and interrelated [36]. This aspect, not yet explored, could be useful in the practice of pharmaceutical care.

Two groups of authors identify two ideologies. They agree with one, the PCC; however, they differ in the other ideology. Bjorkman *et al.* [20] propose the EBM approach, while Cipolle [30] suggests the product-centered approach. As mentioned above, PC can be performed either using EBM or the PCC as a care ideology. From the results of this review, it was found that in neither case, the patient was the center of attention and apparently the EBM is used to propose a solution to their needs. EBM is the most direct and aggressive way to consolidate the hegemonic medical model (HMM) [37] because it eliminates the social context, isolates prejudices, ideologies, and preconceptions that may affect the objective interpretation of results and leaves out everything that does not have scientific evidence. However, the prescription is not objective and free of values, but it is socially and culturally determined because it is based on personal interactions with the pharmaceutical industry representatives, colleagues, and opinion leaders [38]. Under this approach, health care professionals search for scientific evidence of the interventions that could be used, leaving aside the needs and expectations of the patients. The PCC supposes a change in the way of thinking of the healthcare professional (especially the physician) because he has to surrender his absolute control and give power to the patient. The PCC will allow a pharmaceutical-patient relationship (PPR) in which responsibility is shared and an alliance that promotes the patient's health is generated [39].

Construction of the knowledge object (PCAs)

In the construction of the knowledge object, the following activities, among others, were taken into account:

Recognition of the problem of drug use: 23.3% (20/86) of SR/MA used the term drugs-related problem (DRP). Of these, 60% (12/20) referred to the classification proposed by Strand; the rest did not reference any author. Because there is no unit of judgment regarding the DRPs classification, some of them are mentioned without their being in a particular classification: 23.3% of the reviews identified that the problem of drug use was related to clinical aspects (adherence, interactions, adverse reactions), administrative (errors in dispensing, lack of access), and in some cases economic (therapy cost).

Identification of the causes of the drug problem: 67% (58/86) of the reviews identified the causes, which were related to the patients in a 34.5% (20/58), with prescribers in 55.1% (32/58). Other causes such as the care load, lack of capacity of the institution, informal prescribers, and pharmaceutical promotion represented 10.4% (6/58). In general terms, 25% of the reviews identified a lack of knowledge and skills as a cause of

inadequate medicines uses, 15% lack of independent information, 1% non-restrictive availability of medicine, and excessive work of health professionals. Lack of access to medications, inadequate promotion, and profit sales was not identified in the reviews.

It seems that the identification of problem associated with the drug use is the central axis of the pharmacist's care activity, which is done according to the literature consulted through the DRP. However, this term or some of its equivalents (Medication Related Problem, Drug-Related Problem) are far from being universally accepted. Some authors have found up to 14 different classifications, some of which have no definition or have not been validated [40-42]. On other cases, it has also been used in the context of pharmacovigilance, not only in its definition but as a system for classifying adverse drug reactions [43, 44].

The results of this review show that only a deficient number of reviews use the term DRP and in almost all cases they refer to Strand *et al.* Also, it can be identified in all of them that these DRPs are related to biological aspects (not control of a disease, insufficient or excessive doses, adverse reactions, etc.), administrative aspects (inadequate dispensing, no medication availability, lack of controls, lack of information, etc.), communicative aspects (lack of information, communication, education, etc.), and only in the case of PCNE explicitly recognize economic problems (the medicine is more expensive than necessary) [32, 42].

Although Hepler [4] firmly insisted that PC constituted a paradigm change where the pharmacist activities were now focused on the patient rather than on the medicine; the definition and classification of DRPs dealt a severe blow to this claim, since its construction is based on the product (interactions, adherence to the medicine, lower doses, adverse reactions, etc.) Despite the individual efforts to show the identification of DRPs from the patient's point of view, the other needs (according to Maslow) that contribute to the current health situation are not discussed or considered [45]. DRPs are conceptual and theoretical constructions of pharmacists where patients' participation has not been taken into account, with some exceptions [46], and the pharmacists do not consider that most of the identified DRPs are not the responsibility of the patient. An individual identification and intervention are made without taking into account the social, cultural, and economic context in which the patient lives. These findings may mean how deep the positivist paradigm is rooted in the pharmacist's thinking scheme, which partially explains the inconclusive results of the pharmacist interventions.

In almost half of the systematic reviews, the authors conclude that it is not possible to attribute to the pharmaceutical interventions the observed changes in the evaluated

variables, almost always due to methodological reasons. By analyzing the results in this way, interventions are being evaluated in terms of HMM (control of biological parameters and in the best cases hospitalizations) and the health system management model (efficiency in the service provision from the optic of the patient and the provider), which is generally related to the increase in expenditure, which puts the financial viability of health systems at risk.

It is evident in this way of constructing the knowledge object that the characteristics of the positivist paradigm which confer the 'objective' character given by the rules of the scientific method, with experimental research, standardized tests, and extensive participation of statistics in an improper process, far from the object-subject relationship of research-care [47]. The health concept is interpreted as absence of something (lack of clinical manifestations or symptomatology). Hence, the pharmacist is recognized as an agent that controls the process, verifies the prescriptions, externally and objectively manipulates the health status and needs of the patient. In the relationship with the patient, the profession is practiced from the vertical relationship, causing the patient to act passively, placing his/her trust in the pharmacist's knowledge, discarding his/her knowledge about what happens in his/her body. A change in the paradigm could show that DRPs have unknown social causes: discrimination (gender, class, ethnic), social stigmatization of certain diseases and medicalization, among others. The medications can also be shown as a source of enrichment for particular groups or to be considered in its symbolic dimension [35, 48].

Some of the explanations for this way of constructing the knowledge object can be found in the United States. First with the reform of the faculties of medicine by the foundations of John D. Rockefeller and Andrew Carnegie in the years before the World War II, and the reformist processes of health systems that began in the 80's and were exported to other countries since the 90's [49, 50]. These last reforms allowed the financial capital introduction in the health sector and, with this, new social actors, changes in the sector regulation, and new models of insurance that directly impacted the administration and the provision of services. The overwhelming entry of this capital and its logic in the health sector changed the rules of the game at an economic level, introduced changes in individual and collective subjectivities in relation to the health/illness conception, transformed patients/users into clients/consumers [50], and forced the professionals decisions to be subject to those of a system administrators in order to ensure efficiency in the delivery of services (health as a real market), through control of prescriptions and decisions based on EBM [51]. The pharmaceutical industry took advantage of the transformation strategy to customers/consumers and promoted silent reforms to reposition itself in the market: it stimulated regulatory changes that allowed to impact the medicines and medical technology approval and commercialization, the

creation and redefinition of diseases (mongering disease), the modifications in the clinical protocols that favor the over-diagnosis, and the mechanisms used to promote the demand for procedures and medicines that also justify the high prices that have to be paid for them [35, 50]. It is in this scenario that the pharmacist assumes a leading role in advocating for the rational use of drugs with an apparently humanitarian objective (reducing adverse reactions, ensuring therapeutic results, improving the quality of life), but with a background eminently economic of a capital accumulation that is in dispute: financial capital vs. industrial capital [50].

Methodologies used in the practice of PCAs

Due to in practically none of the reviews describe the methodology used in the original studies, the chosen aspects were analyzed taking into account the people who participated in the care activity (who and to whom the intervention was performed), and the context in which this activity was carried out and the interventions were implemented.

Actors in the practice of PC: the categories of the personnel that was intervened by the pharmacist during the development of the studies were related. In 69.7% (60/86) the patient was the only subject of intervention; whereas, the physician was intervened in the 1.1% (1/86) of the reviews. The staffgrouping refers to the group of physicians and nurses, clarifying that none of the reviews refer to another professional.

Situations in which the pharmacist intervenes: the pharmacist activities can be focused on either the person with an illness or the person as a drug consumer. In 59.3% (51/86) of the reviews focus the problem of the chronic non-communicable diseases. The 4.6% (4/86) was included in the category of "several diseases" since, in the hospital setting, patients are hospitalized for complications of their chronic processes or for acute diagnoses (infections, trauma, cancer), which for their high diversity are very difficult to group. 8.1% (7/86) of the reviews were concerned with the use of medication and the polymedication.

Interventions: according to the classification proposed by Berimoj [52], Type 2 interventions (education activities) were the most frequent with 52.3%, followed by Type 10 interventions (drug therapy follow-up or any other type of follow-up) with a 29%. Type 7 and Type 9 interventions (signs and symptoms monitoring, education and surveillance device, respectively) were not performed in any of the studies included in the review.

Outcomes: since there are different ways of classifying the evaluated outcomes in the literature on this topic, for this study we present the two most recognized ways of doing so. According to the proposal of Kozma *et al.* [53], clinical outcomes are the

most frequently evaluated with 83.8%, followed by economic ones with 31.3%, and humanistic ones with 27.9%. According to the Benrimoj classification [52], Level III outcomes (other indirectly connected variables, pre and post educational tests such as medication use, adherence, etc.) with 37.2%, and Level IV outcomes (other variables not connected with clinical outcomes such as patient satisfaction, physician satisfaction, etc.) with 34.9%, were the most frequently evaluated. In economic outcomes, all studies belonged to Level I and II (minimum cost information, descriptive studies of cost). The percentages add more than 100% because the studies can evaluate more than one level of outcomes.

For the discussion of the methodology used in the development of the PCA, it can be affirmed that all of them have a very similar structure, closely related to the Clinical Method and the Nursing Care Process, which includes the following steps: problem identification, analysis and evaluation (diagnosis), proposal and implementation of solutions, and evaluation of results. The results show a high percentage in which only two actors appear: the pharmacist and the patient. Few studies include physicians or nurses, much less other health professionals, the state, the pharmaceutical industry, insurers, hospitals, employers, among others. Morin insists on using the transdisciplinarity to overcome the splitting of knowledge and thus build a totalizing and interacting reality [7]. Although the consulted bibliography emphasizes on the fact that the center of attention is the patient, it could not be observed in any of the recovered studies that the patient was involved as an active or participatory person within the process [4, 5]. Another aspect related to the actors is the performance of the pharmacist; since for the provision of the PC service requires the development of new knowledge and skills; that by not being described, can lead to different conclusions due to a lack of homogeneity in these competencies and the practice sites of each study [22, 54].

There is a high interest in the intervention of chronic non-communicable diseases and problems such as polymedication and the adequate use of medications. Interventions are individual and focused on biological aspects. The outcomes assess the results regarding the HMM and the health system management model. Once again a paradigm of positivism at the service of economic interests is exposed, either as financial capital or industrial capital.

The use of classical epidemiology as a research tool leads to an excessive confidence in statistics and can lead to results with negative consequences, such as the stigmatization of people with some characteristic that is far from 'normal.' Mathematics is an exact science, but its application to the social sciences is not, because behind every study there

are decisions that are influenced by personal, cultural, political, and economic aspects. Researchers often forget this limitation and interpret the results of a statistical study as if they were the absolute truth. Therefore we make decisions in public health based mainly on these results that sometimes find spurious associations. As a consequence, it is possible for society or decision-makers to conclude that something has to be done to help those who are supposedly affected, stating the beginning of medicalization and iatrogenic [55].

The concept of PC was popularized 27 years ago, and it began to develop in the world. It seems to be time to reflect on the importance of these health care activities on public health and the welfare of people. From the analysis made in this discussion, it seems that the pharmacists have dedicated ourselves to reproduce the HMM, because this gives us the tranquility of a "scientific" support that seems indisputable, the labor stability and the social recognition that we have tried to demonstrate since we started to venture into this field of pharmacy. It is clear that epistemological changes are required to help to construct the knowledge object differently with a methodology that allows a realistic approach to the patient and their needs without isolating the social determinants of the health-disease process, and it is also necessary to rethink the ethical basis of the PPR in order to contribute to the understanding, interpretation, and explanation of the raised problems. That way may be the primary cause for many SR/MA fail to show conclusive results.

Conclusions

A lack of consensus or agreement was identified in the definition of what is and is not PC, although it must be recognized an effort to explain the differences and proposed agreements in the consulted literature. The literature describes the existence of two approaches: technical prescription-focused and humanistic (patient-centered), however, it was only possible to have evidence of the first one. The construction of the knowledge object is based on the positivist paradigm, where DRP is the pharmacist's center of attention, despite there is still no consensus on the different proposals. The used methodology shares elements of the Clinical Method and the Nursing Care Process, and apparently, with values of the principlism ethics. Interventions, outcomes, and results are supported by the HMM and the studies in classical epidemiology that reproduces this way of understanding health-disease-care, where the social, economic, and political aspects related to medicine are invisible.

Acknowledgments

The authors thank Universidad Nacional de Colombia for the logistic and administrative support to be able to develop this type of research.

Disclosure statement

No potential conflict of interest was reported by the authors.

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How to cite this article

J.J. López, J.G. Orozco, Towards a transformation in the pharmacist care paradigm: A scoping study, *Rev. Colomb. Cienc. Quím. Farm.*, **46**(3), 371-390 (2017).