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Towards effective collaboration of physicians and pharmacists for the care of older people (including COVID-19 perspective)

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ABSTRACT

Collaboration between physicians and pharmacists is essential for proper and effective medical care. Medicine is a multifaceted discipline where success is judged by the outcomes of the patient's wellbeing. Incorporating interdisciplinary education within healthcare enhances the cooperation between future medical professionals. In this comprehensive review, we present the current steps that have been implemented to apply interdisciplinary care as well as interprofessional cooperation possibilities during the COVID-19 pandemic.

Introduction

Polypharmacy remains a pivotal challenge in geriatric medicine [1]. Older individuals experience drug-related problems (DRPs) with common side effects limiting the desired treatment outcomes and efficacy. The modern therapeutic model regarding the care of such issues in geriatric patients undoubtedly demands a different approach, with the potential of an interdisciplinary avenue. The concept of close cooperation between physicians and clinically-oriented pharmacists has already flourished in many countries such as Canada, the Netherlands and the United Kingdom [2-4]. The collaboration between physician and pharmacist may have great value in these difficult times as a result of the COVID-19 pandemic. Due to a lack of scientifically-based treatments for COVID-19 infection, the complications of potential adverse effects, including polypharmacy, becomes more important. This is especially evident in older individuals, which have

shown infection susceptibility for the COVID-19 virus. Implementation of such collaboration can assure better control of potential disease and drug interactions as well as the consistent implementation of safeguards for pharmacotherapy and disease persistence. This is of great importance, especially during a pandemic as polypathology, if not controlled, can be a predisposing factor for the life-threatening course of COVID-19. This article presents a literature review of the potential implementation of the physician/pharmacist cooperation, with an emphasis on the COVID-19 pandemic and implementation potential for enhancing patient wellbeing.

Collaboration around the World

To understand the true nature of the physician/pharmacist interaction concerning polypharmacy, and its impacts on the quality of care in older patients, a literature review was performed using the PubMed database to identify relevant articles published in the last 5 years (2015–2019). The following keywords were generated for the search: pharmacist(s), general practitioner(s), primary health care, community pharmacy service(s), polypharmacy, older adult(s), pharmacist and physician cooperation. After segregating preliminary results, 47 articles were identified, of which six were designated for the final analysis. The following article exclusion criteria were used: lack of substantial results depicting collaboration between physicians and pharmacists, lack of intervention concerning the improvement of care, and shortage of visible cooperation between physicians and pharmacists. Favoured articles had to meet the following selection conditions: intervention which relates to polypharmacy among older patients and description of cooperation actions undertaken by physicians and pharmacists. Each of the chosen articles develops on the importance of collaborative work with an emphasis on improved care in elderly patients with polypharmacy. The literature provides insight and importance for interprofessional cooperation and its potential for implementation in therapeutic models, which could provide elderly patients with better care and wellbeing. A more detailed summary is presented in **Tables 1** and **2**. For a better understanding of possible ways of interprofessional cooperation and potentially beneficial outcomes regarding pharmacotherapy, see **Figure 1**.

The Significance of Potential Cooperation During the COVID-19 Pandemic

It has been noted that the discontinuity of treatment caused by the decreased accessibility of conventional healthcare services during a pandemic can promote deterioration of chronic diseases among elderly patients. Subsequently, this results in the need for emergency healthcare, thereby placing additional strain on the healthcare system [11]. According to Zheng et al., pharmacists should provide chronic disease treatment management at the counter, pay attention to medication adherence and ensure safe medication use [12]. The emergence of the pharmacist, as a partner to the physician in treatment counselling, has been noted during the coronavirus (COVID-19) pandemic [12].

Indeed, pharmacists have proven to be essential partners of physicians during the COVID-19 outbreak, with their input not only enhancing the essential care of patients but also alleviating the burden placed on the healthcare system. In response to the COVID-19 pandemic, Aruru and colleagues presented an essential framework for the implementation of pharmacists into public healthcare services [13]. Moreover, a collaboration between physicians and pharmacists during this outbreak may be crucial in the management of medication and treatment protocols of elderly patients. Medications administered in the treatment of COVID-19 pneumonia vary from potentially beneficial to those whose risks outweigh their potential medicinal benefits [14]. Thus, the potential toxicity of multiple drug schemes used in treating coronavirus severe acute respiratory syndrome may demand additional pharmacist input to ensure their safety. This is especially evident in the hectic healthcare environment as a result of the pandemic. Furthermore, consultations between these two professions have the potential to enhance the treatment in individual cases of COVID-19. It is worth emphasising that elderly patients who are more likely to present fulminant symptoms of COVID-19 may

Table 1. Studies concerning interprofessional collaboration between medical doctors and pharmacists from the last 5 years (2015–2019) obtained from the PubMed database

Study	Sample Size (Inclusion/exclusion criteria Included)	Objective/Methodology	Results
De Bock L et al. [5] (interventional study)	52 out of 261 participants were involved in the study (20%), the other 80% were excluded based on the following exclusion criteria: – age (<70 years), – polypharmacy (<5 drugs taken at home), – admission to the geriatric ward less than 3 months ago, – cognitive impairment, – absence of clinical pharmacist/no consent	– to evaluate the successes and barriers of the implementation of a pharmacist-led full medication review process in the geriatric ward; – extended medication reconciliation at the time of admission and discharge; – a medication review by the clinical pharmacist using appropriate medication therapy screening tools (STOPP/START and GheOP^{3}S)	– 122 discrepancies detected at the admission; – 254 potentially inappropriate medications detected; – 192 therapeutic recommendations were issued, of which, 13% were fully accepted and 6% required an adjustment (e.g., different dose, different alternative drug) – Medication Appropriateness Index (MAI) improved from 75% to 88.2%
Köberlein-Neu J et al. [6] (cluster-randomised trial)	162 patients consented in writing to participate, of which, 142 patients were included in the intention-to-treat analysis Inclusion criteria: – Age ≥ 65 years, – a minimum of 3 chronic disorders affecting 2 different organ systems, – at least 1 cardiovascular disease, – at least 1 visit to the primary care physician in each of the preceding 3-month intervals, – 5 or more long-term drug treatments (>3 months) with systemic effects, – ability to complete questionnaires, with assistance if required, Exclusion criteria: – Life expectancy of less than 12 months (assessed by the treating primary care physician)	– to evaluate the efficacy of interprofessional medication management for multi-morbid patients; – medication management consulted with the pharmacist and care provided by the Pflege- und Wohnberatung (PuW, home-care specialists) using a case management concept according to the German Society for Care and Case Management (Deutsche Gesellschaft für Care und Case Management, DGCC) after obtaining recommendations	– significant decrease in the MAI score in the intervention phase (22.27, 95% CI 19.00; 25.54) in comparison to the control phase (29.21, 95% CI 26.09; 32.33)
Nachtigall A et al. [7] (prospective, controlled trial)	411 patients recruited (intervention group: n=209, control group: n=202) and allocated according to the ward they were treated on (ward A - intervention group, ward B - control group); Inclusion criteria: – age (≥70 years), – polypharmacy (≥ 5 drugs), – written informed consent Exclusion criteria: – patients with an estimated life expectancy of less than 1 week, – cognitive impairment, – previous participation in this study during the last 3 months in the same hospital	– medication analysis in search of DRPs; – priority classified recommendations were prepared for treating physicians to reduce DRPs and improve MAI	– the percentage of patients with DRPs reduced from 86.6% to 56.0% in the intervention group, from 76.7% to 76.2% in the control group ($p < 0.001$); – MAI score reduced by 56% in the intervention group and 0.2% in the control group ($p < 0.001$); – the implementation rate of the pharmaceutical recommendation 80%
Cortejoso L et al. [8] (prospective study)	1,859 consecutive patients admitted to an orthogeriatric ward or discharged from an orthogeriatric ward or discharged from the geriatric day unit	– to evaluate the clinical significance of the detected medication errors; – interventions regarding medication reconciliation written at admission to the ward or orally by a pharmacist	– most of the pharmacist's interventions due to clinically significant interactions (30.4% n=308); – orthogeriatric ward: A total of 2,389 administration explanations and 252 medication plans written, explained, and given to the patients at discharge; – geriatric day unit: 48 medication plans written, and 447 explanations for the administration of the drugs conducted

Study	Sample Size (Inclusion/exclusion criteria Included)	Objective/Methodology	Results
Denneboom W et al. [9] (randomised, controlled trial)	738 older (≥75 years) patients with polypharmacy (>5 drugs) Exclusion criteria: – terminally ill, – living in a home for older people	– to determine which procedure (case conferences or written feedback) leads to more medication changes (savings and costs were included); – pharmacists performed treatment reviews in both cases conference consulted and written feedback consulted intervention groups of older people with polypharmacy; reviews conducted via computerised screening tool and enhanced by pharmacists, then passed on to GPs	– pharmacists in the case-conference group identified significantly more recommendations themselves than the pharmacists in the written-feedback group (41.7% vs 34.2%, P = 0.003); – significantly more medication changes initiated in the case-conference group than in the written-feedback group (42 vs 22, P = 0.02); – this difference still present 6 months after treatment reviews (36 versus 19, P = 0.02) but 9 months after treatment reviews, the difference was no longer significant (33 vs 19, P = 0.07); – additional costs in the case-conference group covered by the greater savings in this group
Rose O et al. [10] (cluster-randomised controlled study)	142 patients Inclusion criteria: – age 65 years or older, – ≥ 3 chronic diseases out of 2 different organ systems with at least 1 cardiovascular disease, – use of 5 or more systemically available drugs, – given formal consent to participate in the study, – history of ≥ 1 visit to the GP during each of the past 3 quarters of the year Exclusion criteria: – insufficient ability to speak or read German, – participation in other studies, – severe, end-stage diseases (probable death within 12 months)	– to identify and prioritise eligible patients for a medication review and create criteria for patient selection; – measured acceptance of the prescribing physician's acceptance of the pharmacist's recommendation; – Intervention: after GPs provided all medical data concerning patients and home-care specialists conducted an interview and a classification, pharmacists performed a medication review and transferred it to GPs for potential therapeutic changes	– the chance of benefiting from a medication review rises by 1.06 per 1-point increase in the baseline MAI score; – per each discrepancy between the prescribed and the used drugs, the chance for a major benefit from the medication review increases 1.2 times; – the earlier patients entered the intervention period, the more beneficial it was for them; – a total of 366 (54.9%) of the 667 drug therapy recommendations were implemented by the physicians; – reasons for non-acceptance were the need for further information (18%), medical reasons (9%), budgetary reasons (5%) or special aspects in the patient's treatment history unknown to the pharmacist (68%)

Table 2: Summary of interventions associated with interprofessional collaboration between physicians and pharmacists from the PubMed database

Study	Cooperation between pharmacist and primary physician
De Bock L et al. [5]	The medication review was followed by a discussion between the pharmacist and the geriatrician; additional meetings between the geriatrician and pharmacist to discuss recommendations and acceptance
Köberlein-Neu J et al. [6]	After reviewing the patient's data, the pharmacist passed medication management recommendations to the primary care physician who provided feedback on the implementation of recommendations
Nachtigall A et al. [7]	All issues regarding a patient were discussed during a meeting with the physician, which was arranged by a pharmacist. Discussion preceded acceptance, modification or rejection of the recommendations. In only 20 cases, a face-to-face meeting was not feasible, however, a consultation was conducted by placing recommendations into patient's charts.
Cortejoso L et al. [8]	Drugs at admission and proposed alterations were registered electronically by the pharmacist so the primary physician was aware of possible problems with medications. In many cases, the pharmacist was requested by a physician or a nurse for information related to the pharmacotherapy.
Denneboom W et al. [9]	The pharmacist and GP discussed all recommendations during case conferences regarding individual patients, completing a standardised care plan together.
Rose O et al. [10]	GP provided a feedback form for the pharmacist's recommendation regarding the analysed patient. No face-to-face discussion between the pharmacist and GP was mentioned in the study protocol.

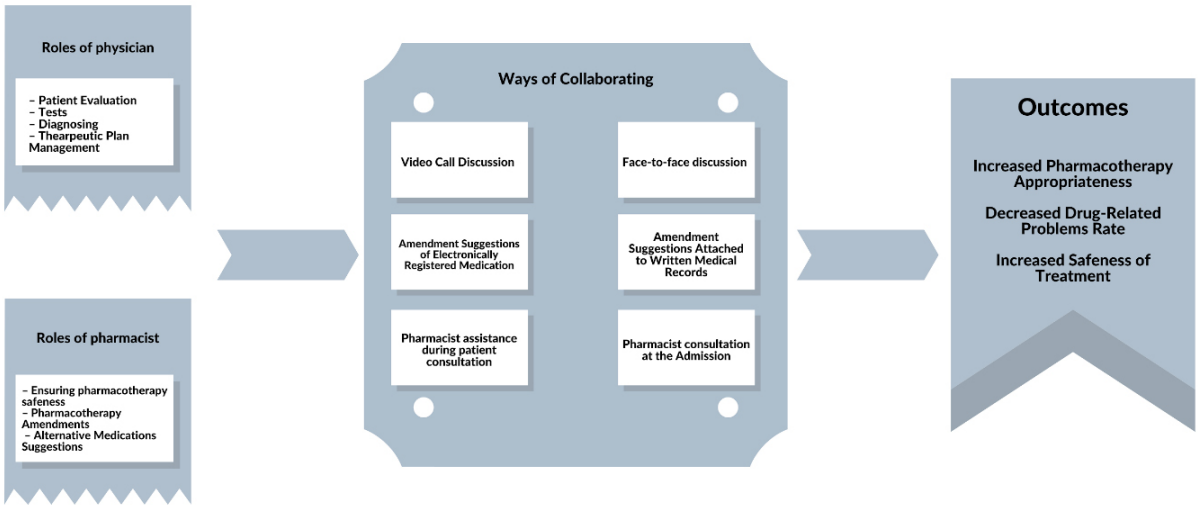

Figure 1. Methods of collaboration involving physicians and pharmacists regarding their roles and potentially positive outcomes in medication therapy in older patients. This graphic was composed by the authors

gain a benefit from the assistance of the pharmacist. This support may be especially prevalent in the potential of involving polypharmacy. Avoiding the possibility of drug-based interactions can only enhance the outcome and wellbeing of patients. Additionally, counselling can be provided with the use of technological resources, such as telemedical services, to restrict the spread of coronavirus among healthcare professionals and patients [15].

Conclusions

Collaboration between physicians and pharmacists has proven to positively impact the care and clinical outcomes of elderly patients. Indeed, interdisciplinary approaches are slowly becoming critical in the daily problem-solving of cases encountered in contemporary medicine.

The vast majority of medical specialisations, including geriatrics, requires consistent knowledge from a variety of disciplines such as pharmacokinetics, pharmacodynamics, interactions, indications and contraindications, dosing and adverse effects of drugs. Application of this knowledge in daily therapeutic routines is challenging but becomes crucial in consideration of polypharmacy in older people. The importance of considering an interdisciplinary education, especially within the field of medicine, should be the fundamental focus of any medical-based educational system.

The COVID-19 pandemic has overexerted healthcare systems throughout the world, with pharmacists and physicians often placed on the frontline against the pandemic. Pharmacists have proven to be a valuable asset in healthcare services with contributions to chronic disease management and drug-based interactions. Their specialised knowledge, when implemented in the treatment process of COVID-19, can not only enhance the wellbeing of patients but also alleviate the burden placed on the healthcare system.

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Conflict of interest statement
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References

1. Zermansky AG, Alldred DP, Petty DR, Raynor DK, Freemantle N, Eastaugh J, Bowie P. Clinical medication review by a pharmacist of elderly people living in care homes—randomised controlled trial. Age and Ageing. 2006 Aug 12;35(6):586-591. https://doi.org/10.1093/ageing/afl075
2. Makowsky MJ, Schindel TJ, Rosenthal M, Campbell K, Tsuyuki RT, Madill HM. Collaboration between pharmacists, physicians and nurse practitioners: A qualitative investigation of working relationships in the inpatient medical setting. Journal of Interprofessional Care. 2009 Jan;23(2):169-184. https://doi.org/10.1080/13561820802602552

3. Tonna AP, Stewart D, West B, McCaig D. Pharmacist prescribing in the UK – a literature review of current practice and research. Journal of Clinical Pharmacy and Therapeutics. 2007 Dec;32(6):545-556. https://doi.org/10.1111/j.1365-2710.2007.00867.x
4. Schellens JHM, Grouls R, Guchelaar HJ, Touw DJ, Rongen GA, de Boer A, Van Bortel LM. The Dutch model for clinical pharmacology: collaboration between physician- and pharmacist-clinical pharmacologists. British Journal of Clinical Pharmacology. 2008 Jul;66(1):146-147. https://doi.org/10.1111/j.1365-2125.2008.03156.x
5. De Bock L, Tommelein E, Baekelandt H, Maes W, Boussery K, Somers A. The Introduction of a Full Medication Review Process in a Local Hospital: Successes and Barriers of a Pilot Project in the Geriatric Ward. Pharmacy. 2018 Feb 28;6(1):21. https://doi.org/10.3390/pharmacy6010021
6. Köberlein-Neu J, Mennemann H, Hamacher S, Waltering I, Jaehde U, Schaffert C, Rose O. Interprofessional Medication Management in Patients With Multiple Morbidities. Deutsches Aerzteblatt Online. 2016 Nov 4;. https://doi.org/10.3238/arztebl.2016.0741
7. Nachtigall A, Heppner HJ, Thürmann PA. Influence of pharmacist intervention on drug safety of geriatric inpatients: a prospective, controlled trial. Therapeutic Advances in Drug Safety. 2019 Jan;10:204209861984336. https://doi.org/10.1177/2042098619843365
8. Cortejoso L, Dietz RA, Hofmann G, Gosch M, Sattler A. Impact of pharmacist interventions in older patients: a prospective study in a tertiary hospital in Germany. Clinical Interventions in Aging. 2016 Sep;Volume 11:1343-1350. https://doi.org/10.2147/cia.s109048
9. Denneboom W, Dautzenberg MG, Grol R, De Smet PA. Treatment reviews of older people on polypharmacy in primary care: cluster controlled trial comparing two approaches. Br J Gen Pract. 2007 Sep;57(542):723-31. PMID 17761060
10. Rose O, Mennemann H, John C, Lautenschläger M, Mertens-Keller D, Richling K, Waltering I, Hamacher S, Felsch M, Herich L, Czarnecki K, Schaffert C, Jaehde U, Köberlein-Neu J. Priority Setting and Influential Factors on Acceptance of Pharmaceutical Recommendations in Collaborative Medication Reviews in an Ambulatory Care Setting – Analysis of a Cluster Randomized Controlled Trial (WestGem-Study). Cignarella A. PLOS ONE. 2016 Jun 2;11(6):e0156304. https://doi.org/10.1371/journal.pone.0156304
11. Hedima EW, Adeyemi MS, Ikunaiye NY. Community Pharmacists: On the frontline of health service against COVID-19 in LMICs. Research in Social and Administrative Pharmacy. 2020 Apr;. https://doi.org/10.1016/j.sapharm.2020.04.013
12. Zheng S, Yang L, Zhou P, Li H, Liu F, Zhao R. Recommendations and guidance for providing pharmaceutical care services during COVID-19 pandemic: A China perspective. Research in Social and Administrative Pharmacy. 2020 Mar;. https://doi.org/10.1016/j.sapharm.2020.03.012
13. Aruru M, Truong H, Clark S. Pharmacy Emergency Preparedness and Response (PEPR): a proposed framework for expanding pharmacy professionals' roles and contributions to emergency preparedness and response during the COVID-19 pandemic and beyond. Research in Social and Administrative Pharmacy. 2020 Apr;. https://doi.org/10.1016/j.sapharm.2020.04.002
14. McCreary EK, Pogue JM. Coronavirus Disease 2019 Treatment: A Review of Early and Emerging Options. Open Forum Infectious Diseases. 2020 Mar 23;7(4). https://doi.org/10.1093/ofid/ofaa105
15. Moazzami B, Razavi-Khorasani N, Dooghaie Moghadam A, Farokhi E, Rezaei N. COVID-19 and telemedicine: Immediate action required for maintaining healthcare providers well-being. Journal of Clinical Virology. 2020 May;126:104345. https://doi.org/10.1016/j.jcv.2020.104345