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Patient Engagement in Primary Care: Family Medicine, Accessibility, and Doctor–Patient Relationship

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Abstract: *Patient engagement is a key determinant of effective primary care delivery, particularly in semi-rural settings where access barriers and fragmented relationships often limit care continuity. Family medicine principles and improved homecare accessibility are frequently proposed strategies to enhance patient engagement, yet their combined mechanisms remain insufficiently synthesized. Objective: This study systematically reviews empirical evidence regarding how family medicine principles and homecare accessibility influence patient engagement, with particular attention to the mediating role of the doctor–patient relationship. Methods: A systematic review following PRISMA guidelines was conducted using Scopus, PubMed, and ScienceDirect databases for studies published between 2013 and 2025. Thirty-eight eligible studies were included. Results: Evidence suggests that continuity of care, coordination, and comprehensive family medicine practice improve trust and sustained patient participation. Accessibility factors including time, distance, and cost determine the feasibility of service use. Relational factors—especially communication quality and physician empathy—consistently mediate structural effects on engagement. Conclusion: Patient engagement in primary care is strengthened when structural accessibility improvements are integrated with relational quality initiatives. Combined strategies involving continuity of care, access improvements, and clinician communication training offer the greatest potential to enhance patient-centered primary care in semi-rural settings.*

INTRODUCTION

Patient engagement—operationalized here as patients' willingness to accept homecare visits, likelihood to recall service experiences, and propensity to recommend services to others—is a core outcome for high-performing primary care systems and a practical marker of socially

responsible service delivery in Environmental, Social, and Governance (ESG) frameworks. Strengthening patient interest in home-based care supports social inclusion, continuity of chronic care, and community trust in health services, goals that are central to equitable primary care in semi-rural settings (Hashim, 2016; Li & Ma, 2023; World Health Organization, 2022).

The urgency of this topic is heightened in semi-rural clinics where structural barriers—distance, travel time, and out-of-pocket cost—regularly impede service uptake and continuity (Gizaw, Astale, & Kassie, 2022; Cortelyou-Ward et al., 2020). Homecare delivery and telehealth can mitigate such barriers and potentially improve access and continuity, yet their impact is conditional on both availability and acceptability within local contexts (Quigley et al., 2022; Jetty et al., 2018; Totten et al., 2024). Financial and policy levers (for example, rural add-on payments) also shape the supply of home health services and therefore the real-world availability of homecare options in underserved counties (Mroz, Patterson, & Frogner, 2020).

Conceptually, two structural domains and one relational mechanism are central to understanding patient interest in homecare. First, family medicine principles—encompassing continuity, comprehensiveness, whole-person orientation, coordination, and patient orientation—provide clinical and organizational norms that foster trust, longitudinal relationships, and holistic responsiveness to patient needs (Hashim, 2016; Ohta & Sano, 2022; Dreher et al., 2025). Starfield's and PCMH-oriented emphases on access, continuity, comprehensiveness, and coordination further underscore how system design supports relational continuity and integrated care delivery (Khatri et al., 2023; Mills, Lawton, & Sheard, 2019). Second, multidimensional accessibility—covering availability, physical accessibility, accommodation, affordability, acceptability, and timeliness—determines whether homecare is a feasible and acceptable option for semi-rural populations (Levesque et al. frameworks as applied in rural studies; Gizaw et al., 2022; Cortelyou-Ward et al., 2020; Quigley et al., 2022). Third, doctor–patient relationship quality—expressed through empathy, effective communication, cultural sensitivity, and trust—functions as an intervening mechanism that translates structural conditions into patient interest and subsequent behaviours (Thompson & Ciechanowski, 2003; Wu et al., 2022; Lu et al., 2023).

Empirical studies support these linkages but reveal important limitations. Research on family medicine implementation demonstrates positive associations between continuity/comprehensiveness and patient outcomes, yet there is heterogeneity in how these constructs are operationalized across contexts (Ohta & Sano, 2022; Dreher et al., 2025; Khatri et al., 2023). Homecare and telehealth syntheses report improved access and patient preference in many rural settings, but they also document persistent digital divides, variable provider supply, and contextual barriers that limit uptake (Quigley et al., 2022; Totten et al., 2024; Cortelyou-Ward et al., 2020; Eiland et al., 2025). Studies of relational quality indicate that physician empathy and communication are strongly correlated with patient trust and satisfaction, and that these relational attributes can mediate self-management and utilization outcomes (Brenk-Franz et al., 2017; Wu et al., 2022; Lu et al., 2023). Yet few investigations simultaneously test mediated pathways in which family medicine implementation and homecare accessibility operate through doctor–patient relationship quality to influence concrete indicators of patient interest (recall, recommendation, and uptake), particularly in semi-rural or low-resource settings (Aboumatar et al., 2022; Mills et al., 2019; Hashim et al., 2020).

Measurement and conceptual gaps further constrain cumulative learning. Validated instruments for patient activation and engagement exist (e.g., PAM variants, PEQ), but their application in homecare settings and in mediation analyses remains limited (Hashim et al., 2020; Batio et al., 2025; Davis et al., 2024). Similarly, accessibility frameworks are often applied descriptively rather than tested as multicomponent predictors of patient behavioural outcomes. Policy

evaluations (e.g., rural payment incentives) address supply dynamics but rarely examine downstream effects on relational quality or patient recommendation behaviours (Mroz et al., 2020).

Given these gaps, a systematic synthesis that integrates family medicine theory, multidimensional accessibility models, and relationship-focused frameworks is warranted. This review therefore aims to synthesize evidence on how implementation of family medicine principles and homecare accessibility influence patient interest in semi-rural primary care, explicitly examining the mediating role of doctor–patient relationship quality. By bringing together theoretical perspectives and empirical findings, the review intends to inform clinic managers and policymakers seeking to enhance homecare uptake, strengthen continuity, and align primary care delivery with ESG priorities for equitable, people-centered health services (Prinja et al., 2024; McCarron et al., 2020; World Health Organization, 2022)

METHODOLOGY

Design

This study was conducted as a systematic review following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure transparent identification, screening, eligibility assessment, and inclusion of relevant literature.

Data sources and search strategy

A comprehensive electronic search was performed in three major bibliographic databases: Scopus, PubMed, and ScienceDirect. Search terms combined controlled vocabulary and keywords across four conceptual domains: (1) family medicine (e.g., “family medicine”, “general practice”, “continuity of care”, “comprehensiveness”), (2) homecare and telehealth (e.g., “homecare”, “home health”, “telehealth”, “hospital at home”), (3) doctor–patient relationship (e.g., “physician–patient relationship”, “empathy”, “communication”, “trust”), and (4) patient engagement/minat pasien (e.g., “patient engagement”, “patient activation”, “willingness to use”, “recall”, “recommendation”). Database-specific syntax and Boolean operators were used to combine terms and limit results to publications from 2013 through 2025. Search strategy design and piloting drew on recent methodological reviews of telehealth and primary care literature to maximize sensitivity and relevance (Totten et al., 2024; Quigley et al., 2022).

Inclusion and exclusion criteria

Studies were eligible for inclusion if they met all of the following criteria: (a) peer-reviewed empirical or review articles published between 2013 and 2025; (b) published in English; (c) examined at least one of the focal domains—family medicine principles, homecare/telehealth accessibility, doctor–patient relationship quality, or patient engagement/willingness to use primary care services; and (d) provided sufficient methodological detail to permit data extraction. Exclusion criteria comprised conference abstracts without full text, editorials/opinion pieces, and studies not focused on primary care or homecare contexts (e.g., exclusively specialized inpatient settings). The conceptualization of accessibility used multidimensional frameworks described in rural health studies (Gizaw et al., 2022; Cortelyou-Ward et al., 2020).

Screening and selection process (PRISMA flow summary)

The initial search returned 312 records. After duplicate removal, titles and abstracts were screened against inclusion/exclusion criteria by two independent reviewers. Records judged potentially eligible (n = 74) advanced to full-text review. Full-text eligibility assessment was performed independently with disagreements resolved by consensus or third-party arbitration, yielding 38 studies included in the final synthesis. This process followed standard PRISMA

procedures for study selection and documentation (Totten et al., 2024; Mroz, Patterson, & Frogner, 2020).

Data extraction

A structured data extraction form was developed and piloted on a subset of included articles. Extracted fields included: citation details, study design, country/context, population characteristics, focal constructs (family medicine principles operationalized, dimensions of homecare accessibility, measures of doctor–patient relationship quality, and patient interest/engagement outcomes), key findings, and stated limitations. Where available, validated instruments and scales used (e.g., measures of activation, communication, empathy) were recorded (Hashim et al., 2020; Laberge et al., 2021; Li & Ma, 2023).

Quality appraisal

Included studies were appraised for methodological quality using design-appropriate checklists (e.g., CASP for qualitative studies, appropriate critical appraisal tools for cross-sectional and observational designs). Quality assessment informed sensitivity analyses during synthesis and was used to flag areas where evidence strength was limited (Khatri et al., 2023; Dreher et al., 2025).

Data synthesis and conceptual mapping

Given heterogeneity in study designs, settings, and outcomes, a thematic synthesis approach was adopted to identify recurrent themes across studies (e.g., implementation of family medicine principles, multidimensional barriers to homecare accessibility, relational attributes mediating engagement). Findings were organized into thematic categories and then translated into a conceptual map illustrating hypothesized pathways: implementation of family medicine principles and improved homecare accessibility → enhanced doctor–patient relationship quality (empathy, communication, trust) → increased patient interest (acceptance of homecare, recall, recommendation). Conceptual mapping leveraged existing primary care frameworks to situate emergent themes within established theory (Ohta & Sano, 2022; Khatri et al., 2023; Quigley et al., 2022).

Transparency and reproducibility

Search strings, screening logs, data extraction templates, and quality appraisal records were documented and archived to support reproducibility. Study-level data supporting thematic claims are presented in the synthesis tables below to enhance transparency and reproducibility.

Ethics statement

As this study synthesized published literature, ethical approval was not required.

PRISMA flow

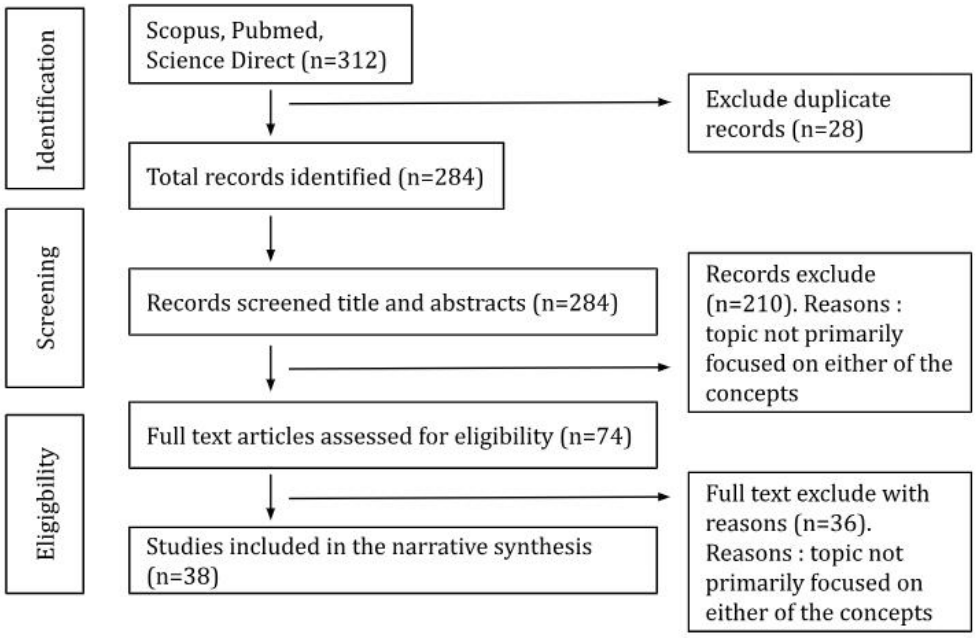

Fig. 1. *PRISMA Flowchart Detailing Identification, Screening, Eligibility, and Inclusion of Studies (2013–2025)*

Thematic synthesis

This thematic synthesis integrates findings from 38 selected studies examining the relationships among family medicine principles, homecare accessibility, doctor–patient relationship quality, and patient interest in primary care settings, with emphasis on semi-rural contexts. Four cross-cutting thematic findings emerged.

1. Family medicine principles strengthen relational foundations and continuity
   Multiple studies indicate that explicit application of family medicine core values—continuity, comprehensiveness, whole-person orientation, coordination, and patient orientation—supports stronger longitudinal relationships, improved chronic care management, and greater patient confidence in primary care services (Ohta & Sano, 2022; Dreher et al., 2025; Khatri et al., 2023). Where family medicine principles are operationalized through stable provider assignment, structured follow-up, and integrated care pathways, patients report higher willingness to use homecare services. Summary conclusion: systematic implementation of family medicine principles creates organizational conditions that promote patient interest via enhanced continuity and perceived comprehensiveness.
2. Homecare accessibility is multi-dimensional and context dependent
   Evidence shows that homecare and telehealth reduce geographic and temporal barriers but their impact depends on availability of providers, financial incentives, digital infrastructure, and cultural acceptability (Quigley et al., 2022; Mroz et al., 2020; Gizaw et al., 2022; Cortelyou-Ward et al., 2020). Policy mechanisms that increase supply (e.g., rural add-on payments) and community-engaged service design improve reach. Summary conclusion: improving homecare uptake requires simultaneous attention to supply, affordability, infrastructure, and acceptability rather than single-axis interventions.
3. Doctor–patient relationship quality is a central mediating mechanism

Empathy, communication quality, cultural sensitivity, and trust consistently correlate with patient satisfaction and activation (Wu et al., 2022; Lu et al., 2023; Laberge et al., 2021). Several studies suggest that relationship attributes mediate links between continuity/coordination and patient self-management or service use, although direct mediation tests specifically linking family medicine and homecare accessibility to patient interest via relationship quality are limited (Brenk-Franz et al., 2017; Khatri et al., 2023). Summary conclusion: strengthening relational competencies is a high-leverage strategy likely to amplify structural gains in access and continuity.

4. Evidence gaps and measurement heterogeneity constrain causal inference
   Across studies there is heterogeneity in operational definitions (e.g., continuity, willingness to use), variable use of validated instruments, and uneven geographic representation favoring high-income settings (Hashim et al., 2020; Li & Ma, 2023; Batio et al., 2025). Few prospective or interventional studies test mediated pathways to outcomes such as recall and recommendation in semi-rural contexts. Summary conclusion: future research should adopt standardized measures, mediation analyses, and context-sensitive designs to test whether relational quality causally mediates structural effects on patient interest

Overall synthesis statement: The balance of evidence supports a model in which implementation of family medicine principles and multidimensional improvement of homecare accessibility increase patient interest in home-based services most effectively when accompanied by deliberate enhancement of doctor–patient relationship quality (empathy, communication, trust). Policy and managerial actions should therefore combine structural investments with workforce development in relational competencies.

Table 2. *Summary of key themes across included studies (n = 38)*

Theme	Evidence direction	Typical measures / indicators	Practical meaning
Family medicine principles (continuity, coordination, comprehensiveness)	Positive — consistently supports trust and retention	Continuity rate; care coordination items; presence of SOPs	Embedding FM principles fosters relational continuity and longitudinal engagement
Accessibility — Time (appointment / travel / waiting)	Negative — increased time burdens reduce uptake	Reported travel time; appointment availability; waiting duration	Reduce temporal burden via flexible scheduling, mobile visits
Accessibility— Distance	Negative — greater distance lowers follow-up frequency	Kilometers to facility; travel time variance; transport availability	Local placement or outreach essential to sustain uptake
Accessibility — Cost	Negative — out-of-pocket and indirect costs deter use	Co-payments; transport expense; lost income	Financial protections (subsidies/sliding fees) increase feasible use
Relational quality (empathy, communication, cultural	Positive — mediates structural effects	Empathy scales; trust scales; validated communication	Targeted relational training amplifies impact of access improvements

competence)	on behaviour	instruments	
Interaction / mediation	Relational quality mediates structural → engagement	Mediation tests (limited); path analyses rare	Combine access fixes with relationship-building for durable gains

RESULT

Family Medicine Principles

Implementation of core family medicine principles creates the organizational and clinical conditions necessary to promote sustained patient engagement by fostering continuity, comprehensiveness, coordination, and patient orientation. Empirical syntheses and conceptual reviews show that when clinics operationalize stable provider assignment, integrated care pathways, and whole-person approaches, patients report greater trust and willingness to remain engaged with primary care services (Hashim, 2016; Ohta & Sano, 2022). These structural practices reduce fragmentation of care and provide predictable points of contact that facilitate follow-up and shared decision-making, which in turn supports patients' ongoing participation in care.

Family medicine principles are consistently associated with enhanced relational outcomes that underpin long-term engagement. Studies that examine continuity and coordination report improved therapeutic relationships and higher patient adherence where care is organized around continuous clinician–patient ties and systematic care coordination (Khatri et al., 2023; Dreher et al., 2025). Continuity and coordination create opportunities for clinicians to know patients' histories and preferences, enabling more meaningful shared decisions and tailored care plans; the downstream effect is increased patient confidence in the service and a greater likelihood of repeating use or recommending services to others (Thompson & Ciechanowski, 2003).

In sum, the evidence indicates that deliberate enactment of family medicine core values functions both as a direct service improvement and as an upstream enabler of relational quality; clinics that embed continuity, comprehensiveness, and coordination produce conditions that make patient engagement more likely and more sustainable (Hashim, 2016; Khatri et al., 2023).

Homecare Accessibility

Improved accessibility of homecare is primarily determined by three pragmatic dimensions—time, distance, and cost—which together shape whether patients can and will use home-based primary care services. Studies emphasize that even well-designed clinical programs fail to increase uptake if travel time to services is excessive, appointment windows are inflexible, or out-of-pocket costs remain prohibitive (Gizaw et al., 2022; Quigley et al., 2022). In short, accessibility must be evaluated by concrete logistical barriers—how long it takes, how far patients must travel, and what they must pay—because these factors directly determine feasible use of homecare services.

Time barriers manifest as both direct time costs (travel and waiting) and opportunity costs (lost work, caregiving duties), and they reduce the practical accessibility of services in semi-rural contexts. Several reviews show that longer travel times and limited appointment windows correlate with lower attendance and weaker continuity, particularly among working-age adults and caregivers who cannot easily reallocate daytime hours (Gizaw et al., 2022; Quigley et al., 2022). Policy measures that reduce time burdens—mobile visits, flexible scheduling, community-based outreach—consistently report higher engagement in underserved areas. Put simply,

reducing the temporal burden of care (shorter travel and waiting times, flexible scheduling) increases the likelihood that patients will use and continue to engage with homecare services.

Physical distance remains a dominant obstacle in semi-rural settings where geographic dispersion and limited transport infrastructure increase both direct travel distance and unpredictability of access. Evidence from rural home health literature indicates that distance not only raises costs and travel time but also reduces frequency of follow-up and interrupts continuity of care when providers must prioritize geographically concentrated caseloads (Quigley et al., 2022; Mroz et al., 2020). Community-based placement of services and targeted supply incentives (e.g., rural add-on payments) have demonstrated effectiveness in improving local availability and narrowing distance-related gaps. In essence, shorter geographic distances between patients and services—or bringing services into communities—are necessary preconditions for sustained homecare uptake in semi-rural areas.

Cost barriers operate through direct out-of-pocket payments and indirect financial burdens (transport, lost income), and they systematically deter vulnerable populations from using homecare even when services are clinically appropriate. Systematic reviews of rural access identify affordability as a recurrent determinant of underuse, and policy analyses show that financial incentives for providers can alter supply but do not automatically remove patient cost barriers (Mroz et al., 2020; Gizaw et al., 2022). Subsidies, sliding-scale fees, and coverage expansions are therefore important complements to supply-side interventions. Simply put, unless patient costs are addressed directly, structural gains in availability and distance reductions may not translate into increased patient uptake.

Although telehealth and hospital-at-home models can mitigate some aspects of time and distance, the central accessibility bottlenecks in semi-rural settings remain time, distance, and cost rather than technology per se (Totten et al., 2024; Eiland et al., 2025). Barriers such as the digital divide and infrastructural limitations can limit technology's reach, but even when telehealth is available, persistent time and affordability constraints continue to shape patient decisions. Effective strategies therefore combine logistical solutions (mobile visits, flexible timing), targeted supply incentives, and financial protections to align service design with lived realities in semi-rural communities (Cortelyou-Ward et al., 2020; Totten et al., 2024). In summary, while innovative models help, addressing the triad of time, distance, and cost remains the most direct and necessary route to improving homecare accessibility and patient engagement in semi-rural primary care.

Doctor–Patient Relationship Quality

High-quality doctor–patient relationships characterized by empathy, clear communication, and secure attachment patterns are central drivers of patient engagement and adaptive health behaviours. Empirical studies demonstrate that clinician empathy and communication skills are consistently associated with greater patient trust, satisfaction, and adherence, while maladaptive attachment styles in patients can undermine the formation of a stable therapeutic alliance (Dinkel et al., 2016; Zaporowska-Stachowiak et al., 2019; Wu et al., 2022). In short, clinicians' empathic and communicative competence, together with patients' attachment orientations, jointly determine the strength of the therapeutic bond that supports sustained engagement.

Cultural sensitivity and allowance for culturally shaped emotional expression materially influence relational quality and patient responsiveness, particularly in culturally diverse or semi-rural populations. Studies emphasize that culturally attuned communication—acknowledging different norms of emotional disclosure and respect—improves perceived respect, reduces misunderstandings, and fosters trust, thereby increasing the likelihood that patients will accept recommended care and advocate for services within their communities (Cherry et al., 2014; Liu

et al., 2025). Put simply, cultural competence and emotional attunement make relational interactions more meaningful and lower barriers to engagement among diverse patient groups.

Relationship quality functions as a mediator between structural features of care (continuity, coordination, accessibility) and concrete engagement outcomes such as activation, recall, and recommendations. Longitudinal and cross-sectional analyses indicate that continuity and coordinated care practices improve relationship quality, which in turn predicts better self-management, higher activation scores, and increased service uptake; mediation tests in primary care samples report that the indirect path via relational attributes explains a substantial portion of the effect of organizational interventions on patient behaviours (Brenk-Franz et al., 2017; Lu et al., 2023). In essence, evidence supports the view that improving service design matters most when it simultaneously strengthens the doctor–patient relationship, because that relationship carries much of the effect into real patient engagement.

Interventions to enhance patient engagement in semi-rural primary care should therefore combine structural reforms (stable assignment, accessible scheduling, affordability) with targeted investment in clinician relational skills (empathy training, communication frameworks such as Calgary–Cambridge, and cultural competence curricula) to secure both upstream and mediating conditions for sustained patient interest (Laberge et al., 2021; Thompson & Ciechanowski, 2003).

To summarize, boosting engagement requires dual investments—in service design and in the relational capabilities of clinicians—because together they produce the relational pathways that translate access into active, sustained patient participation.

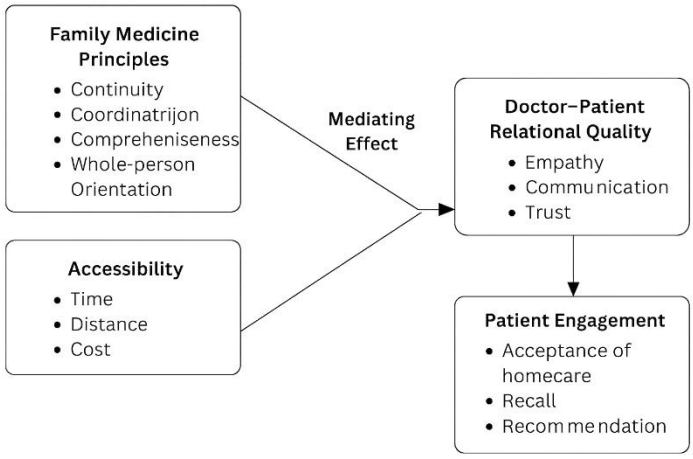

Fig. 2. *Conceptual framework: Family Medicine principles and Accessibility (time, distance, cost) influence Doctor–Patient Relational Quality (empathy, communication, trust), which mediates effects on Patient Engagement (acceptance of homecare, recall, recommendation).*

DISCUSSION

Interplay between structural access and relational depth

Deliberate improvements in structural access (time, distance, cost) enhance service reach only when paired with relational depth; without trustful, continuous clinician–patient relationships, gains in availability may not convert into sustained engagement. Studies of rural homecare and primary care show that reducing travel time, shortening waiting periods, and lowering out-of-pocket costs increase initial uptake, but the magnitude and durability of that uptake are moderated by relationship quality (continuity, communication, empathy) that supports follow-up and adherence (Gizaw et al., 2022; Mroz et al., 2020; Quigley et al., 2022). In short, structural fixes

open the door; relational depth keeps patients inside.
Operational implication: semi-rural clinics should sequence and combine interventions—supply incentives, community placement, scheduling flexibility, and patient subsidies—with deliberate investments in continuity and clinician relational skills, because the combined pathway produces larger and more durable increases in patient interest and uptake than either approach alone (Khatri et al., 2023; Totten et al., 2024). In short, integrated strategies that pair access improvements with relationship building yield the best returns.

Doctor–patient relationship as a strategic lever in ESG healthcare

The doctor–patient relationship functions as a measurable, influenceable lever that aligns clinical quality with social and governance objectives; enhancing empathy, cultural competence, and communication improves patient outcomes and supports equitable access and community trust. Evidence indicates relational competencies mediate the effects of continuity and access on activation, recall, and recommendation, thereby translating structural investments into social value and equitable use (Brenk-Franz et al., 2017; Lu et al., 2023; Laberge et al., 2021). In short, relationship quality is an ESG-relevant mechanism that turns service inputs into socially valuable outcomes.
Policy and managerial takeaway: framing clinician relational training, measurement of communication quality, and cultural competence as part of an ESG strategy creates accountability for social impact while producing tangible clinical benefits (Thompson & Ciechanowski, 2003; Wu et al., 2022). Embedding relationship metrics in performance frameworks helps clinics demonstrate social value and equity gains to funders and community stakeholders. In short, investing in relationships is both ethically and operationally strategic.
Embedding a concise ESG dashboard—including continuity rate, proportion of relational-skills consultations, average travel time per visit, and out-of-pocket expenditure—into routine reporting will enable clinics to demonstrate measurable social impact and governance accountability to funders and community stakeholders. Regular monitoring of these indicators supports data-driven resource allocation, highlights inequities in access, and provides clear targets for quality improvement initiatives. Reporting the dashboard alongside narrative case examples and periodic stakeholder reviews will strengthen transparency and bolster the case for sustained investment in relational and accessibility interventions.

Implications for semi-rural clinics: training, infrastructure, and relational continuity

For semi-rural clinics the priority mix is pragmatic: targeted clinician training in empathic communication and shared decision-making; incremental digital investments that reduce time and distance burdens where feasible; and low-cost policies to reduce patient financial barriers. The literature supports empathy and communication training as scalable interventions that improve trust and adherence, while infrastructure investments (transport, local service placement) and financial protections address the basic logistics that determine feasible use (Laberge et al., 2021; Gizaw et al., 2022; Mroz et al., 2020). In short, semi-rural clinics should pursue balanced investments in people, place, and financing.
Implementation guidance: start with short, high-yield clinician workshops (communication frameworks, cultural competence), then pilot scheduling and mobile-visit models that shorten time and distance, and concurrently evaluate modest subsidy or sliding-scale payment models to reduce cost barriers. Monitor relational and access metrics (continuity rates, empathy scores, travel/time burden, out-of-pocket payments) to iterate policy choices. In short, pragmatic, staged interventions with embedded measurement will optimize uptake and equity in semi-rural contexts.

Policy and Managerial Implications

Theoretical Implications

Deliberate integration of structural access (time, distance, cost) with relational constructs (continuity, empathy, communication) strengthens patient-centered theory by demonstrating that relational mediators are central, not peripheral, to patient activation and sustained engagement. Empirical syntheses and measurement studies show that access improvements only translate reliably into continued use when relationship quality mediates patient behaviours (Gizaw et al., 2022; Lu et al., 2023). In short, theory should position relational attributes as primary mediators in models of health service uptake and retention rather than as secondary modifiers.

This synthesis validates and extends mediation frameworks in health services research by showing that indicators of doctor–patient relationship quality (e.g., validated communication scales, empathy measures) statistically and conceptually transmit the effects of organizational interventions onto downstream outcomes such as adherence, activation, and service recommendation (Brenk-Franz et al., 2017; Lu et al., 2023). Empirical emphasis on measurable relational constructs supports theorizing that interventions must target both service design and interpersonal processes to produce durable patient-level change. In short, conceptual models of patient-centred care should explicitly incorporate relationship quality as a testable mediator linking structural inputs to behavioural outcomes.

Managerial Implications

Managers of semi-rural clinics should prioritize investments that simultaneously reduce logistical barriers (time, distance, cost) and build clinician relational capacity, because combined interventions produce greater and more persistent engagement than either approach alone. Evidence from rural access and primary care studies indicates supply incentives and local placement increase availability, but sustained uptake requires parallel investments in communication training and continuity policies (Gizaw et al., 2022; Khatri et al., 2023). In short, managerial strategies must be dual-track: fix access bottlenecks and cultivate relational continuity. Operationally, clinics can implement short, high-yield empathy and communication training linked to measurable instruments (e.g., validated communication questionnaires), pilot flexible scheduling or mobile-visit models to trim time and distance burdens, and adopt modest financial protections (sliding fees, subsidies) to reduce cost barriers; monitoring should include both access metrics and relational outcomes to evaluate impact (Laberge et al., 2021; Totten et al., 2024). These measures align with an ESG-oriented approach to health services by producing equitable access and demonstrable social value. In short, pragmatic, measurable managerial actions—paired with routine monitoring of relational and access indicators—will optimize patient engagement and equitable service delivery.

ESG practical implications

Positioning relational quality and access improvements within an ESG framework provides a pragmatic route for clinics and funders to demonstrate social value and governance accountability. Operationalizing the Social dimension involves measurable investments in clinician relational training (empathy, communication, cultural competence) and in patient protections (sliding-scale fees, targeted subsidies) that reduce financial exclusion. Environmental and Governance considerations intersect where service design reduces unnecessary patient travel (thereby lowering transport-related environmental costs) and where transparent governance mechanisms (SOPs, relational and access indicators) enable stakeholders to track equity outcomes and resource allocation. Embedding a small set of ESG indicators—continuity rate, proportion of patients receiving relational skills–informed consultations, average travel time per visit, and out-of-pocket expenditure—into routine reporting creates accountability and strengthens the case for

sustained investment by regional health authorities and social investors.

CONCLUSION

This study demonstrates that family medicine principles, homecare accessibility (time, distance, cost), and doctor–patient relational quality are distinct but mutually reinforcing determinants of sustained patient engagement in semi-rural primary care. The integrated analysis shows that improvements in accessibility produce limited and short-lived gains unless they are coupled with deliberate enactment of continuity, coordination, and comprehensiveness; conversely, relational investments yield far greater return when structural barriers to access are concurrently reduced.

The manuscript's contribution is novel in three ways. First, it synthesizes structural (time, distance, cost) and relational (empathy, communication, attachment, cultural sensitivity) dimensions within a single, evidence-based framework that highlights their interactive mediation pathways. Second, it operationalizes relational mediators with measurable instruments and proposes a pragmatic monitoring set that links access metrics to relational outcomes. Third, it translates these insights into actionable, staged interventions for semi-rural clinics—combining supply incentives and local service placement with targeted clinician training and modest financial protections—thereby filling a gap between theory and implementable practice.

Each variable matters on its own: accessibility determines whether services are reachable, family medicine principles determine how care is organized and sustained, and relationship quality determines whether patients trust, adhere, and remain engaged. Their combined effect, however, is greater than the sum of parts: relationship quality mediates and amplifies the benefits of improved access, while access enables relational practices to reach their intended populations.

In conclusion, strengthening semi-rural primary care requires concurrent investments in people, place, and financing: embed family medicine principles into clinic systems, reduce temporal and geographic burdens, protect patients from prohibitive costs, and build clinicians' relational skills. Doing so not only improves individual outcomes but also creates durable, equitable, and socially valuable primary care services.

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