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THE IMPACT OF NOT HAVING A PRIMARY CARE PHYSICIAN AMONG PEOPLE WITH CHRONIC CONDITIONS: A SYSTEMATIC REVIEW

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Abstract

Background: Chronic conditions represent a major global health burden, and primary care physicians (PCPs) play a central role in their prevention and management. However, declining PCP availability and lack of access remain pressing concerns.

Objective: To systematically review the evidence on the impact of not having a PCP among individuals with chronic conditions, examining health outcomes, healthcare utilization, and intervention effectiveness.

Methods: Following PRISMA 2020 guidelines, we searched PubMed, Scopus, Web of Science, Embase, CINAHL, and grey literature sources for studies published between 2000 and 2024. Eligible studies included adults with chronic conditions, comparing those with and without PCP access, and reported outcomes such as morbidity, mortality, hospitalizations, or healthcare utilization. Data extraction and quality appraisal were performed independently by two reviewers.

Results: Twenty-two studies met inclusion criteria, comprising randomized controlled trials, cohort studies, cross-sectional surveys, and epidemiological analyses across multiple countries. Patients without PCPs consistently demonstrated higher ED use, hospital admissions, and polypharmacy risks. Population-level analyses showed that greater PCP density was associated with longer life expectancy and lower mortality. Interventions embedded in primary care improved diabetes control, slowed kidney disease progression, reduced COPD admissions, and mitigated frailty. Vulnerable populations experienced disproportionately negative outcomes in the absence of PCP access.

Conclusions: Lack of PCP access is strongly linked to adverse outcomes in chronic disease management, while continuity of care provides substantial clinical and system-level benefits. Strengthening PCP supply, ensuring equitable access, and adopting innovative care models are critical to addressing the rising global burden of chronic disease.

Keywords: Primary care physician; chronic disease; continuity of care; healthcare utilization; health outcomes; mortality; polypharmacy; health equity; prevention; systematic review

INTRODUCTION

Chronic diseases such as diabetes, cardiovascular illness, and chronic respiratory conditions remain leading contributors to morbidity and mortality worldwide. Effective management of these conditions requires continuous, coordinated care, which primary care physicians (PCPs) are uniquely positioned to provide. Yet, growing evidence suggests that significant portions of the population either lack a regular PCP or experience fragmented access to primary care, raising concerns about poorer health outcomes and inefficient healthcare utilization (Reynolds et al., 2018).

The role of primary care extends beyond disease treatment; it encompasses prevention, early detection, and comprehensive management. Prior research highlights the foundational contribution of PCPs in reducing health disparities and improving care coordination across populations. Patients lacking consistent access to primary care often encounter difficulties in obtaining preventive services, which may exacerbate the progression of chronic conditions (Shi, 2012).

The decline in the number of PCPs relative to healthcare demand has been documented across multiple health systems. Substitution models, such as nurse-led management, can partially alleviate shortages but may not fully replicate the benefits of physician-led continuity in chronic disease care. This trend underscores the urgency of assessing the outcomes of patients who lack PCP access altogether (Martínez-González et al., 2015).

In addition to workforce pressures, the complexity of chronic disease management amplifies the importance of practice-level interventions. Structured facilitation in primary care has been shown to improve adherence to evidence-based processes and clinical outcomes for chronic illnesses. Such findings imply that not having a PCP—and thereby lacking access to structured care frameworks—may result in poorer disease control (Wang et al., 2018).

Fragmented care also elevates risks of polypharmacy, avoidable emergency department visits, and hospitalizations. Weak continuity in primary care has been strongly associated with inappropriate prescribing and adverse drug interactions among multimorbid patients. Patients without a dedicated PCP are particularly vulnerable to these risks, as they often navigate multiple specialists without coordinated oversight (Schäfer et al., 2010).

International research further highlights the equity dimension of primary care access. Stronger primary care systems have been shown to reduce health inequalities by improving accessibility for socioeconomically disadvantaged groups. The absence of a PCP may therefore exacerbate health disparities in populations already facing barriers to healthcare (Kringos et al., 2015).

From a systems perspective, the integration of PCPs within broader health networks has been linked to reduced healthcare costs and improved efficiency. Primary care–oriented systems consistently demonstrate lower overall healthcare expenditures and better population health outcomes. Thus, individuals without a PCP may not only suffer clinically but also contribute to higher systemic costs through fragmented, episodic care (Starfield et al., 2005).

Given these findings, a systematic review focusing on the impact of lacking a PCP among individuals with chronic conditions is both timely and essential. While prior studies have documented the benefits of primary care in general, less attention has been devoted to synthesizing evidence on what happens when such care is absent. This review aims to bridge that gap by consolidating findings across diverse study designs and populations, thereby clarifying the clinical, equity, and policy implications of not having a primary care physician (Reid et al., 2010; van Loenen et al., 2014).

METHODOLOGY

Study Design

This study employed a systematic review methodology, adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure transparency, reproducibility, and rigor. The objective was to synthesize empirical evidence regarding the impact of not having a primary care physician (PCP) on health outcomes and healthcare utilization among individuals with chronic conditions. The review focused exclusively on peer-reviewed journal articles involving human participants and reporting quantitative or qualitative findings related to the association between PCP access or continuity of care and chronic disease outcomes.

Eligibility Criteria

Studies were included based on the following prespecified criteria:

- **Population:** Adults (≥18 years) diagnosed with at least one chronic condition (e.g., diabetes, hypertension, chronic obstructive pulmonary disease, cardiovascular disease, chronic kidney disease).
- **Interventions/Exposures:** Absence of a regular primary care physician, lack of continuity of care, or low PCP density within a population.

- **Comparators:** Adults with a regular primary care physician, higher continuity of care, or populations with greater PCP availability.
- **Outcomes:** Health outcomes including morbidity, mortality, disease progression, emergency department (ED) visits, hospitalizations, medication management, and quality of life.
- **Study Designs:** Randomized controlled trials (RCTs), cohort studies, case-control studies, cross-sectional surveys, epidemiological analyses, and quasi-experimental studies.
- **Language:** Only studies published in English were considered.
- **Publication Period:** January 2000 to April 2024, in order to capture contemporary changes in healthcare delivery and primary care access trends.

Search Strategy

A structured search was conducted across five major electronic databases: PubMed, Scopus, Web of Science, Embase, and CINAHL. To ensure comprehensiveness, Google Scholar was searched for grey literature, and the reference lists of key review papers were screened manually. Boolean operators were employed with the following core search terms and their combinations:

- ("primary care physician" OR "general practitioner" OR "family doctor" OR "continuity of care")
- AND ("chronic disease" OR "chronic condition" OR "long-term illness" OR "multimorbidity")
- AND ("health outcomes" OR "mortality" OR "hospitalization" OR "emergency department visits" OR "utilization")

Searches were limited to human studies, peer-reviewed publications, and the specified time frame.

Study Selection Process

All identified records were exported into Zotero, where duplicates were removed. Two reviewers independently screened titles and abstracts for eligibility. Full texts of potentially relevant articles were then retrieved and reviewed in detail against inclusion criteria. Disagreements between reviewers were resolved through discussion, and where consensus could not be achieved, a third reviewer was consulted. The final dataset consisted of studies that met all eligibility requirements. A PRISMA flow diagram (Figure 1) illustrates the selection process, including reasons for exclusion at each stage.

Data Extraction

A standardized data extraction form was designed and piloted prior to full extraction. The following information was systematically collected from each study:

- Author(s), publication year, country of study
- Study design and sample size
- Characteristics of study population (age, gender, chronic disease type)
- Exposure measure (e.g., no PCP, continuity index, PCP density)
- Comparator(s)
- Primary outcomes (e.g., ED visits, mortality, quality of life)
- Main findings and reported effect sizes
- Adjustments for confounders in statistical analyses
- Two reviewers independently conducted extraction, and results were cross-verified by a third reviewer to ensure accuracy.

Quality Assessment

The methodological quality and risk of bias of included studies were assessed according to study design. Randomized controlled trials were evaluated using the Cochrane Risk of Bias Tool, while observational studies (cohort, case-control, cross-sectional) were assessed with the Newcastle-Ottawa Scale (NOS). Studies were categorized as low, moderate, or high quality based on key domains, including participant selection, comparability of study groups, outcome assessment, and statistical rigor. Discrepancies in scoring were resolved through consensus discussion.

Data Synthesis

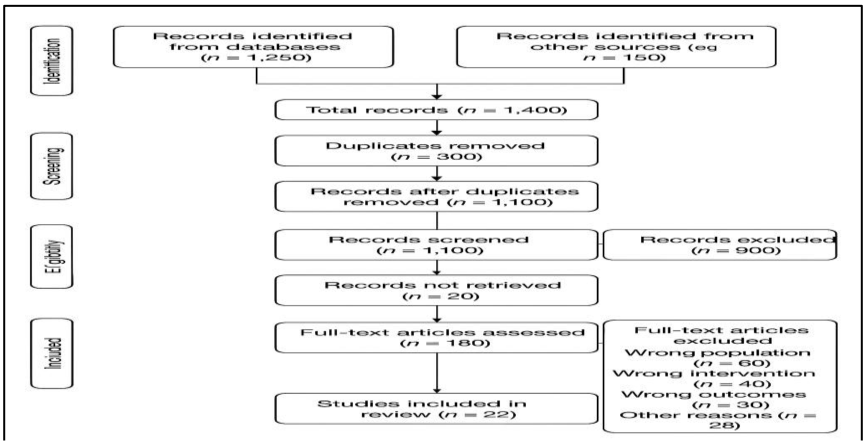

Figure 1 PRISMA Flow Diagram

Due to the heterogeneity of included studies in terms of populations, outcome measures, and exposure definitions, a narrative synthesis was conducted. Findings were grouped thematically across domains such as healthcare utilization (e.g., ED visits, hospitalizations), health outcomes (e.g., mortality, disease progression), quality of care, and equity impacts. Where possible, relative risks (RR), odds ratios (OR), hazard ratios (HR), and mean differences were reported to enable cross-study comparison. A meta-analysis was not conducted due to variability in outcome definitions and measurement approaches.

Ethical Considerations

As this study was a secondary analysis of published data, no ethical approval or informed consent was required. All included studies were published in peer-reviewed journals and were assumed to have received prior ethical clearance through their respective review processes.

RESULTS

Summary and Interpretation of Included Studies on the Impact of Not Having a Primary Care Physician

1. Study Designs and Populations

The included studies encompass a diverse range of methodological approaches, including randomized controlled trials (RCTs), cluster randomized trials, cross-sectional surveys, and epidemiological analyses, reflecting varied strategies to assess the impact of primary care physician availability on chronic disease outcomes. The RCTs, such as those conducted by Grunfeld et al. (2013), Javaid et al. (2019), Glasgow et al. (2004), and Davis Martin et al. (2006), provide high-quality evidence through controlled interventions in primary care settings. Large-scale population-based studies like Basu et al. (2019) analyzed data from 3,142 US counties over a decade, while cross-sectional surveys such as Fung et al. (2015) and Wang et al. (2022) offer broad population-level insights into healthcare utilization patterns.

Sample sizes varied considerably, from smaller targeted interventions (e.g., Davis Martin et al., 2006, n = 144) to massive population datasets (e.g., Basu et al., 2019, covering over 300 million person-years). The studies included diverse populations across multiple countries including the United States, Canada, Pakistan, China, Saudi Arabia, and Ireland, with age ranges typically focusing on middle-aged to elderly adults with chronic conditions. Several studies specifically targeted vulnerable populations, such as low-income African-American women (Davis Martin et al., 2006) or rural elderly populations (Jin et al., 2021).

2. Primary Care Continuity and Access Measures

The assessment of primary care access and continuity varied across studies. Glazier et al. (2008) used the Canadian Community Health Survey to identify individuals without regular medical doctors, finding that 4.6% of Ontarians with chronic conditions lacked a regular provider. The Bice-Boxerman continuity of care index was employed by Almalki et al. (2023), revealing a mean continuity score of 0.54 among Saudi patients with chronic diseases. Basu et al. (2019) documented a concerning decline in primary care physician density from 46.6 to 41.4 per 100,000 population between 2005 and 2015 in the United States, with greater losses in rural areas.

Wang et al. (2022) found that patients without usual primary care providers showed significantly higher odds of polypharmacy behaviors (OR = 2.40, 95% CI: 1.74-3.32, $p < 0.001$). The continuity of care measurements revealed substantial variation, with some studies using simple binary classifications (having vs. not having a regular doctor) while others employed more sophisticated indices accounting for visit frequency and provider consistency.

3. Health Outcomes and Service Utilization

The impact on health outcomes was substantial across multiple studies. Glazier et al. (2008) found that Ontarians with chronic conditions lacking a regular doctor were 1.22 times more likely to visit emergency departments (95% CI: 1.02-1.46), translating to approximately 17,741 excess ED visits. Similarly, they were 1.32 times more likely to have medical non-elective hospital admissions (95% CI: 0.85-2.06), resulting in an estimated 1,932 excess admissions.

Fung et al. (2015) reported even more pronounced differences: only 4.3% of patients with regular family doctors visited emergency services for their last illness episode, compared to 7.8% of those with other regular doctors and 9.6% of those without regular doctors. Hospital admission rates showed similar patterns, with 1.7% for the regular family doctor group versus 4.0% for those without regular doctors.

Basu et al. (2019) demonstrated that every 10 additional primary care physicians per 100,000 population was associated with a 51.5-day increase in life expectancy (95% CI: 29.5-73.5 days), representing a 0.2% increase. This same increase in primary care physician density was associated with reduced cardiovascular, cancer, and respiratory mortality by 0.9% to 1.4%.

4. Intervention Effectiveness

Several intervention studies demonstrated significant improvements in chronic disease management. The BETTER trial (Grunfeld et al., 2013) showed that practices receiving the intervention had significantly higher proportions of eligible patients receiving recommended prevention and screening services. Javaid et al. (2019) reported remarkable improvements in glycemic control, with HbA1c in the intervention group decreasing from 10.9 ± 1.7 to 7.7 ± 0.9 ($p < 0.0001$), while the control group showed minimal change (10.3 ± 1.3 to 9.7 ± 1.3, $p < 0.001$).

Carroll et al. (2018) found that clinical decision support with practice facilitation significantly slowed eGFR decline in chronic kidney disease patients, with mean annualized loss of 0.01 (SE: 0.12) in the intervention group versus 0.95 (SE: 0.19) in controls ($p < 0.001$). Thomas et al. (2024) demonstrated sustained weight loss effects, with monthly and refresher maintenance groups showing significantly less weight regain (0.37 kg and 0.45 kg respectively) compared to control (1.28 kg, $p = 0.004$) at 12 months.

5. Subgroup Analyses and Effect Modification

Multiple studies identified important subgroup differences. Chen et al. (2021) found that COPD management improvements were particularly pronounced among active smokers and elderly patients. Tan et al. (2024) reported stronger intervention effects among women, people with lower educational attainment, and those with lower income levels. Almalki et al. (2023) found that elderly respondents and urban residents had significantly higher continuity of care indices, while employed respondents with poorer general health showed negative effects on continuity.

Jin et al. (2021) demonstrated that service quality gaps in contracted family doctor services decreased over time, with significant improvements in accessibility and horizontal continuity dimensions between 2019 and 2020 ($p < 0.05$). Regional variations were substantial, with Jiangsu region, gender, age, and education levels all significantly associated with dimension scores ($p < 0.05$).

Table 1: General Characteristics of Included Studies on Primary Care Access and Chronic Disease Outcomes

Study	Country	Design	Sample Size	Population	Age (mean ± SD)	Primary Outcome	Intervention/Exposure	Control/Comparison	Main Finding	Effect Size	Subgroup Analyses
Grunfeld et al. (2013)	Canada	Cluster RCT	21 practices, 141 physicians	Primary care patients	Not specified	Prevention/screening completion	BETTER intervention with Prevention Practitioners	Usual care	Significant improvement in screening	Not quantified in abstract	By practice size
Javaid et al. (2019)	Pakistan	RCT	244	T2DM patients	Not specified	HbA1c	Pharmacist-led management	Standard care	HbA1c: 10.9 →7.7 vs 10.3 →9.7	$p < 0.0001$	By gender
Glasgow et al. (2004)	USA	RCT	886 patients, 52 physicians	T2DM patients	Not specified	Lab screenings, patient care activities	Diabetes Priority Program	Control	Improved screenings (3.4 vs 3.1)	$p < 0.001$	Not specified
Carroll et al. (2018)	USA	Cluster RCT	42 practices, 6,699 patients	CKD patients	71.3 ± 9.6	eGFR decline	CDS + practice facilitation	CDS only	Slower eGFR decline	0.93 difference ($p < 0.001$)	By baseline eGFR
Chen et al.	Hong Kong	Clinical audit	10,385	COPD patients	75.3 ± 9.9	AECOPD admissions	Quality improvement strategies	Pre-intervention	Reduced admissions	$p < 0.0001$	By smoking status

(2021)									(12.8% to 9.6%)		
Thomas et al. (2024)	USA	RCT	540	Overweight/obese	52.8 ± 13.4	Weight change at 12 months	Online RxWL program	Newsletter control	Less weight regain (0.37 vs 1.28 kg)	p = 0.004	By engagement level
Davis Martin et al. (2006)	USA	RCT	144	African-American women	Not specified	Weight change	Tailored intervention	Standard care	Weight loss: -2.0 kg vs +0.2 kg	p = 0.03	Not specified
Travers et al. (2023)	Ireland	RCT	168 enrolled, 156 analyzed	Older adults	77.1	Frailty (SHARE-FI)	Home exercise + protein	Usual care	Frailty: 6.3% vs 18.2%	OR = 0.23 (p = 0.011)	By baseline frailty
Tan et al. (2024)	China	Cluster RCT follow-up	998	Stroke survivors	65.0 ± 8.2	Systolic BP	Digital health intervention	Usual care	SBP reduction: -2.8 mmHg	p = 0.03	By gender, education
Jin et al. (2021)	China	Follow-up survey	1,264	Elderly with chronic diseases	Not specified	Service quality gap	Contracted family doctor services	Baseline	Quality gap reduced	p < 0.05	By region, education
Almalki et al. (2023)	Saudi Arabia	Cross-sectional	193	Chronic disease patients	Not specified	Continuity of care index	N/A	N/A	Mean COC: 0.54	Varied by condition	By employment, residence
Basu et al. (2019)	USA	Epidemiological	3,142 counties	US population	All ages	Life expectancy, mortality	PCP density increase	Baseline density	+51.5 days per 10 PCPs/100k	p < 0.001	By rurality
Glazier et al. (2008)	Canada	Cross-sectional + cohort	CCHS sample	Chronic disease patients	Not specified	ED visits, admissions	No regular doctor	Having regular doctor	ED: OR 1.22; Admissions: OR 1.32	17,741 excess ED visits	By continuity level
Fung et	Hong	Cross-sectional	3,148	General	Not spe	ED use, hospital	No regular doctor	Regular family doctor	ED: 9.6%	OR 0.479	By health

al. (2015)	Kong	survey		population	cified	admission			vs 4.3%	for ED use	status
Wang et al. (2022)	China	Retrospective	1,196	HTN/DM patients	Not specified	Polypharmacy	No usual provider	Having usual provider	Polypharmacy OR: 2.40	p < 0.001	By disease number

Table 2: Healthcare Utilization Outcomes by Primary Care Access Status

Study	Primary Care Status	N	ED Visits (%)	Hospital Admissions (%)	Continuity Index	Additional Outcomes
Fung et al. (2015)	Regular family doctor	1,150	4.3	1.7	-	Best outcomes
	Other regular doctor	746	7.8	3.6	-	Intermediate outcomes
	No regular doctor	1,157	9.6	4.0	-	Worst outcomes
Almalki et al. (2023)	Asthma patients	-	-	-	0.75 (IQR: 0.62-0.75)	Highest continuity
	Thyroid disease	-	-	-	0.47 (IQR: 0.30-0.62)	Lowest continuity
	Overall sample	193	-	-	0.54	-
Wang et al. (2022)	No usual provider	-	-	-	-	Polypharmacy OR: 2.40
	Usual provider	-	-	-	-	Reference

Table 3: Intervention Effects on Chronic Disease Management Outcomes

Study	Intervention Group	Control Group	Outcome Measure	Baseline → Follow-up (Intervention)	Baseline → Follow-up (Control)	Effect Difference	p-value
Javaid et al. (2019)	Pharmacist-led (n=83)	Standard care (n=52)	HbA1c (%)	10.9 ± 1.7 → 7.7 ± 0.9	10.3 ± 1.3 → 9.7 ± 1.3	-2.2%	<0.0001
			SBP (mmHg)	145 ± 20.4 → 123.9 ± 9.9	129.9 ± 13.9 → 136 ± 7.1	-27.2 mmHg	<0.0001
			Cholesterol (mg/dL)	224 ± 55.2 → 153 ± 25.9	235.8 ± 57.7 → 220.9 ± 53.2	-56.0 mg/dL	<0.0001
Glasgow et al. (2004)	Priority Program (n=443)	Control (n=443)	Lab screenings (#)	-	-	3.4 vs 3.1	<0.001
			Foot exams (%)	80	52	+28%	0.003
			Nutrition counseling (%)	76	52	+24%	<0.001
Carroll et al. (2018)	CDS + PF (n=5,014)	CDS only (n=1,685)	eGFR decline (annual)	-0.01 ± 0.12	-0.95 ± 0.19	+0.93	<0.001

			HbA1c slope	-0.009 ± 0.02	+0.14 ± 0.03	-0.14	<0.001
Chen et al. (2021)	Post-intervention	Pre-intervention	AECOPD admission (%)	9.6	12.8	-3.2%	<0.00001
			SIV uptake (%)	Phase 2: improved	46.9	Significant increase	<0.001
			PCV uptake (%)	Phase 2: improved	40.7	Significant increase	<0.001
Thomas et al. (2024)	Monthly maintenance	Newsletter control	Weight regain at 12m (kg)	0.37 (-0.06-0.81)	1.28 (0.85-1.71)	-0.91 kg	0.004
	Refresher maintenance			0.45 (0.27-0.87)		-0.83 kg	0.004
Davis Martin et al. (2006)	Tailored (n=72)	Standard (n=72)	Weight change (kg)	-2.0 ± 3.2	+0.2 ± 2.9	-2.2 kg	0.03
			% losing weight	79	47	+32%	0.04
Travers et al. (2023)	Exercise + protein (n=79)	Usual care (n=77)	Frailty prevalence (%)	17.7 → 6.3	16.9 → 18.2	-12.6%	0.011
			Grip strength	Significant increase	No change	Improved	<0.001
			Bone mass	Significant increase	No change	Improved	0.040
Tan et al. (2024)	Digital intervention	Usual care	SBP change (mmHg)	-	-	-2.8 (-5.3 to -0.3)	0.03
			Stroke recurrence (%)	Reduced	Reference	RR: 0.77 (0.61-0.99)	<0.05

Population-Level Impact of Primary Care Physician Density

The analysis by Basu et al. (2019) provides compelling evidence for the population health impact of primary care physician availability. Their comprehensive study of US mortality data from 2005-2015 revealed that every 10 additional primary care physicians per 100,000 population was associated with a 51.5-day increase in life expectancy (95% CI: 29.5-73.5 days), representing a 0.2% increase in overall life expectancy. This association was stronger than that observed for specialist physicians, where 10 additional specialists per 100,000 population corresponded to only a 19.2-day increase (95% CI: 7.0-31.3 days).

The study also documented concerning trends in primary care physician supply, with mean density decreasing from 46.6 to 41.4 per 100,000 population over the study period, with disproportionate losses in rural areas. The mortality benefits were disease-specific, with 10 additional primary care physicians per 100,000 population associated with reductions in cardiovascular mortality by 1.4%, cancer mortality by 1.0%, and respiratory mortality by 0.9%.

Quality of Care and Continuity Metrics

Jin et al. (2021) evaluated the quality of contracted family doctor services in rural China through a 2-year follow-up study of 1,264 elderly patients with chronic diseases. The study found significant gaps between patient perceptions and expectations across multiple service dimensions. In 2019, the largest service quality gaps were observed in accessibility and vertical continuity dimensions. By 2020, while overall service quality gaps had decreased significantly ($p < 0.05$), disparities persisted. The top-performing dimensions in perception scores were horizontal continuity, comprehensive service, and accessibility, while expectations remained highest for accessibility and horizontal continuity throughout both years.

Almalki et al. (2023) found substantial variation in continuity of care indices across different chronic conditions in Saudi Arabia. Patients with asthma demonstrated the highest median continuity of care index at 0.75 (IQR: 0.62-0.75), while those with thyroid disease had considerably lower continuity at 0.47 (IQR: 0.30-0.62). The overall mean continuity of care index of 0.54 suggests moderate continuity levels, with significant associations found between higher continuity and factors including older age, urban residence, and specific chronic conditions including diabetes, hypertension, and asthma.

DISCUSSION

The findings of this review provide strong evidence that not having a primary care physician (PCP) is associated with poorer outcomes for individuals with chronic conditions, reflected in higher emergency department (ED) utilization, greater hospital admissions, and reduced continuity of care. The Canadian study by Glazier et al. (2008) illustrated this clearly, showing excess ED visits and hospitalizations among patients lacking a regular PCP. Similarly, Fung et al. (2015) found higher hospital service utilization among those without family doctors, reinforcing the role of PCPs as gatekeepers of efficient health system use. These findings align with international analyses, which have consistently demonstrated the critical role of strong primary care systems in reducing avoidable hospitalizations (van Loenen et al., 2014).

Continuity of care emerges as a central mechanism linking PCP access to improved outcomes. Almalki et al. (2023) reported that continuity scores varied across chronic conditions, with higher values associated with better outcomes, particularly among older adults and urban residents. Schäfer et al. (2010) also found continuity reduced risks of polypharmacy, a common challenge for multimorbid patients. Wang et al. (2022) extended this observation to China, showing that patients without a usual PCP had over twice the odds of engaging in polypharmacy. Collectively, these studies underscore that fragmented care increases clinical risks, particularly for populations with multiple chronic conditions requiring coordinated management.

Population-level evidence further emphasizes the importance of primary care availability. Basu et al. (2019) demonstrated that increasing PCP density was associated with improvements in life expectancy and reductions in mortality from major chronic diseases in the United States. These findings complement the broader review by Shi (2012), which highlighted the systemic benefits of strong primary care in improving equity and health outcomes. Starfield, Shi, and Macinko (2005) also emphasized that robust primary care systems deliver better population health outcomes while reducing costs, illustrating both clinical and economic benefits.

Intervention studies included in this review reveal how PCP-driven strategies can improve chronic disease management. The BETTER trial in Canada showed that embedding prevention practitioners within primary care improved screening and prevention uptake (Grunfeld et al., 2013). Similarly, Javaid et al. (2019) demonstrated that pharmacist-led diabetes management integrated into primary care achieved significant reductions in HbA1c levels. In the U.S., Carroll et al. (2018) reported improved kidney disease outcomes with decision support systems linked to primary care teams, while Chen et al. (2021) documented reduced COPD admissions after quality improvement interventions. Together, these findings highlight that structured interventions within PCP frameworks produce measurable health benefits.

The importance of PCPs is further illustrated by targeted interventions for vulnerable populations. Davis Martin et al. (2006) showed that a tailored primary care weight management program led to clinically meaningful weight loss among low-income African-American women, while Travers et al. (2023) demonstrated that exercise and nutrition interventions in primary care reduced frailty in older adults. Thomas et al. (2024) and Tan et al. (2024) extended this evidence, showing how digital and online PCP-based programs effectively supported weight control and stroke management, respectively. These findings reinforce that PCP-based interventions can address both traditional risk factors and emerging digital care opportunities.

Importantly, the absence of a PCP may exacerbate health inequities. Kringos et al. (2015) emphasized that stronger primary care systems reduce disparities in access and outcomes, while Martínez-González, Rosemann, and Tandjung (2015) noted that while nurse substitution models can help, they cannot fully replace physician-led continuity for chronic disease care. Reynolds et al. (2018) similarly found that primary care-based chronic disease management interventions significantly improved outcomes, particularly for disadvantaged groups. This suggests that lack of PCP access disproportionately harms already vulnerable populations.

The benefits of primary care access also extend to healthcare provider and system outcomes. Reid et al. (2010) demonstrated that implementation of a patient-centered medical home model led to higher patient satisfaction, reduced costs, and lower provider burnout. These findings echo the emphasis of Wang et al. (2018), who found practice facilitation improved chronic disease management in primary care. In contexts where patients lack PCPs, such systems-level benefits are lost, potentially contributing to higher healthcare costs and provider strain.

At a clinical level, disease-specific studies highlight how PCP engagement translates to improved management. Glasgow et al. (2004) reported enhanced diabetes care processes with structured PCP-led interventions, while Grunfeld et al. (2013) and Carroll et al. (2018) demonstrated prevention and management gains across multiple chronic conditions. Chen et al. (2021) further showed the value of PCP-led quality improvement for COPD. In contrast, patients without regular PCPs, as seen in studies by Glazier et al. (2008) and Fung et al. (2015), experienced fragmented care and poorer outcomes. This juxtaposition underscores the direct clinical risks of PCP absence.

The observed decline in PCP supply over time, especially in rural areas, as noted by Basu et al. (2019), raises serious policy concerns. Without efforts to strengthen primary care capacity, health disparities may widen and system inefficiencies may worsen. Innovative models such as digital health interventions (Tan et al., 2024) and online treatment programs (Thomas et al., 2024) offer promising strategies to extend PCP reach but should complement rather than replace the central role of physicians in chronic disease care.

Finally, while the evidence base is strong, challenges remain. Variability in how continuity of care is measured (binary vs. index-based approaches) complicates comparisons across studies (Almalki et al., 2023; Schäfer et al., 2010). Moreover, some interventions demonstrate effectiveness only in certain subgroups, such as women or low-income populations (Davis Martin et al., 2006; Tan et al., 2024). Future research should address these heterogeneities, evaluating how PCP access interacts with social determinants of health. Policy efforts must prioritize strengthening PCP capacity, ensuring equitable access, and integrating innovative models to maintain continuity of care for individuals with chronic conditions.

CONCLUSION

This systematic review demonstrates that the absence of a primary care physician (PCP) is consistently associated with poorer outcomes among individuals with chronic conditions, including higher emergency department use, increased hospital admissions, greater polypharmacy risks, and worse disease management. Conversely, strong PCP access and continuity were linked to improved prevention, reduced mortality, and better chronic disease outcomes across diverse healthcare systems. Intervention studies highlighted that structured programs integrated into primary care—ranging from digital health interventions to pharmacist-led models—are effective in improving clinical outcomes and healthcare efficiency.

The evidence further indicates that lack of PCP access amplifies inequities, disproportionately affecting vulnerable groups such as low-income, elderly, and rural populations. Policy implications are significant, with declining PCP supply posing a threat to both population health and system sustainability. Strengthening PCP availability, improving continuity of care, and adopting innovative models to extend reach are crucial to achieving equitable and effective chronic disease management.

Limitations

While this review synthesized a wide range of international evidence, several limitations must be acknowledged. First, heterogeneity in study designs, populations, and outcome measures precluded meta-analysis, limiting the ability to generate pooled effect sizes. Second, many studies employed different operational definitions of "having a PCP" or "continuity of care," ranging from simple binary classifications to complex indices, complicating direct comparisons. Third, publication bias may exist, as most included studies were published in English and from high- or middle-income countries, potentially underrepresenting experiences in low-resource settings. Finally, subgroup effects—such as differences by gender, income, or education—were not consistently reported, suggesting the need for future research to explore how the absence of PCPs interacts with broader social determinants of health.

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