Studies in Indian Place Names

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Review of Literature To Understand Role of Pharmacy Professional in Health Management

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Abstract

Background: The mission of the pharmacy profession is to improve public health through ensuring safe, effective, and appropriate use of medications. Population health management (PHP) is a process wherein opportunities are identified to improve the quality of health care delivered and thereby, promote better health outcomes for patients. Rationale: As concept of PHP is extremely important in today's context, it is helpful to integrate data related to pharmacist in population health management practices. Authors conducted a systematic review of the literature on role of pharmacist in population health management practices. Method: We conducted a systematic review of the literature on literature on role of pharmacist in population health management practices by searching, PubMed Medline database using the following combination of keywords – pharmacist, population health. Truncation was used to ensure retrieval of all possible variations of search terms. The search was limited to articles published between 1st January 2015 and 31st December 2019, human studies and English language. Results: Initial search resulted in a total of 281 studies, title abstract review to

remove irrelevant studies resulted in 256 studies. Yearly trend showed that number of publications are decreasing. Highest number of publications were from Europe (47; 18%) and 29 publications (11%) discussed role of pharmacist in population health management of subjects in the age group of 10 to 20 years. Twenty five publications mentioned health management was done in the community settings. Advice on the lifestyle was mentioned in 242(96%) and 10(4%) publications offered advice about drugs during the health management. Pharmacists played important roles in population health management for e.g. as care provider in exploring the challenges faced in clinics for management of Type 2 DM. Pharmacists played an important role in increasing the quality of life of patients. Discussion: Population health management concept has evolved steadily over the past few decades and is now contributing to the 'patient care journey' at all stages. There were 24 (9%) publications from India. Specially designed and implemented Pharm D program would play a major role in Indian health care system in future. This will give an opportunity to pharmacists to work more prominently in Indian health care system. Conclusion: Authors are of the opinion that this is the first review encompassing the topic of pharmacist and population health management in the global context. It is clear that there is a global trend of moving towards involvement of pharmacist in healthcare management. This enables pharmacists to assume an expanded role and at same time it necessitates reforms in pharmacy education and practice.

Introduction

The mission of the pharmacy profession is to improve public health through ensuring safe, effective, and appropriate use of medications.[1] Over the past four decades, the role of the pharmacist has evolved from an individual who was primarily responsible for safely and accurately distributing a medication product to a patient, to an individual who works side-by-side with physicians, nurses, and other healthcare professionals in sophisticated, highly specialized practice settings to assure appropriate medication therapy management.[1]

As health care systems continue to experience pressure to improve their quality and outcomes, it has become increasingly clear that new models for patient care delivery are needed. One such model is population health management (PHM). In this model, a clinical team oversees the

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medical management of a population to optimize preventive services, identify high-risk patients, and improve disease management. The overall goal is to contain costs for the population by keeping the patients as healthy as possible while avoiding increased expenditures like emergency department (ED) visits, hospitalizations, and procedures.[2]

PHM is a process wherein opportunities are identified to improve the quality of health care delivered and thereby, promote better health outcomes for patients.[3,4] It attempts to maximize health care value by improving quality while reducing cost (Value = Quality/Cost).[3,4] The pharmacists are responsible for identifying opportunities to improve the quality and outcomes of care while managing pharmacy expenditures at both the individual and population levels.[3]

Rationale

In order to manage population health, pharmacists have to assume the role of caregiver, communicator, decision-maker, teacher, researcher, life-long learner, leader, and manager. This will help him not only provide individualized care but also manage population health.[5] As concept of PHP is extremely important in today's context, it is helpful to integrate data related to pharmacist in population health management practices. It would give comprehensive yet comparative understanding, reaching stronger conclusions and planning for present and future.

As a part of the background for this effort, existing literature on population health management and pharmacists was reviewed. This review provides an overview of global literature on the role of pharmacist in population health management practices

Method

Search strateg

Authors conducted a systematic review of the literature on role of pharmacist in population health management practices. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow diagram and guidance set out by the Centre for Reviews & Dissemination was followed for this review.[6]

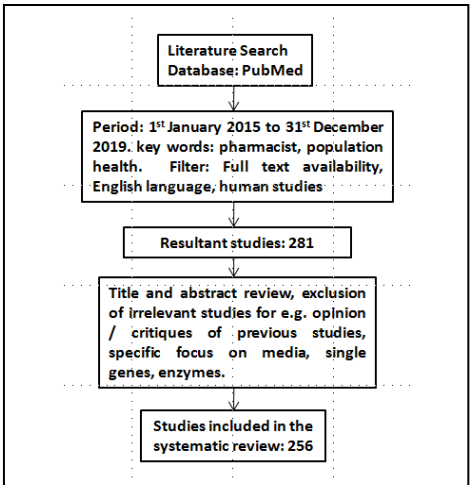

Figure 1: Literature search strategy.

Authors searched publications for the last 5 years i.e. between 1st January 2015 and 31st December 2019 from PubMed. Title/abstract search was conducted with a combination of key words: pharmacist, population

health. Truncation was used to ensure retrieval of all possible variations of search terms. As per Centre for Review and Dissemination (CRD) guidance, a search strategy for PubMed is presented in Figure 1.[7]

Screening and eligibility criteria

Pairs of reviewers (four - eyes principle) - independently screened the resultant literature from PubMed by reviewing their titles and abstracts. Search was limited to abstracts with full text availability, English language, and human studies. Later on irrelevant studies were rejected which were only opinions / critiques of previous studies, focusing on media, or talking about specific gene or enzyme were excluded and only those explicitly referring to pharmacist and population health management were included for full text review. Then, the two reviewers appraised the full text of each study independently. Any discrepancies between two reviewers were resolved through discussion, or involving a third reviewer as arbiter, if necessary. Finally, a third reviewer - checked all the excluded and included studies.

Data extraction

A detailed search was done by two reviewers to look for specific components related to pharmacist and population health management practices in the methods, results and conclusion section. Based on these results, a database was designed for all the mentioned publications to list which pharmacist and population health management practices components were addressed by them as mentioned below.

Components related to pharmacist and population health management practices

Number of articles, country of research, age range of population catered, health management duration, place of health management, main responsible health care professional, whether advice on drugs and lifestyle was given, if yes then for which specific drug therapy advice was given?, brand / generic names of therapy adviced, whether it mentioned dose / frequency of drug/s, examples of role played by pharmacist.

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RESULTS

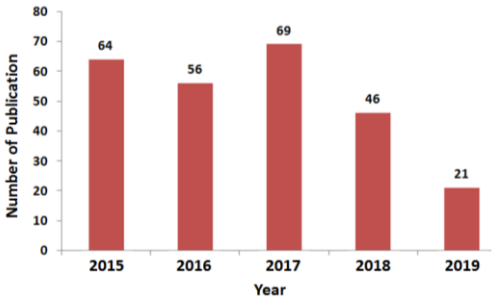

Figure 2. Number of publications per year

The literature search with specific filters such as full text availability, English language, and human studies resulted in a total of 281 studies as shown in Figure 1. Title abstract review to remove

irrelevant studies resulted in 256 studies which were included in the systematic review.

Year: As shown in figure 2, highest number of papers related to pharmacist and health management (69; 27%) were published in 2017 and lowest in 2019 (21; 8%). Yearly trend showed that number of publications are decreasing.

Country	Europe	Africa	USA	India	China	Middle East	Others
Number of publications	47	32	25	24	22	21	85

Table 2. Country-wise publications.

Country: As shown in table 2, country-wise data analysis showed that highest number of publications were from Europe (47; 18%) followed by Africa (32; 13%) and USA (25; 10%). There were 24 (9%) publications from India on this topic.

Age group: As shown in table 3, highest number of publications (29; 11%) discussed role of pharmacist in population health management of subjects in the age group of 10 to 20 years. 0 to 10 year group had the least number of publications (9; 4%). For geriatric age group i.e. 60 years and above there were 26(10%) publications.

Age range of the person (year)	0 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 and above
Number of publications	9	29	27	24	22	16	26

Table 3. Number of public ations and age range of subjects.

Span of health management: Twenty six publications discussed short term whereas 13 publications discuss long term health management.

Place / settings of health management: Twenty five publications mentioned health management was done in the community settings whereas 23 publications mentioned that health management was done in one to one setting with the patients.

Health care professional involved: Only 15 articles mentioned who did the health management, out of which 3(20%) was by pharmacists, 8(53%) was by doctors, and 4(26%) was done by nurses.

Drugs / lifestyle / therapy area advice: When we searched for the main emphasis of the advice by the healthcare professionals, advice on the lifestyle was mentioned in 242(96%) and 10(4%) publications offered advice about drugs during the health management. Out of ten publications advising about drugs in health management, antimicrobials, steroids and vitamins were mentioned in 2 publications each whereas anti-hyperlipidemic, anti-cancer, psychotropic, and vaccines were mentioned in 1 publication each. These publications mentioned following drugs during health management: Iron and folic acid supplementation, Aluminum Phosphate, Vitamin A, HPV vaccination, Lithium, Pesticides, Charcoal, BCG vaccine, Oral polio vaccine, Measles vaccine, Diphtheria vaccine, Hepatitis B vaccine, Meningococcal vaccination, Vitamin D supplements, Soy-isoflavones, Testosterone supplementation, Zinc oxide, Folic acid, Anabolic androgenic steroids.

Dose / frequency of drugs: Only one publication mentioned frequency of the drugs while there no publication about dosage of the drugs.

Specific role played by pharmacist: When we looked for specific role played by pharmacist some of the important things found were as follows:

- Pharmacists played an important role as a care provider in exploring the challenges faced in clinics for management of Type 2 DM.
- Pharmacists played an important role in increasing the quality of life of patients.
- Pharmacists played an important role in cessation of smoking for those that have been chronic smokers.
- Community pharmacists had created a health awareness program on oral health.
- Pharmacists created awareness to rural population on personalized health management.

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- Pharmacists took parts in health promoting leadership.
- Pharmacists play an important role in the short message service involved in the management of tuberculosis.
- Pharmacists made interventions for patients with mental health problems.
- Pharmacists are involved in the inter professional relationship in the screening of osteoporosis.

Discussion

Population health management concept has evolved steadily over the past few decades and is now contributing to the 'patient care journey' at all stages. It is improving the safety and effectiveness of medicines and helping improving patient compliance. Across the health disciplines, clinical prevention and population health activities increasingly are recognized as integral to the practice of their professions.[8] In spite of extensive campaigns, academic courses, rules and regulations by governmental agencies, population health management by pharmacist is not practiced at a desired level as evident from our present research. There were only 256 publications in the last 5 years on this topic.

Pharmacists are the medication-use experts in the healthcare system. They provide medication therapy management, coordinate systems of medication distribution and dispensing, interface with patients and prescribers, and engage in the provision of clinical and community-based preventive services. The provision of patient care services for the optimal use of medications at the individual and population levels, the efficient and effective management of the medication distribution and use systems, and the promotion of health and disease prevention form the foundation of the role of pharmacists in practice. Pharmacists, as readily accessible community providers, are well positioned to deliver prevention messages that are consistent with those of other members of an interprofessional healthcare team such as doctors, and nurses.[8]

As shown in results number of publications showed yearly decrease. There was 67% decrease in number of publications from 2015 to 2019. This downtrend is not very encouraging for the pharmacists. Clinical pharmacy and hospital pharmacy is well established in Europe, USA and this was evident from the results as, Europe had 47 (18%) and USA had 25 (10%) publications related to pharmacist and health management. According to the Global Pharmacy Workforce Survey, African countries were demonstrated to have a low density of pharmacists as well as pharmacies, indicating limited access points for medicines provision and skilled human resources for their management.[9] On the backdrop of this, it was very positive to see that Africa

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had 32 (13%) publications. There were 24 (9%) publications from India. Currently, the clinical pharmacy service is initiated in various countries. This area of practice is, however, at its infancy in India. Pharm D program which is the professional doctoral program was started in 2008 in India. It is 6 years program after 10+2 or D.Pharm. It includes five years of academic study and one year of internship. In addition to usual pharmacy subjects this course focuses on pharmacy practice components are emphasized such as Hospital Pharmacy, Community Pharmacy, Pharmacotherapeutics, Clinical Pharmacy, Biostatistics and Research Methodology, Clinical Toxicology, Clinical Research, Pharmacoepidemiology, Pharmacoeconomics, Clinical Pharmacokinetics and Pharmacotherapeutic Drug Monitoring. As the Pharm D is mostly patient-centered curriculum, therefore, patients should be benefited the most. The patients would be able to know all the information about their disease, drugs and lifestyle modifications for the disease in future which would definitely increase prognosis of the patients. The clinical pharmacy services would also minimize the work-load of physicians from their busy schedule as well as it would decrease the load on the Indian health-care system. It can be expected that the Pharmacists, i.e., Pharm D would play a major role in Indian health care system in future. This will give an opportunity to pharmacists to work more prominently in Indian health care system.[10]

For children of age less than 10 there were least publications, indicating less focus of health management by pharmacist on this age group. Pharmacists give valuable support to grown-up patients, however their advantages for pediatric and neonatal emergency clinic patients are less characterized.[11] Pharmacists can play an essential role in improving children's health outcomes through population health management strategies. They can conduct academic detailing, design medication management, assist with clinical decision support, and collaborate with healthcare providers to ensure clinically appropriate and cost-effective medications are accessible to pediatric patients.[3] There was adequate focus (58%; 89/153) on the adult age group, whereas geriatric age group had only 26 publications (17%). As the world's population ages, global health care systems are facing the burden of chronic diseases and polypharmacy use among older adults. The traditional tasks of medication dispensing and provision of basic education by pharmacists have evolved to active engagement in direct patient care and collaborative team-based care. The care of older patients is an especially fitting mission for pharmacists, since the key to geriatric care often lies with management of chronic diseases and polypharmacy use, and preventing harmful consequences of both. Because most chronic conditions are treated with medications, pharmacists, with their extensive training in pharmacotherapy and pharmacokinetics, are in a unique and critical position in the management of them. Pharmacists have the expertise to detect, resolve, and prevent medication errors and drug-related problems, such as overtreatment, under-treatment, adverse drug events, and non-adherence. Pharmacists are also competent in critically reviewing and applying clinical guidelines to the care of individual patients, and in some instances confront the lack of data (common in older adults) to provide the best possible patient-centered care.[12]

Our results showed that short as well as long term health management in the community and one to one settings which is good to take care of communicable as well as non communicable diseases. Over the last few years, many studies have shown improvements in patient outcomes, when pharmaceutical care was provided by pharmacists.[5] As mentioned in the results among all the healthcare professionals only 20% health management was done by Pharmacist. This shows the need for pharmacist to get more involved in the health management along with other health care professionals.

Conclusion

Authors are of the opinion that this is the first review encompassing the topic of pharmacist and population health management in the global context. The review not only gives an insight into number of publications and countries but also highlights associated practices and factors such as age groups, span of health management, settings, health care professionals involved, therapy areas, drugs, dose, frequency, and specific role played by pharmacist.
Our review had several limitations that should be recognized. Firstly, we restricted our search only to PubMed Medline. Secondly we searched, publications written in only English language. Thirdly, we selected papers published in a time period of year 2015 to 2019.

Despite this, it is clear that there is a global trend of moving towards involvement of pharmacist in healthcare management. This enables pharmacists to assume an expanded role and at same time it necessitates reforms in pharmacy education and practice. This global shift requires an integrated academia for training and a competent and sufficient workforce that would assume the new roles.

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