Receipt of a Yearly Routine Checkup and Beliefs about the Importance of a Personal Primary Care Provider among Rural Patients

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Abstract

Annual well visit appointments with personal primary care providers (PCP) are critical for improving population health. However, barriers to healthcare access can hinder routine and preventive screenings and treatment. This study examined the financial, geospatial, and attitudinal barriers to routine PCP visits among rural-residing patients. Data were collected from Amazon Mechanical Turk (MTurk) workers who lived in a rural ZIP code. A logistic regression model was fitted to assess barriers and facilitators associated with receipt of a routine checkup within the past year. The primary predictor of interest was the belief that a personal PCP can improve access to primary and preventive care and therefore improve health (alpha=0.9015). The model also adjusted for age, sex, insurance status, distance to primary care, and typical wait time for a primary care appointment. All analyses were conducted in Stata 17 SE. Increased belief that a personal PCP can improve access to primary and preventive care and therefore improve health was associated with increased likelihood of receiving an annual routine checkup (AOR=1.21, p=0.003). Patients who were insured (AOR=5.16, p=0.003) were significantly more likely to receive an annual routine checkup, while those who travelled farther distances to see a primary care provider were less likely to receive an annual routine checkup (AOR=0.69, p=0.027). Findings suggest that financial, geospatial, and attitudinal barriers may hinder annual routine checkups with PCP. Addressing all three of these potential barriers can have a positive impact on population health by increasing access and utilization of primary care within rural populations.

Keywords: primary care, rural, access, routine visits

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Background

Routine primary care is essential for preventative medicine, which can allow for diseases to be detected and treated at earlier stages. However, primary care and preventive services are often underutilized in rural areas (Larson & Correa-de-Araujo, 2006; Weinhold & Gurtner, 2014). A recent study found that patients living in small rural areas have greater odds of having no primary care provider compared to their urban counterparts (Graves et al., 2022). Routine primary care can reduce complications and preventable mortality from diseases like cancer and cardiovascular disease through the provision of preventive care; thus, increasing patients' quality of life (Murimi & Harpel, 2010). These factors contribute to disproportionate rates of chronic disease and disability among rural populations (Larson & Correa-de-Araujo, 2006).

The patient-centered medical home (PCMH) is a model of primary care delivery that has been championed by the Patient Protection and Affordable Care Act (ACA) (Roundtable on the Promotion of Health Equity and the Elimination of Health Disparities et al., 2015). The PCMH's five core components (i.e., patient-centered, comprehensive, coordinated, accessible, and quality and safety) (Patient-Centered Primary Care Collaborative, 2019) aim to reduce barriers to care and consequently improve population health outcomes, while simultaneously decreasing healthcare costs (Reynolds et al., 2015). PCMHs have seven common features, which include: (1) improved access (e.g., same-day appointments, extended hours, telemedicine, and patient portals); (2) continuity of care; (3) comprehensive care (e.g., care transitions and community resources); (4) team-based care; (5) care coordination and management (e.g., coordination of care transitions, patient education, medication management/adherence support, and care planning); (6) a systems-based approach; and (7) reimbursement for traditionally non-billable services (e.g., care coordination) (Arend et al., 2012). These features augment primary care by aligning the process of care delivery with the needs of the patient (Arend et al., 2012).

PCMHs assign each patient a personal primary care physician (PCP) to facilitate patient-centered, comprehensive, coordinated, and accessible care. Access to preventive care may be improved by ensuring PCPs are a patient's first point of contact, having the same PCP at each visit, and allowing the PCP to lead the care team to facilitate comprehensive and coordinated care. Having a personal PCP (i.e., a usual source of care) is associated with receipt of preventive care by fostering a patient-provider relationship, which enables the provider to advocate for receipt of preventive care (Larson & Correa-de-Araujo, 2006; Weinhold & Gurtner, 2014). Because rural patients report fewer healthcare visits per year and are less likely to have a usual source of care (Larson & Fleishman, 2003), it is essential to identify perceptions and possible barriers to routine primary care visits among rural-residing populations. Therefore, in the rural context, the primary purpose of this paper is to identify the association between believing that a personal PCP can help improve healthcare access and actually receiving a routine primary care visit.

Methods

Procedures

Data were collected using an internet-delivered questionnaire from workers who were ages 18 years or older and lived in a rural ZIP code as defined by the Federal Office of Rural Health Policy throughout the US. Within the framework of the Andersen model (Andersen & Newman, 2005; Andersen, 1995) the questionnaire was developed to understand patients' perspectives about the five core components of a PCMH and whether they may: (1) enhance access to primary, specialty, and preventive care; (2) enable patients to improve or maintain their health; and (3) assist patients to manage a chronic condition (if applicable). Items were developed to gain patient perspectives about the role and importance of having a personal PCP in relationship to the three questionnaire components. The survey defined a personal primary care provider as:

> Your **personal primary care provider** is the person you contact **first** when you need health care. Ideally, this is the provider that you see **every time** you visit your primary care practice. By receiving **continuous, long-term** care

from your personal primary care provider, they will get to know you and your unique health care needs. A personal primary care provider will **care for all of your health care needs**. If they are unable to care for you, your personal primary care provider will **coordinate and arrange** for you to receive the care you need.

The questionnaire also included items related to patients' health status, demographics, health beliefs and practices, and healthcare access. These questions were adapted from the Medical Expenditure Panel Survey, the National Health Interview Survey, the Behavioral Health Risk Factor Surveillance System, Stepanikova et al.'s (2006) "Patients' race, ethnicity, language, and trust in a physician," and the General Social Science Survey (Stepanikova et al., 2006).

Amazon Mechanical Turk (MTurk) was commissioned to recruit participants and administer the survey. The survey methodology was designed using recommendations proposed by Dillman, Smyth, and Christian (2014), which aim to reduce total survey error by minimizing coverage error, sampling error, non-response error, and measurement error (Dillman et al., 2014). The survey was deployed from March 17, 2020 through April 16, 2020 on the Qualtrics platform. The resulting analytic sample size for this study is 173 rural-residing patients. Institutional Review Board approval was obtained prior to the study.

Measure*s*

Annual Routine Checkup: The dependent variable was whether the participant had a routine checkup in the past year. Participants were asked, "About how long has it been since you last visited a health care provider for a routine checkup?" Routine primary care was defined in the survey as "a general physical exam, not an exam for a specific injury, illness, or condition." Response choices included "within the past year," "within the past two years," "within the past 5 years," and "5 or more years," which were dichotomized to indicate the participant had a routine checkup in the past year (i.e., no, yes).

Belief about Personal PCP: A principal axis exploratory factor analysis with varimax rotation was used to identify salient questionnaire items to determine participants' belief that a personal PCP can improve access to primary and preventive care and therefore improve health**.** Three items were strongly loaded to this factor, which included: "A personal primary care provider would help me to access primary care," "A personal primary care provider would help me to access preventive care," and "A personal primary care provider would help me to improve my physical health." Response choices ranged from "strongly disagree" (scored 1) to "strongly agree" (scored 5). Responses from these three items were summed to create a composite score ranging from three to 15, with higher scores indicating stronger beliefs that a personal PCP can improve access to primary and preventive care. The Cronbach's alpha coefficient for this scale in the current sample was 0.902.

Covariates: Other covariates in the analyses included participants age group (ref=18-24), sex (ref=male), insurance status (ref=not insured), travel distance to obtain primary care (ref = <5 miles), and wait time to schedule a primary care appointment (ref=same day).

Statistical Analyses

Descriptive statistics were calculated for all variables of interest, which were then

compared with whether the participant had a routine checkup. Chi-square tests were used to identify proportional differences for categorical variables. A logistic regression model was fitted to assess factors associated with receipt of a routine checkup within the past year. Not having a routine checkup in the past year served as the referent category. The primary predictor of interest was the belief that a personal PCP can improve access to primary and preventive care and therefore improve health. The model also adjusted for age, sex, insurance status, distance to primary care, and typical wait time for a primary care appointment. All analyses were conducted using Stata 17 SE.

Results

Of the 172 participants, 58.72% received a routine checkup in the past year. Most participants were age 25-34 (51%), male (53%), and insured (84.5%). About one-third of participants (31%) traveled five to nine miles to their primary care clinician, and 38% reported waiting two days for a primary care appointment. When comparing sample characteristics by routine checkup status, a significantly larger proportion of older participants (χ^2=17.38, p=0.004), females (χ^2=10.63, p=0.001), and those with insurance (χ^2=10.31, p=0.001) reported having a routine checkup in the past year. On average, those who did not have a routine checkup in the past year traveled longer distances for primary care (χ^2=9.80, p=0.020).

Logistic regression results are presented in Table 1. Participants with stronger beliefs that a personal PCP can improve access to primary and preventive care were significantly more likely to receive an annual routine checkup (AOR=1.21, p=0.003). Participants who were insured (AOR=5.16, p=0.003) were significantly more likely to receive an annual routine checkup. Conversely, those who travelled farther distances to see a primary care provider were less likely to receive an annual routine checkup (AOR=0.69, p=0.027).

Discussion

This study provides insights into the potential facilitators and barriers to routine checkups among rural-residing patients. Findings suggest that financial, geospatial, and attitudinal factors may hinder annual routine checkups with a personal PCP, which confirms findings from other studies (Douthit et al., 2015). Addressing all three of these potential barriers can have a positive impact

Table 1

Factors associated with routine checkup in past year		
	OR (CI)	**P-value**
Belief that Primary PCP can Improve Access	1.21 (1.07, 1.38)	0.003
Insured	5.16 (1.74, 15.31)	0.003
Travel Distance	0.69 (0.48, 0.99)	0.043
Wait Time for Primary Care Appointment	1.01 (0.69, 1.46)	0.977
Age	1.34 (0.95, 1.90)	0.099
Female	2.90 (1.00, 4.77)	0.027

* Referent group: Not receiving a routine checkup in past year. OR = Odds Ratio; CI = Confidence Interval

on population health by increasing access and utilization of primary care within rural populations. For example, Douthit et al. (2015) found that rural residents often face transportation challenges and long travel distances to access healthcare services, which can negatively impact their ability to attend routine checkups. Additional efforts are needed to increase healthcare availability, access, and affordability in rural settings, which may promote routine checkups and encourage additional preventive care visits. Potential strategies may include expanding telemedicine services, implementing mobile health clinics, offering transportation assistance, and providing financial incentives for preventive care visits (Buzza et al., 2011; Douthit et al., 2015). Telemedicine services can help bridge the gap in access to care by allowing patients to consult with healthcare providers remotely, reducing the need for long-distance travel (Douthit et al., 2015). Mobile health clinics can bring essential health services directly to underserved rural communities, mitigating transportation barriers (Buzza et al., 2011). Furthermore, offering transportation assistance programs and financial incentives, such as reduced copayments for preventive care visits, can help alleviate financial burdens and encourage rural residents to prioritize routine checkups (Buzza et al., 2011).

Our findings are consistent with the current body of literature, which suggests that women are more likely than men to have a regular source of care (Bertakis et al., 2000; Long et al., 2021; Sandman et al., 2000). Findings also suggest that central to healthcare access and utilization are beliefs and perceptions about the role of personal PCPs as health facilitators. Additional research is needed to determine the factors associated with these beliefs and perceptions, which may include aspects of trust, concordance, and duration and continuity of care. Such research may reveal critical aspects pertaining to patient-provider communication and guide best practices to promote routine care in rural settings.

To build positive beliefs about the role of a personal PCP as a health facilitator, primary care providers should aim to build trust with their patients through a long-term relationship. Public health professionals need to emphasize the importance of establishing a personal PCP and connect established preventive services campaign toolkits (i.e., vaccinations) to the role that a personal PCP can play in ensuring a person is up to date on their preventive care.

Limitations

The limitations of this study include data collection during a global pandemic, which may have impacted healthcare accessibility and perceptions. The sample size was relatively small, limiting generalizability. There is the potential for selection bias due to the use of Amazon MTurk for data collection and possible social desirability bias in participant responses. The cross-sectional nature of the study prevents establishing causal relationships. While the focus of this study was receipt of routine checkups, the type of provider was not examined. Future studies should assess if the type of healthcare professional is associated with receiving routine checkups in rural communities (e.g., primary care provider, geriatrician, obstetrician/gynecologist, emergency medicine provider, specialist). Additional variables were included in the study survey that may have provided valuable information about utilizing routine checkups (e.g., transportation barriers). However, these variables were omitted due to limited endorsement, which would have hindered our ability to make meaningful comparisons.

Implications for Health Behavior Research

The findings of this study have important implications for health behavior research in rural populations. Future research should focus on exploring the complex interplay between financial, geospatial, and attitudinal factors that influence routine checkup behaviors among rural residents. This could involve investigating the effectiveness of interventions designed to address these barriers, such as telemedicine services, mobile health clinics, transportation assistance programs, and financial incentives for preventive care visits. Additionally, researchers should examine the role of patient-provider communication and trust in shaping attitudes towards routine checkups and preventive care. Qualitative studies exploring rural residents' experiences, perceptions, and decision-making processes related to routine checkups could provide valuable insights to inform the development of tailored interventions. Furthermore, future research should consider the heterogeneity within rural populations and investigate how factors such as socioeconomic status, race/ethnicity, and health literacy may intersect with rurality to influence health behaviors. By addressing these research priorities, health behavior researchers can contribute to the development of evidence-based strategies to promote routine checkups and preventive care among rural populations, ultimately improving health outcomes and reducing health disparities.

Furthermore, our findings highlight the importance of continuity of care and the establishment of a strong relationship between a patient and their personal primary care provider in rural communities. Interpersonal continuity of care, which is seeing the same provider each time a patient is seen in a clinic, may foster the receipt of a routine visit on an annual basis by breaking down some of the barriers that rural persons encounter when trying to access care (Saultz, 2003). There may be important differences in beliefs regarding a personal primary care provider among different disease states, comorbidities, and other patient nuances. Furthermore, there are stark differences in rural designation that should be further explored as developing a relationship and establishing continuity of care with a personal primary care provider may be more feasible in certain types of rural communities, such as those designated as being adjacent to an urban area.

Discussion Question

Our findings suggest that patients' perceptions of their primary care provider as their "personal" provider plays an important role in enabling access to routine primary care on an annual basis. Given the need for greater team-based care in primary care, what strategies can be employed to (1) enhance the idea that a primary care clinician can serve as a "personal" primary care provider to each patient and (2) create a sense of shared responsibility of care.

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