

THE ROLE, CONTRIBUTION AND UTILIZATION OF PHYSICIAN ASSISTANTS IN PRIMARY CARE

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ABSTRACT

Objective: To understand the role, contribution, and utilization of physician assistants in the primary care setting. This systematic review aims to provide an accurate depiction of the growth and impact of the physician assistant profession in this field of medicine.

Methods: Using electronic databases MEDLINE and EMBASE, a review was undertaken using specified search terms of articles between the years of 2010 - 2019. In this review, the eligibility criteria were English language studies conducted in North America or the United Kingdom, PAs working in primary care with recognized PA qualifications and research findings relevant to PAs that are presented separately.

Results: At least 1029 publications were identified, of which 15 articles met the inclusion criteria. Ten of these studies were based in the United States, while five were based in the United Kingdom. PAs in primary care were found to see less complicated patients, required supervision, and improved the patient caseload for physicians. The patients' acceptance of PAs is on the rise as more knowledge about the skills and roles become prominent.

Conclusions: This review highlights the role of PAs in the primary care field, though more research is needed in areas such as patient outcomes to clearly understand the contribution and utilization of PAs in primary care.

Keywords: Family Medicine, Primary Healthcare, Physician Assistant;

Introduction

In the past few decades, primary care has been an evolving field of medicine and remains an essential aspect of the healthcare system (1). Increasingly, primary care has been the point of delivery for public health initiatives, chronic disease management, as well as preventative medicine (1). Globally, in rural areas, there has been a shortage of family physicians, and many countries are focusing on ways to alleviate this issue (2). There has been a shift in primary healthcare interactions from mainly a primary care provider-patient approach to one that is multidisciplinary that involves many health care professionals participating in care (3). One way to meet these demands in primary care is through the implementation of mid-level practitioners known as physician assistants (PA).

In the 1960s, PAs were first introduced in the United States in response to a shortage of physicians and a need for medical services (4). PAs are health care professionals who can conduct histories, physical examinations, and develop diagnosis and treatment plans (1). PAs can prescribe medications, though this needs to be within the PAs scope of practice designated by the supervising physician (1). PAs work in collaboration with their physician colleagues through

delegated tasks (3). Since PAs are trained in the generalist framework, this provides flexibility in the field of medicine in which PAs can work. (3). PAs can work in many medical settings such as inpatient, outpatient clinics, home care, etc. (3). Currently, the PA profession has spread across the world with PA training programs in England, South Africa, Germany, Ireland, and others (1). In Canada, the first civilian physician assistant programs were established at McMaster and the University of Manitoba in 2008 (5). Today, there are 900 PAs currently practicing in Canada, and of those, half work in primary care (5).

Although there has been an initiative to incorporate PAs in the healthcare system, there have been limited reviews looking at the role and contribution of PAs in the primary care setting. There has not been a systematic review of PAs in primary care since 2010, and there are still gaps in the literature regarding PAs' implementation in primary care. The objective of this review is to understand the current role, contribution, and utilization of physician assistants in primary care across North America and the United Kingdom. Furthermore, this review will provide an accurate description of the growth and influence of the PA profession in the field of primary care medicine.

METHODS:

Literature Review:

In this review, the electronic databases MEDLINE and EMBASE were used to search for specified terms in English language articles. As there are many terms used to identify physician assistants in different countries, the search terms physician extenders and physician associate were added to provide a more comprehensive approach in the database search. Search terms for primary care included family practice. Only articles between the years of 2010 – 2019 were included. With the database search, 1029 English based articles were identified.

Inclusion Criteria:

The articles included in this review needed to examine the role of PAs working in primary care. In these studies, the PAs were trained in the medical model and earned a recognized PA qualification. Furthermore, these studies were required to have research findings relevant to PAs and presented separately from NPs and other allied healthcare professionals. Only English language articles were included and were required to be published in a journal between the years 2010 - 2019.

Exclusion Criteria:

Articles were excluded from this review if the study conducted was outside of North America and the United Kingdom. Additionally, articles on PAs working in secondary care, inpatient settings, PAs in training, and characteristics of PAs in primary care were excluded. Nurses and other allied health care professions trained as medical assistants were not included. Abstracts, commentaries, textbook chapters, and conference reports were excluded from the study.

Results & Discussion

Through the elimination of duplicates, inclusion, exclusion, and full-text assessment process, 15 articles were included in this study. From the 15 articles chosen, ten of the studies were based in the United States, and five were based in the United Kingdom. Although there were some Canadian articles on PAs in primary care during the initial search, these articles' findings were not relevant to this review and were excluded. The 15 articles included in this review had a range of research designs such as observational, comparative, mixed-method, survey, qualitative, and ethnographic studies. Due to the heterogeneity of the study types, a narrative account was used to synthesize and organize the discussions involving the role, contribution, and utilization of PAs in primary care.

Role and Contribution of PA in primary care

The current role of PAs in primary care is still developing. PAs work in partnership with physicians on patients seen in a clinical setting (3). Each PA can have a different relationship with their supervising physician. The delegation of the role and tasks of PAs in primary care is dependent on the PAs experience in the clinic setting (3). In a mixed-method analysis conducted by Farmer et al., PAs scope of practice generally increased with time when working in a primary care setting. This is important to note, especially in the context of Canada as the PAs role is still emerging, and the first civilian program was only started a decade ago. De Lusignan et al. conducted a comparative observational study where PAs were examined for their role and compared their quality of the consultation with GPs. Results showed that PAs are considered safe (6). PAs were less likely to see individuals with multiple presenting complaints or chronic disease-related complaints compared to GPs (6). One of De Lusignan et al. study limitations were GPs' experience. In this study, the GPs had more years of practice compared to the PAs (6). As mentioned previously, this is an important factor in determining the delegated roles PAs have in a clinical setting.

To clearly understand the PAs role in the clinical setting, the PAs perspective of their role needs to be considered. Drennan et al. conducted a survey study where PAs self-reported their role and contribution in the primary care field. Results found that the PAs' greatest amount of time in the clinic was dealing with patients booked for the same day/urgent appointments (7). The physicians' perspective of the PA role is also essential to explore. Dai et al. conducted a survey study where primary care physicians completed questionnaires about the scope of practice of the PAs and NPs at their clinics. The study found that with PAs, there was an increase in the total number of patients assessed and provided a higher practice capacity for the family physician (8). Family physicians with PAs were able to offer more services for the patients (8). This study emphasizes the role PAs have in improving patient access to primary care services. Although this study provided a positive outlook on PAs in primary care, a qualitative study by Jackson et al. that examined the physician's perspective on the barriers that exist in PA integration into primary care did not. This study found that GPs had concerns in terms of PAs managing complex patients (9). Also, the supervisor burden and non-prescriber status of PAs were significant issues for GPs (9). This paper emphasizes the important points that GPs have in regards to integrating the role of PAs and the barriers that still exist. The patient perspective of PAs and their role is essential to

include as well. In a qualitative study conducted in the United Kingdom by Halter et al., patients' perspective on consulting with physician associates in general practice was examined using 30 patients who volunteered to be interviewed. Patients had difficulty understanding the role of the PAs and often believed that PAs were physicians (10). Patients had positive experiences when consulting with a PA (10). A few patients reported having negative experiences due to the PA's role being restricted and requiring additional time and/or consultations with GPs (10). In general, patients found PAs to be an appropriate addition to the primary care team (10). Another patient perspective study used an ethnographic approach to investigate the role of PAs within Community Health Centers (CHCs) in Texas. Patients saw little differences between PAs and primary care physicians and felt that PAs were genuinely concerned about them (11). From all three of these perspectives, it is essential to state that the PA role in primary care is a dynamic field with many factors determining what a PA can do. These factors include policy issues, clinical experience, accessibility, primary care physicians' perspectives, etc.

Factors such as PA consultation types, provider workload, prescription powers, etc., will affect what PAs are able to contribute in a clinical setting. In the mixed-method analysis conducted by Farmer et al., the National Health Service (NHS) Scotland was used to evaluate the contribution PAs has made in the delivery of effective primary care. Although patients were highly satisfied with PA consultation, the main factor that affected PAs was the issue of prescription power (12). Scotland does not allow PAs to sign off on medication (12). Although PAs could fill the gaps seen in primary care and add value as a mid-level practitioner, this article highlighted the impact policy has on what PAs are able to contribute in a clinical setting.

In terms of physician caseload, Doescher et al. mailed questionnaires to primary care providers to examine the relative contributions of PAs and NPs in rural primary care practices. Results showed that primary care physicians saw more patients than PAs and NPs (13). Primary care physicians were more likely to assist inpatient services outside of family practice compared to PAs (13). This study provides a vital viewpoint of how PAs are contributing differently depending on where the PAs are geographically located. A major limitation of this study was that it was a questionnaire-based study with a low reported survey response rate of 30 percent (n = 601) of primary care providers participating (13). This will limit the generalizability of this study. Furthermore, PAs were found to improve access to care, especially in rural and underserved communities (3).

Drennan et al. conducted a comparative case study analysis as well as a scoping survey to help understand the contribution PAs have had. The scoping survey was given to primary care providers, with results showing that PAs are playing a positive role in healthcare (14). The survey stated that most PAs were making same-day appointments in the primary care setting (14). In the comparative analysis aspect of this study, PAs had patients that were younger and less medically complex compared to those seen by GPs (14). There was no difference in the primary outcomes of patients seen by PAs or GPs (14). Thus, this study provides information about the type of consultation PAs are conducting in a primary care setting.

In 2015, Drennan et al. conducted an observational study comparing PAs' and GPs' consultations using patient records from primary care practices across the UK. Results showed no differences in re-consultation rates between PAs and GPs within 14 days, and no differences

in the number of diagnostic tests ordered between GPs and PAs (15). This emphasizes the point that the contribution of PAs can help reduce the provider workload and play a crucial role in reducing burnout rates among healthcare providers.

Utilization of PAs in Primary Care

The utilization of PAs in primary care is important to understand as policy initiatives to regulate PAs will consider the cost, patient outcomes, and the difference in the use of resources by PAs compared to other healthcare providers. Using five years of data (2006-2010), Kurtzman et al. looked at CHCs and compared quality of care between NPs, PAs and MDs through nine patient-level outcomes such as smoking cessation counseling, depression treatment, statin for hyperlipidemia, physical examination, total number of health education, imaging services, total number of medication, physician referral measures, and return visits. Results showed no significant difference in the quality of care provided between PAs and MDs (16). PAs did deliver more health counseling and education compared to NPs (16). This study shows the importance of PAs in utilization, specifically in the quality of care provided in a clinic setting. The limitations of this study include the small sample size and the study's definition of quality of care (16). The issue of resources is relevant whenever PAs are discussed in a clinical context. A retrospective observational study conducted by Liu et al. in Georgia explains the problem in detail. Physicians were paired with either NPs or PAs from 2006-2008 to provide primary care, but in 2008, a change in state leadership removed PAs and NPs from all primary care settings in favor of a physician-only model (17). Three outcomes were measured to look at the change in utilization pre- and post-2008: specialist referrals, ED visits, and diagnostic imaging (17). The study found the use of mid-level practitioners did not increase the utilization in these outcomes, and in fact, found the greater use of PAs was associated with lower utilization of these resources (17). Thus, this study found a lower health care cost overall, which contradicts the notion that PAs will increase the overall health care cost for the system (17). Liu et al. highlights the importance of cost and how PAs can reduce the total health care costs in the healthcare system (17). A study by Stange et al. conducted a USA country-level comparative analysis from 1990 -2008 on NPs and PAs using state-level agency records. Results found that PAs had little impact on access, prices, and utilization (18). There was limited evidence that increasing the number of providers available would decrease the cost of healthcare for patients (18). An important conclusion from this study was that more information about PAs' prescriptive power needs to be identified in order to assess the utility and expenditure of this profession (18). This is an important fact as PA utilization is hindered by policy and variation between jurisdictions.

One way to further understand the utilization of PAs in practice is through analyzing conditions commonly seen in primary care such as diabetes, neck pain, acute respiratory infection, etc. Using Veteran Affairs data from 2012-2013, Morgan et al. compared the cost and health service use of patients with diabetes, depending on their primary care provider: PA, NP, or MD. PAs were found to have lower meaningful total health care costs for patients with diabetes (19). Furthermore, in a previous study, PAs' patients were found to have similar control of blood pressure, blood glucose, and cholesterol when compared to physicians' patients (19). Therefore, this paper concluded that implementing PAs' in a primary care setting to manage conditions such

as diabetes will not increase the total cost of healthcare on the system (19). A retrospective observation study by Roblin et al. looked at diagnostic service orders and prescription orders from 2006- 2008 in a primary care setting. This study compared PAs to primary care physicians order volumes for neck, back pain, and acute respiratory infections (ARI) (20). Results showed that PAs were less likely to order CT or MRI scans versus a primary care physicians for neck and/or back pain (20). Additionally, during ARI visits, PAs were more likely to prescribe antibiotic medication and less likely to prescribe broad-spectrum antibiotics compared to the primary care physician (20). The study concluded that PAs had similar management strategies, as did the primary care physician (20). From all these condition-specific studies seen in primary care, PAs can be highly utilized and are cost-efficient depending on what country or state-level policies are in place.

Significance of findings/Summary

With this review, the understanding of the roles, contribution, and utilization of PAs in primary care are still in its initial stages. Based on the articles discussed, the role of PAs in primary care is dynamic and flexible. PAs often see younger, less complicated patients, require supervision, and have a different caseload compared to physicians. Important factors in determining the flexibility of the PA role in practice includes legislation, PAs' primary care experience, primary provider care perception of PAs, and the health care system incorporating them. These articles also mention the significant contribution PAs can make in terms of access to care, improving provider workload, patient experience, etc. PAs are found to be safe in the care provided and increase the providers' capacity to see patients. Some studies have shown that patients see PAs as similar to primary care physicians in their delivery of care. Lastly, in terms of utilization of PAs in primary care, the research discussed highlighted that greater use of PAs was associated with lower utilization of resources, thus leading to lower health care costs overall. This is mainly observed in conditions that are often seen in a primary care setting.

Limitations

From the research search conducted to the analysis of the information about PAs in primary care, more research needs to be done in the PA profession. The studies included in this review were limited, and some studies had a small sample size. With the exclusion of countries other than Northern America and the United Kingdom, it is difficult to provide a definite and generalizable statement about the role, contribution, and utilization of PAs in primary care. For future research involving PAs in primary care, patient outcomes should be a priority as this research is severely lacking in the PA field.

Conclusion

Acceptance of PAs by patients is on the rise as more knowledge about the skills and roles are becoming more prominent. Canada is still in the infant stages of the PA profession as it has been only ten years since its introduction. PAs role and contribution to primary care are still growing

and have a dynamic future ahead. In conclusion, this review highlights the role of PAs in the primary care field, but more patient outcome research is needed to clearly understand the contribution and utilization of PAs in the health care system.

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