

Mitigating primary care provider burnout with interdisciplinary dyads and shared care delivery

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Abstract

Rationale, aims and objectives: Increased incidence of chronic illnesses coupled with physician shortages have yielded strain on primary care providers (PCP) to meet care demands. Interdisciplinary providers such as nurse practitioners and physician assistants have increasingly been embedded into primary care teams to alleviate some workload demand. Little evidence exists about the impact of interdisciplinary PCP care delivery models on provider outcomes. The objective of this study was to investigate the impact of interdisciplinary PCP care delivery on provider burnout, job satisfaction and intention to leave current position. Methods: We conducted a cross sectional mail survey using Dillman methodology of primary care practices (e.g., internal medicine) across New York State. A random sample of interdisciplinary PCPs (physicians, nurse practitioners, and physician assistants) (n=333) responded. The Provider Co-management Index ($\alpha = .85$) was used to measure how well interdisciplinary dyads co-management care delivery attributes (effective communication; mutual respect and trust; shared philosophy of care). Provider outcomes were measured with validated AHRQ and HRSA items for burnout, job satisfaction and intention to leave position. Descriptive statistics, logistic regression models, crude and adjusted odds ratios were calculated, controlling for participant and practice characteristics. Results: Almost 30% of participants reported burnout with three times the odds of intending to leave their current position within one year. With each unit increase in effective co-management between interdisciplinary dyads there was 15% less burnout and 10% less odds of intention to leave position. Conclusion: Incorporating interdisciplinary specialties in primary care appears promising to alleviate some adverse provider outcomes. Organizations contemplating delivery models to promote well-being and retention may consider co-management. Cost effectiveness research is needed to determine financial sustainability of interdisciplinary care delivery.

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Short Title: Interdisciplinary primary care dyads

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Abstract

Rationale, aims and objectives : Increased incidence of chronic illnesses coupled with physician shortages have yielded strain on primary care providers (PCP) to meet care demands. Interdisciplinary providers such as nurse practitioners and physician assistants have increasingly been embedded into primary care teams to alleviate some workload demand. Little evidence exists about the impact of interdisciplinary PCP care delivery models, including provider relations and cohesiveness, on provider outcomes. The objective of this study was to investigate the attributes and impact of interdisciplinary PCP care delivery on provider burnout, job satisfaction and intention to leave current position.

Methods: We conducted a cross sectional mail survey of primary care practices (e.g., internal medicine) across New York State using Dillman methodology. A random sample of interdisciplinary PCPs (physicians, nurse practitioners, and physician assistants) (n=333) participated. The *Provider Co-management Index* ($\alpha = .85$) was used to measure interdisciplinary dyad attributes (effective communication; mutual respect and trust; shared philosophy of care). Provider outcomes were measured with validated AHRQ and HRSA items for burnout, job satisfaction and intention to leave position. Descriptive statistics, logistic regression models, crude and adjusted odds ratios were calculated, controlling for participant and practice characteristics.

Results: Almost 30% of PCPs in our sample reported burnout with three times the odds of intending to leave their current position within one year. With each unit increase in effective co-management between interdisciplinary dyads there was 15% less burnout and 10% less odds of intention to leave position.

Conclusion: Incorporating interdisciplinary specialties in primary care appears promising to alleviate some adverse provider outcomes. Increased attention to interpersonal relations within a PCP dyad may be a targeted method to promote well-being and retention. Cost effectiveness research is needed to determine financial sustainability of interdisciplinary care delivery that includes more than one provider co-managing the same panel of patients.

Key Words: Burnout, teamwork, primary care, nurse practitioner, physician assistant, philosophy of medicine

Introduction

Primary care workforce shortages, rising healthcare spending, limited patient access to care, and the epidemic of chronic diseases have imposed a strain on the U.S. primary care system. ¹⁻³As of 2021, it is estimated that more than half of Americans are living with at least one chronic disease and need timely and high-quality primary care to manage their conditions.⁴ Further increasing care delivery complexity, one study estimates that upward of 26% of Americans have multiple chronic conditions.⁵ Increased demand for primary care services is complicated by a workforce supply deficit that is expected to worsen substantially by 2030.³ A lack of providers to meet the demand for primary care creates additional workload for existing PCPs by expanding the number of patients each PCP is expected to manage. For over a decade, some researchers

estimate that an individual PCP would require an unrealistic amount of time (~21.7 hours each day) to deliver all recommended care to patients in an average size patient panel.⁶ As PCP supply and time spent with a patient during a clinical encounter decreases, the increased risk of omitting important care management tasks jeopardizes patient safety and may reduce the quality of care.⁷ Consequently, primary care delivery is a rapidly changing landscape of technology, regulatory policies, and care delivery models that some suggest have exacerbated the incidence of PCP burnout.^{8, 9}

Burnout is a condition in which extended periods of workplace stress lead to feeling emotionally exhausted, exhibiting negative thought patterns, and increased unhappiness with work.¹⁰ Prior to the current COVID-19 pandemic, nearly half of PCPs report burnout symptoms with higher burnout rates in primary care compared to other medical specialties.¹¹ A recent systematic review found that burnout is prevalent among PCPs, up to 60% in one study, across the health continuum including small community practices and Veteran Affairs (VA) clinics.¹² Historically, literature about burnout has focused predominantly on the physician workforce and the impact of physician burnout can lead to suboptimal quality of care and patient clinical outcomes.^{13, 14} Current literature fails to capture burnout in other types of interdisciplinary primary care workforce including nurse practitioners (NPs) and physician assistants (PAs). New evidence is slowly emerging with one recent study of NP burnout that found prevalence rates as high as 25%, and comparable to physicians.¹⁵ Evidence about PA burnout in primary care is scarce.

The deleterious effects of burnout are not however limited to patient outcomes. There is increased evidence that burnout yields adverse provider-level effects including suicidality, depression, limited self-care, decreased productivity, unprofessional behavior and low workforce retention rates.^{12, 16} At the organizational- and system-level, there are financial consequences as well with burnout noted as the largest factor contributing to whether or not physicians would leave their current practice.¹⁷ Medical systems are then left with the burden of cost to replace these physicians; and recent reports estimate that replacing a physician can cost up to \$1 million.^{18, 19} In response, policy makers, clinicians, and researchers have called for novel strategies and care delivery models to combat burnout and improve clinician wellness.²⁰ One promising approach is the increase of team-based, shared care, where multiple disciplines work together to meet the demand for high quality and efficient primary care services.

Provider co-management is one proposed team-based model to improve primary care delivery outcomes²¹ and is defined as two or more providers (interdisciplinary dyads) sharing the responsibility of care management tasks for the same patient.^{22, 23} In this model, providers perform tasks autonomously but collectively contribute care demands needed to manage the same patient's diagnoses, care management needs, and plan of care. The earliest evidence of the effectiveness of provider co-management emerged from acute care settings. One study found that co-management improved the clinical outcomes of surgical patients co-managed by surgeons and medical attending physicians.²⁴ Co-management has also been found to improve clinical patient outcomes and increase provider adherence to recommended care guidelines.²⁵ Given that the largest number of patient encounters occur in a primary care setting, and with the increase in patients living with at least one chronic condition, an investigation of the impact of provider co-management in primary care is warranted. Further, with the rise of interdisciplinary PCPs, including NPs and PAs, working alongside physician colleagues, interdisciplinary provider teams that co-manage patients may be a feasible strategy to alleviate burnout and improve job satisfaction.²⁶

As more primary care practices are adopting an interdisciplinary team model, where two types of disciplines (e.g., physicians and NPs) are co-managing patient care demands, the interaction between providers may influence and potentially mitigate some aspects of burnout and job dissatisfaction. Thus, the purpose of this study was to explore the impact of interdisciplinary PCP co-management, and related attributes, on provider outcomes including burnout, job satisfaction, and intention to leave current position.

Theoretical Model

This study was guided by Norful et al.'s, (2018) co-management conceptual model. The model outlines the antecedents, dimensions, and potential consequences of interdisciplinary dyads working together to share

care delivery responsibilities for the same patient. The model was the basis for measuring the effectiveness of co-management in a primary care setting and the measure selected to scale co-management is built upon the model's dimensions. The dimensions include a shared philosophy of care, effective communication, and mutual respect and trust.

Shared Philosophy of Care

Providers working in a co-management dyad must have alignment on fundamental patient care plan and goals. As decisions are made autonomously, each provider relies on the other to complement their care practice. A shared philosophy of care extends to conflict resolution. Navigating disagreements requires that providers agree upon a protocol for managing differences in patient care decisions and work burden.

Effective Communication

The horizontal nature of co-management makes effective communication essential. Each provider must be fully aware of not only the other's care decisions, but also the rationale and goal for that decision. Communication in the provider space can occur through a variety of methods, such as in Electronic Health Record (EHR) notes, text messaging, or direct phone calls. In any modality, timeliness and clarity are essential.

Mutual Respect and Trust

Mutual respect and trust between providers sustain the co-management care model and are the basis by which providers can rely on each other's decisions. Without this dimension, providers may find themselves increasing their care responsibilities by double-checking each other's work, shouldering the majority of care, and inhibiting necessary communication. Unlike the other two dimensions, respect and trust will not remain static. An ideal co-management dyad will have growth in respect and trust between providers, building on the relationship over time.

Methods

The study was approved by Columbia University Irving Medical Center's Institutional Review Board (IRB). We conducted a cross sectional mail survey of PCPs (physicians, NPs, and PAs) in New York State (NYS) using Dillman methodology.²⁷ PCP names and practice addresses were obtained from IQVIA, the largest provider reference database in the US.²⁸ We randomly selected a group of physicians, NPs, and PAs from practices that met the following criteria: 1) outpatient practices identified as primary care, internal medicine, or family medicine; 2) practices with at least 2 providers; 3) providers classified as the following (NP-adult health, family, gerontology, or primary care²⁹; Physicians-internists, family physicians, or geriatricians³⁰; PA: primary care). The following practices were excluded: 1) university-based/student health; 2) medical specialty (e.g. obstetrics; dermatology); 3) single provider practices; 4) practices outside NYS. The mailings consisted of a cover letter explaining the purpose of the study; consent form listing potential risks and benefits and contact information for the research team and IRB, a paper version of the survey, and prepaid return envelope. Using the *Dillman* method for mailed surveys, non-respondents received a reminder postcard approximately 3 weeks after the first mailing.²⁷ Each survey had an individual PCP identification number assigned to it to track respondents. Postcard reminders were sent after 3 weeks and then a second survey was sent to non-respondents. At the end of each survey, participants were invited to provide their email address for voluntary participation in a lottery for one of thirty *Fitbit* wireless activity trackers. Incentives have been found to improve return rates.^{31, 32}

Survey Measures

PCPs were asked to complete a demographic form including age, gender, race, job title, education, work experience, and certification type. Next, we asked questions regarding practice characteristics including geographic setting (e.g. urban), practice size (# PCPs), patient volume, practice ownership, patient panel size, average number of hours worked per week.

The *Provider Co-Management Index (PCMI)*³³ was used to measure co-management. PCMI, a 20-item instrument, asks clinicians to rate the presence of co-management characteristics in their practices. For example, “My co-managing provider and I communicate patient needs in a timely manner.” A 4-point Likert response scale from “*strongly agree*” (4) to “*strongly disagree*” (1) is used. Researchers have determined PCMI subscales have high internal consistency reliability: 1) Effective Communication ($\alpha=.811$); Mutual Respect and Trust ($\alpha=.746$); and Shared Philosophy of Care ($\alpha=.779$). Higher mean scores on each subscale indicate better provider co-management. A mean score for the overall scale was computed.

Job Satisfaction and Intention to Leave Current Position were measured using 2 items, previously validated in large scale surveys.³⁴ Job satisfaction was captured via, “What is your overall level of satisfaction with your principal position?” This item uses a 4-point Likert response category ranging from “Very Satisfied” to “Very Dissatisfied”. Intention to leave current position was measured using the item, “Do you plan to leave your principal position?” The response categories were also categorical: “Yes, plan to leave in 1-2 years,” “No plans to leave in next 2 years,” and “Undecided”. Burnout was measured using an item from the *Mini-Z burnout study*³⁵ via the AHRQ public domain. Categorical response options range from “I enjoy my work. I have no symptoms of burnout” to “I feel completely burned out and often wonder if I can go on.”

Statistical Analysis

Normality of continuous variables was checked through the Shapiro–Wilk tests. Sample characteristics were analyzed and presented as medians and interquartile ranges (IQR) for continuous variables, and absolute and relative frequencies (%) for categorical variables. Differences between disciplines were evaluated using the Kruskal-Wallis tests for continuous variables and Chi-squared tests for categorical variables. Logistic regression models were built to assess the relationship of the Provider Co-Management Index (PCMI) and its subscales with the provider burnout related outcomes which are self-reported burnout, job satisfaction and intention to leave. Crude odds ratios (COR) and its 95% confidence interval (CI) were obtained from bivariate logistic regression models. Adjusted odds ratios (AOR) were obtained from multivariable logistic models controlling for all related sample demographics and practice characteristics. P values were attained from Wald tests. Two-sided statistical tests were performed with the significance level set at P [?] 0.05 using the R software package (v. 3.6.2).

Results

Out of 355 returned surveys, 333 eligible participants in total were analyzed after assessing for missing data. The final sample consisted of 158 (47.4%) nurse practitioners, 96 (28.8%) physicians, and 79 (23.7%) physician assistants. The demographics and practice characteristics of the study population are shown in Table 1. The median age overall was 55 years old with IQR (44, 62). The median years of experience overall was 20 with IQR (12, 29). 285 (86.4%) of them were white. 12 (3.6%) of them were Hispanic. 248 (74.9%) were female. Most of them (166 (50.0%)) worked in the provider-owned practice. 187 (56.5%) of them had been worked for 10 years or more. 190 (58.1%) worked part-time. 198 (61.1%) of them worked in the co-managing panel.

Predictors and outcomes

Provider Co-Management Index (PCMI) scores did not differ between disciplines (Table 2). The overall median PCMI score was 73 with IQR (61, 79). The overall median effective communication score was 26 with IQR (22, 28). The overall median mutual respect & trust score was 23 with IQR (19, 24). The overall median shared philosophy of care score was 25 with IQR (21, 28). Most of them (about 75%) felt well-comanaged with each other, although among them, a few agreed with effective co-management instead of strongly agreed.

Provider burnout related outcomes including self-reported burnout, job satisfaction and intention to leave were not different between disciplines (Table 2). 92 (28.0%) of the study population felt burnout at work. 98 (29.7%) felt dissatisfied with the current job. 55 (17.0%) planned to leave the current position in the next year.

Table 3 shows the results of unadjusted and adjusted models that estimated the associations of self-reported burnout with job satisfaction or intention to leave. Partially adjusted models controlled for necessary sample demographics including occupation, age, race, gender and years of experience. Fully adjusted model further controlled for necessary practice characteristics including office setting, length of work experience and work type. In the unadjusted models, compared to participants who did not report burnout, those who reported burnout had 71% less odds of feeling satisfied with job (COR: 0.29, 95% CI: 0.17, 0.48). Similarly, participants who reported burnout had more than three times the odds of planning to leave the current position in the next year compared to those who did not report burnout (COR: 3.12, 95% CI: 1.71, 5.70). Estimates in both adjusted models remained similar to those in the unadjusted models. Self-reported burnout was found to be significantly associated with providers' satisfaction with job and intention to leave.

The results of unadjusted and adjusted models that estimated the associations of PCMI with Provider Burnout Related Outcomes were shown in Table 4. Both PCMI and its subscales were evaluated. In the unadjusted models, each unit increase in the total PCMI score was associated with 6% less odds of self-reported burnout (COR: 0.94, 95% CI: 0.91, 0.96) and 4% less odds of planning to leave the current position in the next year (COR: 0.96, 95% CI: 0.93, 0.98). In addition, each unit increase in the total PCMI score was associated with 1.05 times the odds of feeling satisfied with job (COR: 1.05, 95% CI: 1.02, 1.07). The magnitude of effect became larger when looking at PCMI subscales. Each unit increase in one PCMI subscale was associated with about 15% less odds of self-reported burnout and about 10% less odds of planning to leave the current position in the next year. Each unit increase in one PCMI subscale was also associated with about 1.13 times the odds of feeling satisfied with job. Consistently, estimates in both adjusted models remained similar to those in the unadjusted models. Higher effective co-management which was reflected by higher PCMI score was found to be significantly associated with less provider burnout related outcomes.

Discussion

This study investigated the impact of provider co-management on self-reported burnout, job satisfaction, and intention to leave current position. Almost 30% of our PCP sample reported experiencing burnout and job dissatisfaction, irrespective of PCP discipline. While this number is high, it appears that PCPs that co-manage patients in our study have less burnout than previously reported at the national level.³⁶ (Peckham C. Medscape National Physician Burnout & Depression Report, 2019) Our findings further indicated that PCPs reporting high levels of effective co-management between their clinical colleagues had significantly less burnout, job dissatisfaction and intent to leave current position compared to those reporting poor co-management. Co-management care delivery models may be a promising approach to help alleviate some burnout causes.

A myriad of work environment characteristics (e.g. EHR, liability risk) have been found to influence a provider's burnout risk.³⁷ The variability of work environments, team compositions, and policies in practices warrants a closer look and potentially should be investigated at the individual practice level. For example, emerging evidence has concluded that each environment where clinicians practice has its own unique culture.³⁸ It may be important to develop burnout-mitigation initiatives that are not a "one-size-fits-all" strategy, but rather focused on the individual teams and clinician dyads, inclusive of their workflow, relations, expertise, and resources. The co-management theory itself focuses on provider-provider dyads and promotes a shared clinical alignment with effective communication strategies and trust.²³ More attention to individual provider dyads may be more effective at mitigating stress-induced burnout in primary care rather than focusing on the whole team. Measuring co-management between such dyads may allow clinicians, policymakers, and administrators to strategically place specific providers together to subsequently have better outcomes.

It is also important to note that majority of previous studies have focused on physician burnout and existing evidence about NP and PA burnout are limited. More and more clinical teams are made up of interdisciplinary dyads yet there is limited evidence about the impact of such hybrid compositions. NPs make up the fastest growing workforce in the United States with almost 90% of NPs are board certified in primary care.³⁹ As the demand for primary care services increases, due to an aging population, physician supply shortages,

and the complexity of chronic co-morbidities, the increase in NPs entering primary care and co-managing patients with physicians will likely increase. Future research about how well physicians, NPs, and PAs co-manage patients is needed to inform clinical practice and policy in an effort to optimize co-management care delivery.

There are limitations to this study. We used a cross sectional design that captures only a snapshot of the multifaceted variables that measure co-management and burnout outcomes. Our sample was also limited to one US state and PCPs in other states may report different results. More research is needed across a wider geographic sample. However, New York State includes the varying scope of practice policies that are consistent across most US states for NPs and PAs (e.g., independent, collaborative and restricted written practice agreements). We were also isolate practice-specific policies that may influence shared care. However, given the known variability of policies at the organizational-level, our sample captured real-world evidence of existing co-management care delivery models. We recommend that future research should compare practices that are dose-matched in regards to team compositions, resources, practice size, and provider-type. Given the detrimental impact of burnout on PCPs, patients, and the healthcare system, PCMI measures and addressing co-management facets is an essential step in reducing workforce stress, burden, and improving the quality of care for patients.

Conclusion

The incorporation of interdisciplinary primary care providers to manage the same patient, exhibits a promising approach to alleviating PCP burnout, job dissatisfaction and intention to leave current position. More research, including comparative and cost effectiveness studies, are warranted to understand fiscal sustainability and quality of care outcomes.

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Conflict of interest statement for all authors:

The authors declare no conflict of interest.

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