



Providers' Social Determinants of Health, Burnout, and Efficacy Addressing Patients' Social Determinants of Health Needs

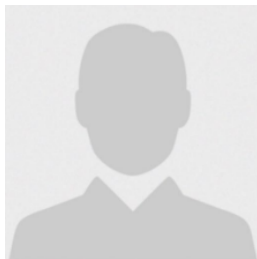


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Abstract



Keywords

*clinical efficacy;
healthcare providers;
professional degree;
provider burnout;
social determinants of
health;*

Healthcare provider burnout and the capacity to address patients' social determinants of health are critical issues in modern medical systems. This study investigated the relationships among providers' personal social determinants of health (Prov-SDH) needs, burnout, and perceived efficacy in addressing patients' social determinants of health (Pt-SDH) needs. Using a sample of 149 healthcare professionals, the study examined how individual Prov-SDH factors, professional degree, clinical setting, and years of practice influenced these outcomes. Statistical analyses revealed no significant correlation between providers' current or lifetime Prov-SDH needs and their reported burnout symptoms or Pt-SDH-related efficacy. However, results indicated that lifetime Prov-SDH needs varied significantly by professional degree, with Physician Assistants reporting the highest needs and Social Workers and Psychologists reporting the lowest. These findings suggest that the specific global Prov-SDH variables measured here were not significant predictors of burnout, while systemic workplace barriers appeared more closely related to perceived Pt-SDH efficacy. The results also support the need for provider-specific measurement tools that better capture interpersonal, intersectional, and higher-SES forms of strain.

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1 Introduction

Healthcare Providers' Social Determinants of Health (Prov-SDH)

Social determinants of health (SDH) are the nonmedical factors that influence health outcomes and meaningfully shape quality of life, health, and longevity (World Health Organization, 2023). In this study, the term applies to both providers and patients. To distinguish the two, Prov-SDH refers to providers' personal social determinants of health, whereas Pt-SDH refers to patients' social determinants of health needs. Both Prov-SDH and Pt-SDH can affect healthcare experiences, outcomes, costs, and providers' work-life quality (Byhoff et al., 2018). Providers' Prov-SDH needs may contribute to the prevention or development of burnout, and burnout has been linked to providers' perceived efficacy in addressing patients' Pt-SDH needs (Kung et al., 2019). However, the relationship between providers' Prov-SDH and their ability to address patients' Pt-SDH needs remains unclear. Research on providers' Prov-SDH has also tended to focus more narrowly on work-setting factors than on global Prov-SDH factors outside the workplace. Accordingly, this study examined the relationships among providers' global Prov-SDH factors, burnout, and perceived efficacy in addressing patients' Pt-SDH needs.

Healthcare Provider Prov-SDH and Burnout

Experiencing extreme stress over prolonged periods can result in emotional, physical, and mental exhaustion, poorer work performance, and more negative evaluations of self and others, collectively referred to as burnout (Schaufeli & Greenglass, 2001; Shirom, 2003). For this study, healthcare providers were professionals who provided healthcare services to patients. These providers bear substantial responsibility for patients' well-being, and the burden of that responsibility fluctuates in response to both personal and systemic factors.

Many factors within the healthcare field contribute to burnout as a result of the systemwide trend toward assembly-line healthcare, including: increased screen time, administrative and bureaucratic work, a focus on productivity, long work hours, decreased work-life integration, low leadership support, lack of meaningful work, low collegiality, poor individual and organizational alignment of values, and low work control (Singh et al., 2023). These factors have become ingrained in U.S. healthcare systems and affect providers across degrees, specialties, settings, and years of experience, with 45% to 50% of physicians, nurses, and nonclinical healthcare staff reporting burnout symptoms (Rotenstein et al., 2023).

Providers also experience factors outside of their professional roles that contribute to their overall health. These external factors include education access and quality, healthcare access and quality, social and community context, economic stability, and neighborhood and built environment (Centers for Disease Control and Prevention, 2024). These nonmedical conditions and the broader forces that shape daily life are commonly described as social determinants of health (World Health Organization, 2023).

SDH accounts for a far greater proportion of health and life expectancy than healthcare alone, with some estimates attributing 30% to 55% of health outcomes to SDH and roughly 10% to healthcare services (McGinnis et al., 2002; World Health Organization, 2023). In recent years, increasing inequities in SDH have contributed to widening disparities in health outcomes and life expectancy (Byhoff et al., 2018). Providers

encounter the effects of these inequities in their personal lives as well as in their work, where they are increasingly asked to address patients' Pt-SDH needs.

However, providers who report greater support and more resources for addressing patients' Pt-SDH needs also report lower levels of burnout (De Marchis et al., 2019; Kung et al., 2019). This relationship underscores the importance of functional and dynamic systems in which clinicians are empowered to address patients' Pt-SDH needs by adjusting treatment when needed and connecting patients with appropriate resources.

Efforts to Address Patients' Social Determinants of Health (Pt-SDH)

There appears to be a broad consensus within healthcare regarding the importance of addressing patients' Pt-SDH needs. In a study of 193 providers in primary care settings, Kostelanetz et al. (2022) found that 93% of providers reported routine patient screening for social needs and 97% reported using that information in medical decision planning. Developing effective ways to address Pt-SDH needs can reduce health inequities and healthcare costs while improving population health and provider quality of life (Byhoff et al., 2018). However, although addressing Pt-SDH needs appears to be a widely accepted goal, doing so consistently and effectively remains complicated.

The growing recognition that SDH shapes patients' health outcomes has prompted efforts to identify and address patients' unmet Pt-SDH needs more effectively and holistically (Berkowitz et al., 2016; Iott et al., 2022). These efforts include increased research on the topic, expanded curricular content in health professions education, development and integration of SDH screeners into electronic health record systems, and stronger referral networks (De La Vega et al., 2019; Byhoff et al., 2018; Institute of Medicine, 2016; Khan et al., 2023; Siegel et al., 2018). Although these efforts are intended to reduce the burden on providers by increasing treatment efficiency and addressing underlying causes of health conditions, the added duties may also be neutral or even negative for both providers and patients (Byhoff et al., 2018; Kostelanetz et al., 2022). A central concern is that interventions for addressing Pt-SDH needs may create additional work for already overburdened providers, worsening burnout and quality of care, and potentially perpetuating, rather than resolving, inequities.

Barriers to Addressing Pt-SDH

Research on how to address patients' Pt-SDH needs consistently evaluates the barriers to successfully implementing interventions. The positive feedback loop involving Pt-SDH inequities and provider burnout makes effective intervention difficult because the issues being addressed may function as both causes and effects. For example, a provider who is consistently pressed for time may struggle to address anything beyond a patient's presenting concern, yet the high prevalence of patients with unmet Pt-SDH needs also contributes to providers' time scarcity (Kung et al., 2019; Leung et al., 2019).

Barriers to addressing Pt-SDH needs also differ by role. Social workers consistently report fewer barriers than other clinicians, such as having more time to gather information about patients' Pt-SDH needs and greater knowledge of relevant resources (Kostelanetz et al., 2022; Naslund & Miner, 2007). Additional barriers cited by other clinicians include inadequate training to assess Pt-SDH needs, difficulty navigating and connecting patients to resources, and the emotional discomfort associated with limited capacity to address patients' Pt-SDH needs (Kung et al., 2019). Unequal distribution of these barriers across healthcare roles may also lead providers to place disproportionate responsibility on some professions more than others (Kostelanetz et al., 2022).

Furthermore, the relationships among providers' Prov-SDH, burnout, and efficacy in addressing patients' Pt-SDH needs do not exist in a vacuum and are likely moderated by a variety of other factors. These factors may include education, years of practice, professional degree, specialty, and clinical setting (De Marchis et al., 2019; Kung et al., 2019; Ortega et al., 2023; Siegel et al., 2018). Understanding the moderating roles of these variables may help clarify how providers' Prov-SDH, burnout, and Pt-SDH-related efficacy influence one another.

Education

In recent decades, medical programs and professional societies have increasingly emphasized the importance of SDH in their curricula and advocacy efforts (Siegel et al., 2018). However, students' exposure to SDH

curricula varies considerably in scope and often focuses only on selected factors, such as race or homelessness, without situating them within the broader SDH framework (Sharma et al., 2018; Kivits et al., 2013). Data on the effectiveness of SDH curricula remain limited because studying their impact is time-intensive and methodologically complex, with many confounding variables, limited standardization, and recent cohort-level changes such as COVID-19 (Institute of Medicine, 2016). Existing findings are mixed. Some studies suggest SDH curricula improve knowledge, awareness, and attitudes (Khan et al., 2023; Sharma et al., 2018), whereas other work indicates that passive learning alone may be insufficient to improve patient outcomes (Institute of Medicine, 2016). Additional research is therefore needed to clarify how education affects providers' capacity to address patients' Pt-SDH concerns.

Years of Practice

Unfortunately, there is a dearth of research examining the relationship between providers' years of experience and their ability to address patients' Pt-SDH needs. Because SDH content has been integrated more systematically into health professions education only relatively recently, years of practice may influence providers' knowledge of and appreciation for Pt-SDH factors in treatment. At the same time, more experienced providers may develop more effective ways of addressing these issues by building stronger referral networks, developing clinical instincts, and clarifying the boundary between their scope of practice and relevant Pt-SDH factors. Continuing education may also mitigate cohort differences among providers whose initial training predated widespread SDH integration.

Degree and Socioeconomic Status

A provider's degree also influences socioeconomic status (SES), which may shape providers' Prov-SDH needs, particularly with respect to healthcare access, environmental exposures, and health behaviors (Adler & Newman, 2002). However, income varies within degree types as a function of specialty, years of experience, gender, and race. Within physician positions, for example, White male physicians have been shown to earn more than Black colleagues, while female physicians earn less than their male counterparts (Ly et al., 2016; Whaley et al., 2021). Similar disparities have been documented across other health professions (Frogner & Schwartz, 2021; Sentell et al., 2001). SES is widely understood to be an influential predictor of physical and psychological health (Wang & Geng, 2019). Accordingly, wage and status differences associated with degree and demographic variables may contribute to inequities in providers' Prov-SDH needs, thereby affecting providers' personal and professional lives.

A provider's degree also determines role expectations within the healthcare system, including the extent to which that role is expected or equipped to address patients' Pt-SDH needs (Kostelanetz et al., 2022; Palacio et al., 2018). Some disciplines are more directly trained and positioned to address Pt-SDH needs than others; however, these factors remain relevant to every area of practice because of their pervasive impact on patient health. Although addressing Pt-SDH needs is not equally central to every provider's scope of practice, high-quality care still requires consideration of how such needs may affect treatment.

Specialty/Setting

Research suggests that individuals with greater SDH needs access specialty care at lower rates and acute care services, such as emergency department or hospitalization services, at higher rates than individuals with fewer SDH needs (Kushel et al., 2006; Lueckmann et al., 2021). However, the support providers receive for addressing patients' Pt-SDH needs varies substantially by setting and specialty, even though providers across settings and specialties cite similar barriers such as limited time, poor delineation of duties, liability and privacy concerns, lack of support staff and infrastructure, and insufficient training (Kostelanetz et al., 2022; Palacio et al., 2018). As a result, providers frequently shift responsibility for Pt-SDH issues to others. This is evident when specialists indicate that primary care physicians should hold greater responsibility for addressing Pt-SDH needs (Palacio et al., 2018). Such patterns may place additional pressure on acute care providers who treat patients with complex and intersecting medical and social needs.

Purpose of the Study

Burnout and Prov-SDH may have a bidirectional, positively correlated relationship in providers' lives. Providers with greater personal Prov-SDH needs, while also facing the demands of patients' increasing Pt-SDH

needs, may experience more burnout, which in turn may contribute to providers' unmet Prov-SDH needs. However, the relationship between these intersections and providers' efficacy in addressing patients' unmet Pt-SDH needs remains unclear. Accordingly, the primary aim of this study was to clarify the relationship between providers' personal Prov-SDH and burnout. The secondary aim was to examine whether providers' personal Prov-SDH affected their efficacy in addressing patients' Pt-SDH needs. Third, this study explored how Pt-SDH-related efficacy varied as a function of degree, specialty, practice setting, stage in career, and demographic characteristics.

Hypotheses:

- 1) Providers' Prov-SDH needs correlate positively with burnout symptoms.
- 2) Providers' Prov-SDH needs correlate negatively with provider efficacy in addressing patients' Pt-SDH needs.
- 3) Providers' Prov-SDH needs vary by provider degree, setting, and years of practice.

2 Materials and Methods

Participants

The sample included responses from 149 individuals. For this study, providers were defined as licensed or licensure-seeking health professionals who provided health care services to patients. The providers included in this study were Nurse Practitioners (NP, FNP, PMHNP), Nurses (RN, LPN, APRN, BSN), Occupational Therapists (OT, OTD), Doctors of Physical Therapy (DPT), Physicians (MD, DO), Physician Assistants/Associates (PA), Psychologists (PhD, PsyD), Social Workers (BSW, MSW, DSW), Speech-Language Pathologists (SLP, SLPD), master's-level Counselors/Clinicians (LPC, LMFT, CRC), Dentists (DDS), and Chaplains (MDiv).

The sample was characterized by the following majorities: female (82.6%), ages 25 to 44 (82.5%), White (83.2%), heterosexual (70.5%), single or married (89.9%), and 1 to 9 years of experience (71.8%). Individuals with the following degrees were underrepresented (<5% each): Nurse Practitioners, Occupational Therapists, Physician Assistants, Chaplains, and Dentists; together, these groups represented 8.8% of the total sample. Social Workers (21.5%), Physicians (16.8%), Nurses (12.1%), Psychologists (12.1%), master's-level Therapists/Counselors (10.1%), Doctors of Physical Therapy (9.4%), and Speech-Language Pathologists (9.4%) comprised the majority of the sample (91.4%).

Procedure

The survey was administered to individuals licensed in or seeking licensure as doctors of nursing practice, nurse practitioners, occupational therapists, physical therapists, physicians, physician assistants, psychologists, social workers, and speech-language pathologists. The survey was distributed to providers, students, and faculty within large healthcare systems and multiple graduate and medical school programs through email listservs and peer referrals.

Measures

The researcher created a survey in Google Forms to collect anonymous information and distributed the survey link through organizational listservs and provider-to-provider sharing using a snowball sampling approach. The survey contained Likert-type items and demographic questions regarding sex, gender, age, race/ethnicity, degree or license, specialty, role (clinical, administrative, academic, or student), and years of clinical practice.

Provider Prov-SDH Screener

Providers' Prov-SDH information was collected using items from the Health Leads Screening Toolkit, a screening resource developed from a range of SDH-related screeners used across agencies and organizations ([Health Leads, 2018](#)). The response format was modified to support score-based comparisons across respondents. Responses were coded as *Never True* = 1, *Sometimes True* = 2, *Often True* = 3, and *Not Applicable* = 0, with higher scores indicating greater Prov-SDH needs. The selected items were intended to represent a broad range of provider experiences while prioritizing brevity, prior validation, and clarity. The Health Leads

Toolkit identifies which individual items have been previously validated; however, because this study compiled a provider-specific screener from items drawn across domains, a single scale-level validity or reliability estimate was not available for the resulting instrument. For readability, provider-specific social determinants of health are referred to as Prov-SDH in the narrative, although variable labels retain the original SDH abbreviations used in the data set.

Three scores were compiled from the Prov-SDH screener. Prov-SDH Needs Total (Current) was created from items assessing providers' recent circumstances. Prov-SDH Needs Total (Historical) was created from items assessing providers' Prov-SDH experiences across most of their lifetime. Prov-SDH Needs Total Lifetime (PSNTL) was calculated by summing the current and historical scores. The screener items were organized into the following domains: food insecurity, housing instability, utility needs, financial resource strain, transportation challenges, exposure to violence, sociodemographic information, childcare, education, employment, and health-related behaviors (including social isolation/support and behavioral or mental health).

Provider Burnout

Provider burnout was measured with the Copenhagen Burnout Inventory (CBI), a 19-item self-report measure developed by [Kristensen et al. \(2005\)](#), that assesses personal burnout (6 items), work-related burnout (7 items), and client-related burnout (6 items). The CBI was selected instead of the Maslach Burnout Inventory because it is freely available, focuses more narrowly on burnout, and is comparatively straightforward for respondents to complete ([Alahmari et al., 2022](#); [Kristensen et al., 2005](#)). Prior work has shown that the CBI demonstrates strong face and construct validity and internal consistency across healthcare samples ([Kristensen et al., 2005](#); [Ogunsuji et al., 2022](#)). In the present study, the overall internal consistency of the CBI total score was high (Cronbach's $\alpha = .856$). Due to a survey construction error, two client-related burnout items ("Are you tired of working with clients?" and "Do you find it frustrating to work with clients?") were omitted from the questionnaire. As a result, client-related burnout scores in this study reflected four rather than six items and should be interpreted cautiously.

Providers' Efficacy in Addressing Patients' Pt-SDH Needs

Providers' efficacy in addressing patients' Pt-SDH needs was measured with two items derived from the item used by [Kung et al. \(2019\)](#), to assess providers' perceptions of their clinics' ability to address patients' social needs. The original clinic-level item stated, "My clinic has the resources, such as dedicated staff, community programs, resources, or tools to address patients' social needs" ([Kung et al., 2019](#)). This item was included in the current study along with a modified provider-level item: "I can assess, adjust treatment interventions, and navigate resources to address my patients' social determinants of health needs." Both items used a 1-to-10 response scale, with higher scores indicating greater agreement. Scores from the two items were summed to create the SDH Efficacy Total (SET), with possible total scores ranging from 2 to 20. The two-item efficacy measure demonstrated strong internal consistency in the present sample (Cronbach's $\alpha = .884$).

3 Results and Discussions

3.1 Result

Descriptive Statistics

Descriptive statistics were calculated for all study variables ($n = 149$). Providers' Prov-SDH needs were represented by current/recent and historical scores, which were summed to create a lifetime score. Participants reported slightly higher current Prov-SDH needs ($M = 15.80, SD = 2.98$) than historical Prov-SDH needs ($M = 13.58, SD = 2.61$).

Copenhagen Burnout Inventory (CBI) Descriptive Statistics

Table 1
Copenhagen Burnout Inventory Descriptive Statistics

| Scale | <i>M</i> | Mdn | Mo | <i>SD</i> | SEM | Skew | Kurtosis | 95% CI |
|------------------------|----------|-----|----|-----------|------|------|----------|----------------|
| Personal Burnout | 19.09 | 20 | 20 | 4.17 | 1.84 | -.31 | -.21 | [18.41, 19.76] |
| Work-Related Burnout | 21.32 | 21 | 21 | 5.03 | 2.49 | -.24 | -.05 | [20.50, 22.13] |
| Client-Related Burnout | 10.38 | 10 | 10 | 3.26 | 1.20 | .33 | .04 | [9.85, 10.90] |
| CBI Total | 50.78 | 52 | 44 | 11.10 | 4.21 | -.16 | -.08 | [48.98, 52.58] |

As shown in Table 1, work-related burnout had the highest central tendency across the CBI subscales ($M = 21.32$, $Mdn = 21$, $Mo = 21$), followed by personal burnout ($M = 19.09$, $Mdn = 20$, $Mo = 20$). Client-related burnout was markedly lower ($M = 10.38$, $Mdn = 10$, $Mo = 10$), which is consistent with the reduced item count for that subscale after two items were unintentionally omitted from the questionnaire. Skewness and kurtosis values were modest across the CBI scores, suggesting limited departures from symmetry. However, the client-related burnout subscale was non-normal on the Shapiro-Wilk test ($p = .024$), whereas work-related burnout ($p = .143$), personal burnout ($p = .052$), and the total CBI score ($p = .481$) met or closely approached the assumption of normality. The SEM values reported in Table 1 suggest acceptable score precision overall, but the client-related burnout distribution should be interpreted cautiously because the missing items likely restricted the score range and altered the shape of the distribution.

Providers' responses revealed slightly higher self-efficacy ratings ($M = 6.13$, $SD = 2.00$) than clinic-efficacy ratings ($M = 5.37$, $SD = 2.23$) for addressing patients' Pt-SDH needs. All efficacy scores were non-normal, but the combined efficacy total demonstrated strong internal consistency ($\alpha = .884$). Most providers rated their own efficacy and their clinic's efficacy similarly: 123 of the 149 providers rated their self-efficacy within 2 points of their clinic-efficacy rating, 96 rated themselves within 1 point of their clinic, and 45 gave identical ratings. In addition, 119 providers rated themselves as equally or more efficacious than their clinic, with self-efficacy averaging .75 points higher than clinic efficacy.

Providers' Prov-SDH Needs and Burnout

For Hypothesis 1, a Spearman's rank-order correlation was used to examine the relationship between Prov-SDH Needs Total Lifetime (PSNTL) and burnout symptoms based on total Copenhagen Burnout Inventory scores (CBIT). Assumption testing indicated that CBIT scores were approximately normally distributed (Shapiro-Wilk $p = .481$), whereas PSNTL scores were non-normal (Shapiro-Wilk $p < .001$), requiring nonparametric analysis. Both variables met the assumptions of linearity and homoscedasticity. The Spearman rank-order correlation indicated a nonsignificant relationship between PSNTL and CBIT ($\rho = .038$, $p = .643$).

Spearman's rank-order correlations were also used to examine the relationships between current and historical Prov-SDH scores (PSNTC and PSNTH) and the burnout subscales (personal burnout, work-related burnout, and client-related burnout). None of these correlations demonstrated a significant relationship between providers' Prov-SDH needs and burnout.

Providers' Prov-SDH Needs and Sense of Efficacy

For Hypothesis 2, a Spearman's rank-order correlation was used to examine the relationship between Prov-SDH Needs Total Lifetime (PSNTL) and providers' self-reported efficacy for themselves and their clinics in addressing patients' Pt-SDH needs. Both variables met linearity and homoscedasticity assumptions, but both were non-normal (Shapiro-Wilk $p < .001$ for PSNTL; $p = .018$ for efficacy), indicating the use of nonparametric analysis. The analysis showed no significant correlation between providers' lifetime Prov-SDH needs and their sense of efficacy in addressing patients' Pt-SDH needs ($\rho = .003$, $p = .969$).

Provider Factors and Prov-SDH Needs

Clinical Setting

A one-way analysis of variance (ANOVA) showed that the clinical setting did not have a significant effect on PSNTL, $F(12, 136) = 0.89$, $p = .558$, $\omega^2 = .015$. Levene's test for equality of variances was not violated ($p = .117$). Because the ANOVA was not significant, no post hoc tests were conducted. Additional tests of

significance, including the Brown-Forsythe test ($p = .660$) and the Welch test ($p = .592$), likewise supported the absence of a significant effect of clinical setting on PSNTL.

Years of Practice

A one-way ANOVA found no significant difference in PSNTL by years of practice, including time under licensed supervision, $F(6, 142) = 1.90$, $p = .085$, $\omega^2 = .082$. Levene's test for equality of variances was not violated ($p = .988$). No post hoc testing was conducted because the omnibus ANOVA was nonsignificant, and this interpretation was further supported by the Brown-Forsythe ($p = .057$) and Welch ($p = .134$) tests. Overall, these results suggest a slight increase in Prov-SDH needs over time that did not reach statistical significance across the 5-year groupings used in the study.

Degree

A one-way ANOVA was conducted to determine the effect of providers' professional degree or license on PSNTL and revealed a significant omnibus effect, $F(9, 137) = 2.285$, $p = .020$, $\omega^2 = .073$. Levene's test for equality of variances was not violated ($p = .454$). This suggests that 7.3% of the variance in PSNTL scores was attributable to professional degree.

Despite the significant omnibus ANOVA, post hoc testing did not reveal statistically significant pairwise comparisons. The largest observed mean differences were between Physician Assistants/Associates ($M = 34.50$, $SD = 3.87$) and Social Workers ($M = 27.75$, $SD = 3.98$; Cohen's $d = 1.548$), and between Physician Assistants/Associates and Psychologists ($M = 27.78$, $SD = 4.92$; Cohen's $d = 1.542$). These comparisons suggest that Physician Assistants had the highest observed PSNTL scores, whereas Social Workers and Psychologists had the lowest observed Prov-SDH scores among the degree groups.

Although the omnibus ANOVA indicated variation in PSNTL by professional degree or license, unequal sample sizes across degree categories likely reduced the power of pairwise comparisons. The overall model power was .88, indicating a high probability of detecting an effect at the omnibus level, but the imbalance in cell sizes likely limited the precision of post hoc comparisons between individual degree groups.

3.2 Discussions

Summary of Key Findings

This study explored the relationships among providers' personal social determinants of health (Prov-SDH) needs, burnout, and perceived efficacy in addressing patients' social determinants of health (Pt-SDH) needs. The first hypothesis, that providers' Prov-SDH needs would correlate with burnout, was not supported. The second hypothesis, that providers' Prov-SDH needs would be negatively related to Pt-SDH-related efficacy, was also not supported. The third hypothesis indicated no significant relationship between PSNTL and either years of practice or clinical setting; however, PSNTL did vary significantly by professional degree or license.

Interpretation of Results

Hypothesis 1

Previous research indicates that workplace factors are predictive of burnout. Providers also experience global, non-work-specific Prov-SDH factors, including food insecurity, housing instability, utility needs, financial resource strain, transportation challenges, childcare concerns, education, employment, social isolation, and social support. However, the results of this study suggest that the specific current and lifetime Prov-SDH variables measured here were not significantly associated with burnout.

While this study sought to address a gap in the literature by examining whether providers' global Prov-SDH needs contribute to burnout, the findings did not show a significant association between the measured Prov-SDH variables and burnout. This pattern is consistent with the broader provider burnout literature, which suggests that workplace conditions are especially salient predictors of burnout (Singh et al., 2023).

At face value, these findings may suggest that providers with different levels of burnout did not differ meaningfully on the Prov-SDH variables captured in this study. However, the null result should be interpreted cautiously. It does not establish that providers' personal lives are unrelated to burnout; rather, it indicates that the particular global Prov-SDH indicators measured here were not significantly associated with burnout in this sample.

This lack of relationship between burnout and Prov-SDH may reflect unmeasured intersectional and interpersonal variables at the intersection of demographic characteristics, individual differences, personal stressors, and different forms of Prov-SDH. Relevant covariates may include marital conflict, parenting or caregiving stress, lack of supportive relationships, social isolation, mental health strain, sleep deprivation, and existential distress. In a sample composed largely of White women, additional contextual factors may include issues of power, voice, recognition, hypercompetitive environments, emotional constraint, and the subjugation of feminine norms. Broader work on wage and status inequities across health professions suggests that gendered and role-based dynamics remain relevant contextual considerations even in relatively advantaged professional groups ([Frogner & Schwartz, 2021](#); [Ly et al., 2016](#); [Sentell et al., 2001](#); [Whaley et al., 2021](#)).

Another possibility is that the instrument used to measure providers' Prov-SDH was not sufficiently sensitive to the types of burden experienced by healthcare professionals. The screener emphasized concrete socioeconomic strain and basic access barriers, which may not adequately capture higher-SES or provider-specific financial stress. For a largely middle- to upper-middle-SES sample, relevant forms of economic strain may include rumination and anxiety about money, fear of job loss, mounting debt, delayed retirement age, working more than one job, or difficulty supporting children's college tuition. Such burdens may be psychologically meaningful even when basic needs are technically met.

Hypothesis 2

The analysis for Hypothesis 2 found no relationship between providers' lifetime Prov-SDH needs and their perceived personal and clinic efficacy in addressing patients' Pt-SDH needs. One explanation is that providers' experiences of personal Prov-SDH needs may not directly shape how they approach Pt-SDH issues in clinical work. Training in health professions often requires a degree of compartmentalization, and the ability to keep personal stressors from directly influencing clinical functioning may be an important part of that professional adaptation.

The two-item Pt-SDH efficacy measure relied on providers' self-ratings of themselves and their clinics. Although most providers rated themselves and their clinics within one point of each other, they generally rated themselves as slightly more effective than their clinics. This pattern suggests that providers perceived their own efforts and abilities to be broadly aligned with, but modestly stronger than, the systems in which they worked. Prior research supports the interpretation that clinic-level barriers constrain providers' ability to address patients' Pt-SDH needs. [Kostelanetz et al. \(2022\)](#) found that providers were generally motivated and capable of gathering and integrating Pt-SDH information into care, whereas barriers were more closely related to clinic setting and resources than to individual provider characteristics. Similarly, many providers face the same structural obstacles to addressing Pt-SDH needs, limited time, poor delineation of duties, extensive documentation, liability and privacy concerns, limited staff and infrastructure, and insufficient training, suggesting that workplace support may account for meaningful variance in perceived efficacy ([Kostelanetz et al., 2022](#); [Palacio et al., 2018](#)). Overall, these findings suggest that providers perceived Pt-SDH-related efficacy to be shaped more by systemic workplace barriers than by their own measured Prov-SDH experiences.

Hypothesis 3

The primary finding from Hypothesis 3 was that PSNTL varied by provider degree, but not by clinical setting or years of practice, with Physician Assistants reporting the highest Prov-SDH needs and Psychologists and Social Workers reporting the lowest. [Braveman & Gottlieb \(2014\)](#) argued that socioeconomic conditions such as income, wealth, and education are powerful determinants of health while also noting that the relation may not be strictly linear at higher levels of advantage. Publicly available federal occupational data likewise indicate substantial wage variation across the professions represented in this sample ([U.S. Bureau of Labor Statistics, 2025](#)). Yet the pattern observed here did not reflect a simple income gradient: Social Workers and Psychologists reported the lowest Prov-SDH scores despite not being the highest-paid professions in the sample. This may indicate that degree-related variation in Prov-SDH reflects more than income alone, including occupational role, training, professional culture, or awareness of social needs.

Limitations

There are numerous limitations to consider in this study, including issues related to the sample, measures, and study design.

Sample

These results were affected by uneven representation across groups within the sample, with some demographic categories substantially underrepresented. The study's grouping strategies by years of experience, degree, Prov-SDH needs, and burnout level also produced divergent cell sizes. These group sizes affected analytic power across hypotheses and likely reduced precision in some comparisons.

Measures

The CBI has demonstrated good face and construct validity in prior research. However, two items from the client-related burnout subscale were unintentionally omitted from the study questionnaire: "Are you tired of working with clients?" and "Do you find it frustrating to work with clients?" The omission of these items compromises the reliability and interpretability of the client-related burnout subscale in ways that cannot be quantified from the present data. Interpretations involving client-related burnout, and especially its relationship to providers' Prov-SDH needs, would benefit from replication using the full subscale. In addition, the lack of a significant relationship between provider degree or role and burnout may indicate that the CBI was too broad to capture role-specific stressors associated with particular professional positions.

The two-item measure of providers' personal and clinic efficacy in addressing patients' Pt-SDH needs has not undergone formal psychometric validation beyond the internal consistency estimate obtained in the present sample. Although the items have clear face validity, responses may also have been influenced by self-serving bias, in which individuals attribute positive outcomes to their own efforts and negative outcomes to external systems.

The Prov-SDH screener also had important limitations. It focused primarily on economic stability and concrete access barriers and therefore did not fully assess education access and quality, healthcare access and quality, physical environment, and social or community context. More importantly, the economic stress items may have been insufficiently sensitive for a largely middle- to upper-middle-SES provider sample. The measure may not have captured forms of financial burden that are more salient in this demographic, such as rumination and anxiety about money, fear of job loss, mounting debt, delayed retirement age, working more than one job, the inability to support college tuition for children, limited opportunities for advancement, or feeling financially responsible for others. These forms of financial stress may be clinically meaningful even when basic needs are technically met.

Study Design

The use of snowball sampling increases the risk of sampling bias because initially contacted participants may share the study with other qualified providers who have similar backgrounds, positions, or views, increasing sample homogeneity relative to the broader provider population. Individuals who chose to participate may also have self-selected because of a particular interest in the topic. In addition, the monetary incentive may have attracted a somewhat larger proportion of providers experiencing financial strain than would be expected in the general provider population. Finally, because this study used a correlational, cross-sectional design, it cannot identify causal relationships among Prov-SDH needs, burnout, and Pt-SDH-related efficacy.

Future Directions of Research

The Prov-SDH measure's limited sensitivity may have contributed to the lack of an observed relationship between providers' Prov-SDH needs and burnout. Future research using a more refined Prov-SDH measure, or one designed specifically for providers, may yield more informative results, particularly if it includes interpersonal, intersectional, and higher-SES financial stressors in addition to concrete material needs.

In addition, further exploration of the potential link between providers' Prov-SDH needs and their efficacy in addressing patients' Pt-SDH needs may be beneficial. Longitudinal research examining changes in providers' Prov-SDH experiences over time could provide more reliable evidence regarding these relationships. Objective indicators of provider and clinic effectiveness in addressing patients' Pt-SDH needs

may also be more informative than self-report alone, as could measures that directly capture variation in patients' Pt-SDH needs and the extent to which individual clinicians or clinics help meet those needs.

4 Conclusion

This study examined the relationships among providers' Prov-SDH needs, burnout, Pt-SDH-related efficacy, and selected provider factors. No significant relationships were found between the measured Prov-SDH variables and burnout or between Prov-SDH and perceived efficacy in addressing patients' Pt-SDH needs. Differences in Prov-SDH scores were observed across professional degree groups, but not across years of experience or clinical setting. Importantly, these null findings should not be interpreted as evidence that non-work personal stressors are irrelevant to burnout. Because the Prov-SDH measure emphasized largely economic and concrete need indicators and may have missed higher-SES, interpersonal, and intersectional stressors, the results speak most directly to the specific Prov-SDH variables measured here. Within this sample and with this measurement approach, workplace barriers appeared more salient for Pt-SDH-related efficacy, and degree-based differences emerged in reported Prov-SDH needs. These findings support continued organizational efforts to reduce workplace barriers and further development of provider-specific Prov-SDH measures.

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References

- Adler, N. E., & Newman, K. (2002). Socioeconomic disparities in health: pathways and policies. *Health affairs*, 21(2), 60-76.
- Alahmari, M. A., Al Moaleem, M. M., Hamdi, B. A., Hamzi, M. A., Aljadaani, A. T., Khormi, F. A., ... & Al Sanabanei, F. A. (2022). Prevalence of burnout in healthcare specialties: a systematic review using Copenhagen and Maslach burnout inventories. *Medical science monitor: international medical journal of experimental and clinical research*, 28, e938798-1.
- Berkowitz, S. A., Hulberg, A. C., Hong, C., Stowell, B. J., Tirozzi, K. J., Traore, C. Y., & Atlas, S. J. (2016). Addressing basic resource needs to improve primary care quality: a community collaboration programme. *BMJ quality & safety*, 25(3), 164-172.
- Braveman, P., & Gottlieb, L. (2014). The social determinants of health: it's time to consider the causes of the causes. *Public health reports*, 129(1_suppl2), 19-31.
- Byhoff, E., Freund, K. M., & Garg, A. (2018). Accelerating the implementation of social determinants of health interventions in internal medicine. *Journal of General Internal Medicine*, 33(2), 223-225.
- Centers for Disease Control and Prevention. (2024, January 17). *Social determinants of health (SDOH)*. <https://www.cdc.gov/about/priorities/why-is-addressing-sdoh-important.html>
- de la Vega, P. B., Losi, S., Martinez, L. S., Bovell-Ammon, A., Garg, A., James, T., ... & Kressin, N. R. (2019). Implementing an EHR-based screening and referral system to address social determinants of health in primary care. *Medical care*, 57, S133-S139.
- De Marchis, E., Knox, M., Hessler, D., Willard-Grace, R., Olayiwola, J. N., Peterson, L. E., ... & Gottlieb, L. M. (2019). Physician burnout and higher clinic capacity to address patients' social needs. *The Journal of the American Board of Family Medicine*, 32(1), 69-78.
- Frogner, B. K., & Schwartz, M. (2021). Examining wage disparities by race and ethnicity of health care workers. *Medical Care*, 59, S471-S478.
- Health Leads. (2018). *Social needs screening toolkit*. https://healthleadsusa.org/wp-content/uploads/2023/05/Screening_Toolkit_2018.pdf
- Institute of Medicine. (2016). *A framework for educating health professionals to address the social determinants of health*. National Academies Press.
- Iott, B. E., Pantell, M. S., Adler-Milstein, J., & Gottlieb, L. M. (2022). Physician awareness of social determinants of health documentation capability in the electronic health record. *Journal of the American Medical Informatics Association*, 29(12), 2110-2116.
- Khan, J. A., Battaglia, P. J., & Gliedt, J. A. (2023). A narrative review of social determinants of health education in health professional programs and potential pathways for integration into Doctor of Chiropractic programs. *The Journal of the Canadian Chiropractic Association*, 67(1), 19.
- Kivits, J., Erpelding, M. L., & Guillemin, F. (2013). Social determinants of health-related quality of life. *Revue d'épidémiologie et de sante publique*, 61, S189-S194. <https://doi.org/10.1016/j.respe.2013.06.001>
- Kostelanetz, S., Pettapiece-Phillips, M., Weems, J., Spalding, T., Roumie, C., Wilkins, C. H., & Kripalani, S. (2022). Health care professionals' perspectives on universal screening of social determinants of health: a mixed-methods study. *Population Health Management*, 25(3), 367-374.
- Kristensen, T. S., Borritz, M., Villadsen, E., & Christensen, K. B. (2005). The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. *Work & stress*, 19(3), 192-207.
- Kung, A., Cheung, T., Knox, M., Willard-Grace, R., Halpern, J., Olayiwola, J. N., & Gottlieb, L. (2019). Capacity to address social needs affects primary care clinician burnout. *The Annals of Family Medicine*, 17(6), 487-494.
- Kushel, M. B., Gupta, R., Gee, L., & Haas, J. S. (2006). Housing instability and food insecurity as barriers to health care among low-income Americans. *Journal of general internal medicine*, 21(1), 71-77.
- Leung, S. O. A., Akinwunmi, B., Elias, K. M., & Feldman, S. (2019). Educating healthcare providers to increase Human Papillomavirus (HPV) vaccination rates: A Qualitative Systematic Review. *Vaccine: X*, 3, 100037. <https://doi.org/10.1016/j.jvacx.2019.100037>
- Lueckmann, S. L., Hoebel, J., Roick, J., Markert, J., Spallek, J., Von Dem Knesebeck, O., & Richter, M. (2021). Socioeconomic inequalities in primary-care and specialist physician visits: a systematic review. *International journal for equity in health*, 20(1), 58.
- Ly, D. P., Seabury, S. A., & Jena, A. B. (2016). Differences in incomes of physicians in the United States by race and sex: observational study. *Bmj*, 353.
-
- Klee, E., Buhrow, W., Freeman, N., & Nelson, A. (2026). Providers' social determinants of health, burnout, and efficacy addressing patients' social determinants of health needs. *International Journal of Health Sciences*, 10(1), 66-87. <https://doi.org/10.53730/ijhs.v10n1.15914>

- McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. *Health affairs*, *21*(2), 78-93.
- Naslund, M. J., & Miner, M. (2007). A review of the clinical efficacy and safety of 5 α -reductase inhibitors for the enlarged prostate. *Clinical therapeutics*, *29*(1), 17-25. <https://doi.org/10.1016/j.clinthera.2007.01.018>
- Ogunsuji, O., Ogundipe, H., Adebayo, O., Oladehin, T., Oiwoh, S., Obafemi, O., ... & Atilola, O. (2022). Internal reliability and validity of Copenhagen burnout inventory and Oldenburg burnout inventory compared with Maslach burnout inventory among Nigerian resident doctors: a pilot study. *Dubai Medical Journal*, *5*(2), 89-95.
- Ortega, G. (2023). Social Determinants of Health: Study Designs and Outcomes. *Social Determinants of Health in Surgery-E-BOOK: A Primer for the Practicing Surgeon*, 129.
- Palacio, A., Seo, D., Medina, H., Singh, V., Suarez, M., & Tamariz, L. (2018). Provider perspectives on the collection of social determinants of health. *Population health management*, *21*(6), 501-508.
- Rotenstein, L. S., Brown, R., Sinsky, C., & Linzer, M. (2023). The association of work overload with burnout and intent to leave the job across the healthcare workforce during COVID-19. *Journal of General Internal Medicine*, *38*(8), 1920-1927.
- Schaufeli, W. B., & Greenglass, E. R. (2001). Introduction to special issue on burnout and health. *Psychology & health*, *16*(5), 501-510.
- Sentell, T., Pingitore, D., Scheffler, R., Schwalm, D., & Haley, M. (2001). Gender differences in practice patterns and income among psychologists in professional practice. *Professional Psychology: Research and Practice*, *32*(6), 607.
- Sharma, M., Pinto, A. D., & Kumagai, A. K. (2018). Teaching the social determinants of health: a path to equity or a road to nowhere?. *Academic medicine*, *93*(1), 25-30.
- Shirom, A. (2003). Job-related burnout: A review.
- Siegel, J., Coleman, D. L., & James, T. (2018). Integrating social determinants of health into graduate medical education: a call for action. *Academic Medicine*, *93*(2), 159-162.
- Singh, R., Volner, K., & Marlowe, D. (2023). Provider burnout. In *StatPearls [Internet]*. StatPearls Publishing.
- U.S. Bureau of Labor Statistics. (2025). *Occupational outlook handbook*. U.S. Department of Labor. <https://www.bls.gov/ooh/>
- Wang, J., & Geng, L. (2019). Effects of socioeconomic status on physical and psychological health: lifestyle as a mediator. *International journal of environmental research and public health*, *16*(2), 281-290.
- Whaley, C. M., Koo, T., Arora, V. M., Ganguli, I., Gross, N., & Jena, A. B. (2021). Female physicians earn an estimated \$2 million less than male physicians over a simulated 40-year career: study examines estimated career gap in pay between female physicians and male physicians. *Health Affairs*, *40*(12), 1856-1864.
- World Health Organization. (2023). *Social determinants of health*. <https://www.who.int/health-topics/social-determinants-of-health>

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Appendix A

Table A1*Descriptives*

| Variables | Valid | Mode | Median | Mean | Std. Error of Mean | 95% Confidence Interval | |
|---|-----------|------|--------|-------|--------------------|-------------------------|-------------|
| | | | | | | Lower Bound | Upper Bound |
| Prov-SDH Needs Total Lifetime (PSNTL) | 149 | 28 | 29 | 29.38 | 0.37 | 28.65 | 30.12 |
| Prov-SDH Needs (Current) | Total 149 | 18 | 16 | 15.80 | 0.24 | 15.32 | 16.28 |
| Prov-SDH Needs (Historic) | Total 149 | 13 | 13 | 13.58 | 0.21 | 13.16 | 14.01 |
| Providers SDH Needs Lifetime (PSNTL - Degree) | Total 147 | 28 | 29 | 29.32 | 0.37 | 28.58 | 30.06 |
| Personal Burnout | 149 | 20 | 20 | 19.09 | 0.34 | 18.41 | 19.76 |
| Work-Related Burnout | 149 | 21 | 21 | 21.32 | 0.41 | 20.50 | 22.13 |
| Client-Related Burnout | 149 | 10 | 10 | 10.38 | 0.27 | 9.85 | 10.90 |
| CBI Total | 149 | 44 | 52 | 50.78 | 0.91 | 48.98 | 52.58 |
| Clinic Efficacy | 149 | 7 | 6 | 5.37 | 0.18 | 5.01 | 5.73 |
| Self-Efficacy | 149 | 7 | 7 | 6.13 | 0.16 | 5.81 | 6.46 |
| Efficacy Total | 149 | 13 | 12 | 11.50 | 0.31 | 10.90 | 12.11 |

Table A2*Descriptives Continued*

| Variables | Std. Deviation | Variance | Skew | kurtosis | Shapiro-Wilk | P-value | Min | Max |
|---|----------------|----------|-------|----------|--------------|---------|-----|-----|
| Prov-SDH Needs Total Lifetime (PSNTL) | 4.52 | 20.54 | 0.52 | 0.07 | 0.97 | 0.00 | 21 | 45 |
| Prov-SDH Needs (Current) | Total 2.98 | 8.87 | 0.04 | -0.42 | 0.98 | 0.07 | 9 | 24 |
| Prov-SDH Needs (Historic) | Total 2.61 | 6.80 | 0.41 | -0.24 | 0.96 | <.001 | 8 | 21 |
| Providers SDH Needs Total Lifetime (PSNTL - Degree) | 4.53 | 20.51 | 0.56 | 0.14 | 0.97 | 0.00 | 21 | 45 |
| Personal Burnout | 4.17 | 17.38 | -0.31 | -0.21 | 0.98 | 0.05 | 7 | 29 |
| Work-Related Burnout | 5.03 | 25.30 | -0.24 | -0.05 | 0.99 | 0.14 | 9 | 34 |
| Client-Related Burnout | 3.26 | 10.66 | 0.33 | 0.04 | 0.98 | 0.02 | 4 | 20 |
| CBI Total | 11.10 | 123.15 | -0.16 | -0.08 | 0.99 | 0.48 | 22 | 83 |
| Clinic Efficacy | 2.23 | 4.98 | -0.06 | -0.89 | 0.96 | <.001 | 1 | 10 |
| Self-Efficacy | 2.00 | 4.00 | -0.20 | -0.81 | 0.95 | <.001 | 2 | 10 |
| Efficacy Total | 3.74 | 13.95 | -0.01 | -0.69 | 0.98 | 0.02 | 4 | 20 |

Table A2
Descriptives Continued

| Variables | Std. Deviation | Variance | Skew | kurtosis | Shapiro-Wilk | P-value | Min | Max |
|---|----------------|----------|-------|----------|--------------|---------|-----|-----|
| Prov-SDH Needs Lifetime (PSNTL) | Total 4.52 | 20.54 | 0.52 | 0.07 | 0.97 | 0.00 | 21 | 45 |
| Prov-SDH Needs (Current) | Total 2.98 | 8.87 | 0.04 | -0.42 | 0.98 | 0.07 | 9 | 24 |
| Prov-SDH Needs (Historic) | Total 2.61 | 6.80 | 0.41 | -0.24 | 0.96 | <.001 | 8 | 21 |
| Providers SDH Needs Total Lifetime (PSNTL - Degree) | 4.53 | 20.51 | 0.56 | 0.14 | 0.97 | 0.00 | 21 | 45 |
| Personal Burnout | 4.17 | 17.38 | -0.31 | -0.21 | 0.98 | 0.05 | 7 | 29 |
| Work-Related Burnout | 5.03 | 25.30 | -0.24 | -0.05 | 0.99 | 0.14 | 9 | 34 |
| Client-Related Burnout | 3.26 | 10.66 | 0.33 | 0.04 | 0.98 | 0.02 | 4 | 20 |
| CBI Total | 11.10 | 123.15 | -0.16 | -0.08 | 0.99 | 0.48 | 22 | 83 |
| Clinic Efficacy | 2.23 | 4.98 | -0.06 | -0.89 | 0.96 | <.001 | 1 | 10 |
| Self-Efficacy | 2.00 | 4.00 | -0.20 | -0.81 | 0.95 | <.001 | 2 | 10 |
| Efficacy Total | 3.74 | 13.95 | -0.01 | -0.69 | 0.98 | 0.02 | 4 | 20 |

Table A3*Demographics*

| Variable | Response Options | Frequency | Percent | Cumulative Percent |
|-----------------------|--|-----------|---------|--------------------|
| Sex | Female | 123 | 82.55 | 82.55 |
| | Male | 26 | 17.45 | 100 |
| Gender | Woman | 117 | 78.52 | 78.52 |
| | Man | 24 | 16.11 | 94.63 |
| | Non-Binary | 7 | 4.70 | 99.33 |
| | Prefer not to respond | 1 | 0.67 | 100 |
| Current Age | 18 - 24 | 4 | 2.68 | 2.68 |
| | 25 - 34 | 89 | 59.73 | 62.42 |
| | 35 - 44 | 34 | 22.82 | 85.23 |
| | 45 - 54 | 13 | 8.72 | 93.96 |
| | 55 - 64 | 6 | 4.03 | 97.99 |
| | 65 and over | 2 | 1.34 | 99.33 |
| | Prefer not to respond | 1 | 0.67 | 100 |
| Race/ Ethnicity | Asian | 7 | 4.70 | 4.70 |
| | Native Hawaiian or other Pacific Islander | 1 | 0.67 | 5.37 |
| | White | 124 | 83.22 | 88.59 |
| | Latino/a or Hispanic | 10 | 6.71 | 95.30 |
| | Bi-Racial/Multiracial | 4 | 2.68 | 97.99 |
| | Prefer not to respond | 3 | 2.01 | 100 |
| Sexual Orientation | Asexual | 1 | 0.67 | 0.67 |
| | Bisexual | 15 | 10.07 | 10.74 |
| | Gay | 3 | 2.01 | 12.75 |
| | Lesbian | 3 | 2.01 | 14.77 |
| | Pansexual | 3 | 2.01 | 16.78 |
| | Queer | 14 | 9.40 | 26.17 |
| | Heterosexual | 105 | 70.47 | 96.64 |
| | Demisexual | 4 | 2.68 | 99.33 |
| | Prefer Not to Respond | 1 | 0.67 | 100 |

Table A4*Demographics Continued*

| Variable | Response Options | Valid | Frequency | Percent | Cumulative Percent |
|--|---|-------|-----------|---------|--------------------|
| Degree/ License Held (Or working towards) | Nurse Practitioner (NP, FNP, PMHNP) | 147 | 3 | 2.01 | 2.01 |
| | Nurse (RN, LPN, APRN, BSN) | 147 | 18 | 12.08 | 14.09 |
| | Occupational therapist (OT, OTD) | 147 | 5 | 3.36 | 17.45 |
| | Doctor of Physical Therapy (DPT) | 147 | 14 | 9.40 | 26.85 |
| | Physician (MD, DO) | 147 | 25 | 16.78 | 43.62 |
| | Physician Assistants/Associate (PA) | 147 | 3 | 2.01 | 45.64 |
| | Psychologist (PhD, PsyD) | 147 | 17 | 11.41 | 57.05 |
| | Social Worker (BSW, MSW, DSW) | 147 | 32 | 21.48 | 78.52 |
| | Speech-Language Pathologist (SLP, SLPD) | 147 | 14 | 9.40 | 87.92 |
| | Masters Level Counselors/Clinicians (LPC, LMFT, CRC) | 147 | 16 | 10.74 | 98.66 |
| | Dentist (DDS) | 147 | 1 | 0.67 | 99.33 |
| | Chaplain (MDiv) | 147 | 1 | 0.67 | 100.00 |
| Clinical Setting | Community Health Clinic | 149 | 20 | 13.42 | 13.42 |
| | Urgent Care Center | 149 | 2 | 1.34 | 14.77 |
| | Specialized Nursing Facility (or other long-term care facility) | 149 | 3 | 2.01 | 16.78 |
| | Specialized Outpatient Services (Dentistry, Pain Management Clinic, Podiatry, etc.) | 149 | 3 | 2.01 | 18.79 |
| | Private Practice | 149 | 34 | 22.82 | 41.61 |
| | Outpatient Clinic | 149 | 31 | 20.81 | 62.42 |
| | Hospital | 149 | 27 | 18.12 | 80.54 |
| | School | 149 | 8 | 5.37 | 85.91 |
| | University | 149 | 4 | 2.68 | 88.59 |
| | Acute Inpatient/Hospital | 149 | 9 | 6.04 | 94.63 |
| | Home Health | 149 | 3 | 2.01 | 96.64 |
| | Emergency Room | 149 | 2 | 1.34 | 97.99 |
| | Other | 149 | 3 | 2.01 | 100.00 |
| Years of Practice (Including time under supervision) | 1 - 4 Years | 149 | 61 | 40.94 | 40.94 |
| | 5 - 9 Years | 149 | 46 | 30.87 | 71.81 |
| | 10 - 14 Years | 149 | 15 | 10.07 | 81.88 |
| | 15 - 19 Years | 149 | 14 | 9.40 | 91.28 |
| | 20 - 24 Years | 149 | 5 | 3.36 | 94.63 |
| | 25 - 29 Years | 149 | 5 | 3.36 | 97.99 |
| | 30+ Years | 149 | 3 | 2.01 | 100.00 |

Table A5
CBI Reliability

| Coefficient | Estimate | Std. Error | 95% CI | |
|----------------------|----------|------------|--------|-------|
| | | | Lower | Upper |
| Coefficient α | 0.856 | 0.035 | 0.788 | 0.924 |

Table A6
CBI Individual Scale Reliability

| | Coefficient α (if item dropped) | | |
|------------------------|--|--------------|--------------|
| | Estimate | Lower 95% CI | Upper 95% CI |
| CBI Total | 0.85 | 0.76 | 0.94 |
| Client-related Burnout | 0.864 | 0.771 | 0.956 |
| Personal Burnout | 0.806 | 0.723 | 0.888 |
| Work-related Burnout | 0.754 | 0.644 | 0.864 |

Table A7
Efficacy Reliability

| Coefficient | Estimate | Std. Error | 95% CI | |
|----------------------|----------|------------|--------|-------|
| | | | Lower | Upper |
| Coefficient α | 0.884 | 0.036 | 0.814 | 0.954 |

Table A8
Efficacy Individual Scale Reliability

| Item | Coefficient α (if item dropped) | | |
|--------------------|--|--------------|--------------|
| | Estimate | Lower 95% CI | Upper 95% CI |
| Clinic | 0.839 | 0.709 | 0.969 |
| SDH Efficacy Total | 0.714 | 0.484 | 0.944 |
| Self | 0.882 | 0.755 | 1.009 |

Table A9
ANOVA - Prov-SDH Needs Total Lifetime (PSNTL) and Years of Practice

| Homogeneity Correction | Cases | Sum of Squares | df | Mean Square | F | p | ω^2 |
|------------------------|---|----------------|-------|-------------|-------|-------|------------|
| None | Years of Practice (Including time under licensed supervision) | 225.44 | 6 | 37.57 | 1.896 | 0.085 | 0.082 |
| | Residuals | 2813.75 | 142 | 19.82 | | | |
| Brown-Forsythe | Years of Practice (Including time under licensed supervision) | 225.44 | 6 | 37.573 | 2.233 | 0.057 | 0.082 |
| | Residuals | 2813.75 | 45.25 | 62.18 | | | |
| Welch | Years of Practice (Including time under licensed supervision) | 225.44 | 6 | 37.57 | 1.969 | 0.134 | 0.082 |
| | Residuals | 2813.75 | 15.08 | 186.54 | | | |

Table A10*ANOVA - Prov-SDH Needs Total Lifetime (PSNTL) and Clinic*

| Homogeneity Correction | Cases | Sum Squares | ofdf | Mean Square | F | p | ω^2 |
|------------------------|------------------|-------------|-------|-------------|-------|-------|------------|
| None | Clinical Setting | 221.45 | 12 | 18.45 | 0.891 | 0.558 | 0.015 |
| | Residuals | 2817.76 | 136 | 20.72 | | | |
| Brown-Forsythe | Clinical Setting | 221.44 | 12 | 18.45 | 0.783 | 0.66 | 0.015 |
| | Residuals | 2817.76 | 11.92 | 236.41 | | | |
| Welch | Clinical Setting | 221.44 | 12 | 18.45 | 0.872 | 0.592 | 0.015 |
| | Residuals | 2817.76 | 12.48 | 225.75 | | | |

Table A11*ANOVA - Prov-SDH Needs Total Lifetime (PSNTL) and Degree*

| Homogeneity Correction | Cases | Sum Squares | ofdf | Mean Square | F | p | ω^2 |
|------------------------|--|-------------|--------|-------------|-------|-------|------------|
| None | Degree/Licenses Held (Or 390.78 working towards) | 390.78 | 9 | 43.42 | 2.285 | 0.02 | 0.073 |
| | Residuals | 2603.193 | 137 | 19.001 | | | |
| Brown-Forsythe | Degree/Licenses Held (Or 390.78 working towards) | 390.78 | 9 | 43.42 | 2.532 | 0.014 | 0.073 |
| | Residuals | 2603.193 | 72.208 | 36.051 | | | |
| Welch | Degree/Licenses Held (Or 390.78 working towards) | 390.78 | 9 | 43.42 | 3.419 | 0.007 | 0.073 |
| | Residuals | 2603.193 | 26.344 | 98.817 | | | |

Appendix B: Survey

Providers' SDH Screener: Health Leads Screening Toolkit

1. Free
 2. Validity: For the purposes of this toolkit, validity refers to a baseline threshold of construct and content validity.
 3. 11 domains:
 1. Food insecurity: In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?
 1. This question is from the USDA Household Food Survey and has been widely adopted as a standard question to ask when screening for food insecurity. It is written at a 7th-grade reading level, which may be somewhat challenging for low-literacy populations to understand.
 2. Validity and reliability are not reported.
 4. Housing instability: Are you worried or concerned that in the next two months, you may not have stable housing that you own, rent, or stay in as a part of a household?
 1. This question was written by the Veterans Administration and is a good proxy for immediate housing challenges. It comes from a validated instrument and is written at a 10th-grade level, which may be somewhat challenging for low-literacy populations to understand.
 2. Researchers reached out to the creators of this item for specific reliability and validity information but did not receive a response.
 3. Validated, 5th-grade reading level.
 4. Validity and reliability was not obtained due to the article in which this item was used has a paywall.
 5. Financial resource strain: In the last 12 months, was there a time when you needed to see a doctor but could not because of cost?
 1. The question was written as part of the Behavioral Risk Factor Survey, is clinically validated, and is written at a 7th-grade level.
 2. This item comes from the CDC's 2022 BRFSS Questionnaire, which multiple studies have examined issues of validity and reliability but no individual item information was provided.
 6. Transportation challenges: In the last six months, have you ever had to go without health care because you didn't have a way to get there?
 1. It comes from a validated instrument and is written at a 7th-grade level, which may be somewhat challenging for low-literacy populations to understand.
 7. Household Income: During the past 12 months, what was your household income?
 8. Childcare: Do problems getting childcare make it difficult for you to work or study?
 1. This question is clinically validated from the 2008 Survey of Income and Program Participation and written at a 6th-grade level, which should be mostly accessible to lower literacy populations.
 9. Education: What is the highest level of schooling you have finished? (Bachelor's degree, some graduate level education, master's degree, doctoral degree, I choose not to answer this question).
 1. Unvalidated, 4th grade reading level.
 10. Employment: What was your main activity during most of the last 12 months? (Worked for pay, attended school, household duties, unemployed, permanently unable to work, other)
 1. Validated, 6th grade level.
 11. Health Behaviors / Social isolation and supports / Behavioral/Mental Health: Do you often feel that you lack companionship?
 1. This question is adapted from the Revised UCLA Loneliness Scale, written at a 5th-grade level, and is from a validated short-form instrument.
1. **Questions to assess the provider's perceived efficacy in addressing patients' SDH needs** (Kung et al., 2019, p. 488):
 1. "My clinic has the resources, such as dedicated staff, community programs, resources or tools to address patients' social needs' on a scale from 1 to 10,

where a higher score indicated greater agreement (SDH score)” (Kung et al., 2019)

2. Rate the following “I am able to assess, adjust treatment interventions, and navigate resources to address my patients’ social determinant of health needs” on a scale of 1 to 10, where a higher score indicated greater agreement.

2. Demographics:

1. Sex:
 1. Response options: Female, Male, Intersex, Prefer Not to Respond, or Other.
2. Gender
 1. Response options: Woman, Man, Non-Binary, Gender Fluid, Transgender Male, Transgender Female, Transgender Non-Binary, Prefer not to respond, or Other.
3. Age
 1. Responses options: 18 – 24, 25 – 34, 35 – 44, 45 – 54, 55 – 64, 65 and over, or Prefer not to respond.
4. Race/Ethnicity
 1. Response options: American Indian or Alaskan Native, Asian, Black or African American, Native Hawaiian or other Pacific Islander, White, Latino/a or Hispanic, Bi-Racial / Multiracial, Prefer not to respond, or Other.
5. Degree/License
 1. Response options: Doctor of Nursing Practice (DNP), Nurse Practitioner (NP, FNP, PMHNP), Nurse (RN, LPN, APRN, BSN), Occupational therapist (OT, OTD), Pharmacist (PharmD), Doctor of Physical Therapy (DPT), Physician (MD, DO), Physician Assistants/Associate (PA), Psychologist (PhD, PsyD), Social Worker (BSW, MSW, DSW), Speech, Language Pathologist (SLP, SLPD), Masters Level Counselors/Clinicians (LPC, LMFT, CRC), Dentist (DDS), Chaplain (MDiv), or Other.
6. Clinical Setting
 1. Options include: Community Health Clinic, Urgent Care Center, Specialized Nursing Facility (or other long-term care facility), Specialized Outpatient Services (Dentistry, Pain Management Clinic, Podiatry, etc.), Private Practice, Outpatient Clinic, Hospital, School, University, Acute, Inpatient/Hospital, Home Health, Emergency Room, Academic Medical Center, Social Services Agency, or Other.
7. Years of Practice
 1. Response options: 1 - 4 Years, 5 - 9 Years, 10 - 14 Years, 15 - 19 Years, 20 - 24 Years, 25 - 29 Years, or 30+ Years.

3. Copenhagen Burnout Inventory:

1. Domains: 19 items total
2. Overall physical and psychological fatigue: 6 items.
3. Physical and psychological fatigue related to work: 7 items.
4. Client-related burnout: 6 items.