**ORIGINAL ARTICLE**

# Healthcare providers' perceived importance and barriers to addressing social connection in medical settings

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**Abstract**

Despite the well-established significance of indicators of social connection for health and mortality, healthcare providers' (HCPs) perceptions of the role of social connection in physical health and the extent to which it is considered medically relevant remain unclear. This study examines the perceived importance and barriers to addressing social connection among HCPs in clinical settings. Surveys were completed by 681 HCPs across multiple locations and medical settings. HCPs ranked social connection low in importance among factors known to influence mortality and chronic illness. Furthermore, HCPs report significant barriers to addressing social connection; including lack of time, resources, training, and confidence. The findings have implications for developing educational programs, institutional policies, and structural changes to facilitate the integration of social connection into clinical practices, ultimately improving patient outcomes and overall public health.

**KEYWORDS**
loneliness, morbidity, mortality, risk perception, social connection, social determinants of health, social support

## INTRODUCTION

Lifestyle and behavioral risk factors, such as smoking, physical inactivity, nutrition, and sleep, are routinely discussed with patients in medical settings, given their widely recognized health relevance.[1] Social connection, including the degree of social support, loneliness, and social isolation, has a similar or greater association with numerous health outcomes, including cardiovascular disease, dementia, and mortality risk compared to other lifestyle behavioral risk factors, and affects all ages.[2,3] Similar to lifestyle factors, social connection is linked to biological pathways that are implicated in the development and progression of disease[4–6] and is modifiable. Yet, until recently, the importance of social connection to health has been underappreciated in medical settings. The US Surgeon General, the Centers for Disease Control, and the World Health Organization have all recently acknowledged the importance of social connection, isolation, and loneliness for health in public-facing efforts.[7] There are now awareness campaigns, initiatives, and even legislation being introduced in the United States and around the globe.[8] However, it is less clear to what extent these awareness campaigns have been successful in changing the medical community's (i.e., healthcare providers [HCPs]) perceptions about the importance and medical relevance of social connection to physical and psychological health.

Though some variation in definition exists, social connection is an umbrella term that refers to the structure, function, and quality of relationships and engagement with others that have been scientifically demonstrated to influence health and well-being.[4,7,9] Social connection includes not only the size and diversity of one's social network and

roles, but the functions these relationships and interactions serve, and their positive or negative qualities.[10,11] Mounting evidence demonstrates that social connectedness is linked to reduced mortality and morbidity of various diseases.[7] For example, lacking social connection, whether through social isolation, loneliness, or low social support, has been linked to an increased risk for cardiovascular disease,[12] stroke,[13] type 2 diabetes,[14] dementia,[14–16] susceptibility to cold and flu viruses,[17] and several other health outcomes.[18,19] In addition, social isolation and loneliness are associated with increased rates of mental health conditions, including depression and anxiety, and reduced quality of life. Some of the most robust evidence, including several meta-analyses of large prospective studies, identify various indicators of social connection as independent predictive factors for mortality.[20–24] Being socially connected is associated with a 50% reduced risk for early death, comparable to other well-established risk factors for mortality, such as smoking cessation, alcohol use, vaccinations, and physical activity.[21] Nonetheless, estimates suggest that it takes, on average, 17 years for evidence to get implemented into practice.[25]

Despite the significant impact of social connectedness on health outcomes, there is little research on how HCPs perceive these social determinants of health. HCPs have the potential to serve as a critical link in enhancing social connection. They provide preventive health education, can help identify people who are at risk for or currently lack social connection, and can address health conditions contributing to their social isolation or loneliness (e.g., mobility or sensory impairments, depression, pain). Moreover, interdisciplinary clinical teams can integrate social support into treatment and connect people to local community resources. Indeed, many published recommendations already exist that focus on education, assessment, and responses to deficits in social connection[7,9,26] but have been slow to be implemented at scale. A lack of awareness of social connection as being a health priority, knowledge around solutions, and time to address this need in the face of competing clinical priorities create barriers to addressing social connection in a medical setting.[27] Only recently have new policies been adopted at institutional levels to develop educational programs for healthcare professionals to promote social connections and navigate these challenges.[28] In a scoping review of primary care-based interventions to address social isolation and loneliness among older adults, less than one-quarter of studies reviewed reported primary care professionals actually screening for loneliness or social isolation using questionnaires, which was attributed to structural barriers within primary care settings.[29] Given there has been greater attention on the medical relevance of social isolation and loneliness among older adults,[9] screening may be even lower across ages. Understanding how providers throughout different medical centers perceive social connection and the barriers they face in discussing social connection with patients can help healthcare systems develop effective and sustainable interventions to promote social connectedness and health.

Therefore, this study examines HCPs' understanding and awareness of social connection as being important for health and longevity. Additional exploratory aims of this study include (1) examining to what extent social connection comes up in healthcare visits and (2) identifying potential barriers HCPs face in addressing social connection in clinical settings.

## METHODS

### Participants

HCPs were recruited to participate through email listservs within each healthcare system. Due to variations in approval to recruit across locations, the resulting sample is divided into two subsamples. The first included HCPs from the University of Utah Health Care System ($n = 346$) collected during August and September of 2022, and the second included HCPs from the University of California San Francisco School of Medicine, Kaiser Permanente Northern California, and Johns Hopkins School of Medicine ($n = 301$) collected between May and October of 2023. Of the resulting sample ($n = 681$), 95% of HCPs who responded were affiliated with an academic medical center or institution and practiced in urban or suburban populations.

### Procedure and measures

Participants completed an online survey that was designed to assess the perceptions of HCPs regarding the impact of social connection ("Availability of Social Support," "Being Socially Connected") on health outcomes compared to other established determinants of behavioral health (not smoking, quitting smoking, exercise, etc.), as well as items aimed at assessing the extent to which social connection came up in clinical visits and any perceived barriers to addressing social connection. The survey was designed to take less than 10 min to complete. No compensation was provided for study participation.

### Background/demographic data

A brief set of questions was obtained to assess the background and demographics of our sample, including the setting of medical practice, type of HCP, gender identity, and age.

### Rankings of importance

Similar to prior research focused on the perception of risk among the public, we used a series of ranking questions to examine the perception of decreased risk (protective effects) associated with social connection relative to other determinants of behavioral health.[30,31] Participants were instructed to "rank the following protective factors in terms of their importance as predictors of reduced mortality risk (living longer)." The following factors were included in the rankings: availability of social support, being socially connected, never smoking, quitting smoking, moderate alcohol consumption (<2 drinks per day), flu vaccination, being physically active, healthy weight (body mass index = 18.5–24.9), and medication adherence. These mirrored the items in the previous 2018 study, except we combined "Exercise" and "Physical Activity" to optimize coherence and reduce the potential for survey fatigue. Participants were also asked to estimate the potential impact of each factor on an average person's life expectancy, ranging from "no effect" to "> 7

years." The order in which the risk/protective factors were presented was randomized for each participant to minimize potential priming and order effect bias.

Similar ranking items were included to assess the perception of risk for adverse health outcomes and the perceived contribution to disease based on the same determinants of health. Participants were also asked, "To what extent does one's level of social connectedness (loneliness, isolation, social support) influence the following" health outcomes, including mental health, physical health, chronic disease, quality of life, happiness, and cognitive impairment (0 = no influence, 10 = a significant influence) (see Table 1 for exact questions).

## Integration and barriers

We also assessed the extent to which HCPs integrated social connection into discussions with patients, any real or perceived barriers to addressing social issues within patient care, the extent to which patients broached the topic during visits, and to what extent the HCP felt confident in addressing social requests during visits. The exact questions asked of participants can be found in Table 2.

This study's data collection was approved separately by each of the institutional review boards at all the universities involved. This study was preregistered on the Open Science Framework (https://osf.io/gy637). While the full dataset is not publicly available, researchers interested in examining the data further may contact the corresponding author to request access to an anonymized dataset.

## Analysis

Consistent with previously published rankings of risk perception,[30] our analysis was done on an item level. Because there was a time gap between data collection points across participating institutions, we further examined any potential differences across HCP subsamples.

To compare the rankings obtained from the combined samples of HCPs to (1) similar rankings previously published among nonclinician samples and (2) previously published effect sizes, we created a rank score. The rank score is based on a marginal rank frequency analysis, which looked at the frequency of occurrence of the 1–9 rankings across the sample, each of the nine rank positions being counted and summed per factor. A count formula was created using an R script that gave each factor points based on the frequency count. This point score was then sorted across the factors from low to high and plotted with the order (low to high) of the odds ratios of survival previously reported.[21,30] A combined rank score of each factor in the other rank items was created. The plots of these ranking comparisons can be found in Figure 1A,B.

We used the same method to analyze rankings of perceived risk across determinants of health, using the composite frequency of rankings across all respondents to plot together with effect sizes reported previously (see Figure 2A,B).

We calculated mean scores for items for which a numerical value was obtained. These included ratings of perceived negative contribution to chronic disease outcomes (see Table 3) and estimated added years to life expectancy across the various health factors (see Table 4). Mean scores were derived from recoded values from string variable representations of the estimated added number of years reported in the survey (see Table 4 for details and recoded values).

We then analyzed the perceived influence of social connectedness on various health outcomes. We first calculated the means and standard deviations of the ratings that were given by HCPs for each factor (see Table 5). Due to the nonequality in variance in this dataset after performing Levene's test for homogeneity of variance, we decided to use Welch's $t$-test for its robustness in handling unequal variances between groups.[32] Welch's two-sample $t$-test was used to compare the perceived influence of social connectedness on mental health and well-being (influence on emotional factors) compared to its influence on physical health and chronic disease (influence on physical factors). The group of emotional factors consisted of mental health and well-being/happiness, while the group of physical factors consisted of ratings of HCPs' perception of the impact of social connectedness on physical health and chronic disease (see Figure 3 for graphical comparison).

We also performed additional exploratory analyses to examine the associations between the demographic characteristics of HCPs (i.e., setting of medical practice, type of HCP, gender identity, and age) and survey responses. The details of these additional analyses and associated findings can be found in the Supporting Information.

## RESULTS

### Sample characteristics

Of the 758 respondents who opened the survey, 681 HCPs consented to participate and responded to at least one item in the survey. Of the 681 HCPs, 74% reported being a medical doctor or physician, 10% reported being a nurse practitioner, 3.2% reported being a physician assistant, 1.6% reported being a doctor of osteopathy, and 11% responded "other" and provided a description (physical therapist, psychologist, social worker, dentist, etc.). Among the sample, 59% identified as female and 40% as male. The mean age of participants was 47.2 years. See Tables 6 and 7 for a detailed breakdown of sample characteristics.

HCP subsamples 1 and 2 showed comparable distributions for age ($t(113.1)$, = 0.64 $p$ = 0.52), setting of medical practice ($p$ = 0.25), and gender identity ($p$ = 0.39). However, a Fisher's exact test revealed a significant difference in the distribution of provider types between the two subsamples ($p < 0.001$). HCP subsample 1 displayed a more balanced distribution of provider types, with the majority self-identifying as medical doctors (61.0%), followed by "other" (15.9%), nurse practitioners (14.7%), physician assistants (5.78%), and doctors of osteopathy (2.31%). A small proportion (0.29%) of respondents in HCP subsample 1 identified as resident physicians. In contrast, HCP subsample 2 was heavily dominated by medical doctors, who
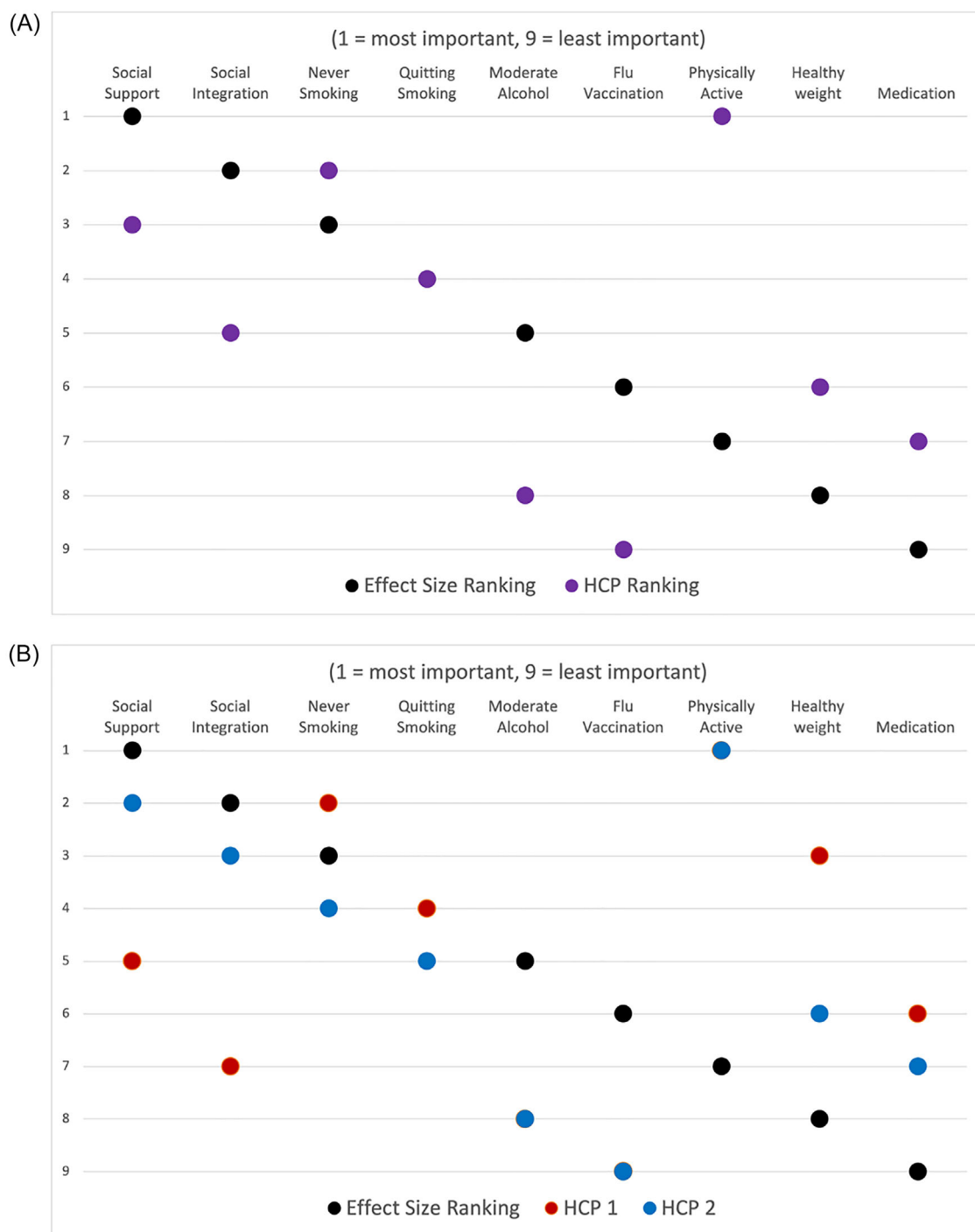
**FIGURE 1** Perceived versus effect size rankings for reduced mortality risk. (A) The ranking of the perceived importance of factors for reduced mortality risk provided by healthcare providers (HCPs) from all waves of data collection compared to effect sizes in rank order as reported in Holt-Lunstad et al.[21] The survey question said: "Rank the following protective factors in terms of their importance as predictors of reduced mortality risk (1 = most important; 9 = least important). (B) The ranking of the perceived importance of factors for reduced mortality risk provided by HCPs compared to effect sizes in rank order as reported in Holt-Lunstad et al.[21] HCP subsample 1 was collected in August 2022. HCP subsample 2 was collected between May and August 2023. The survey question said: "Rank the following protective factors in terms of their importance as predictors of reduced mortality risk (1 = most important; 9 = least important).
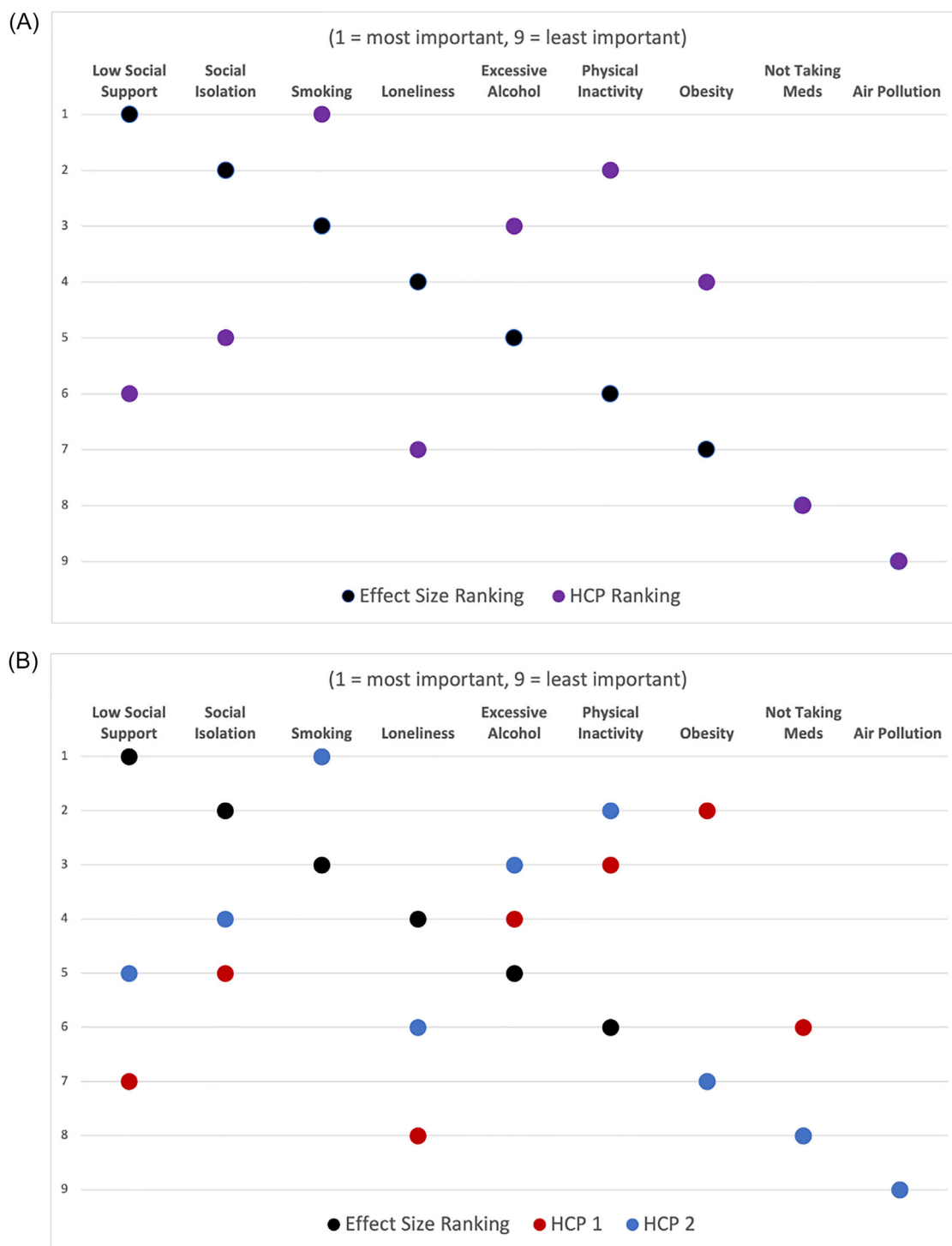
**FIGURE 2** (A) The ranking of the perceived importance of factors for increased mortality risk provided by healthcare professions (HCPs) from all waves of data collection compared to effect sizes in rank order as reported in Holt-Lunstad et al.[21] The survey question stated: "Rank the following risk factors in terms of their importance as predictors of earlier mortality." (1 = most important; 9 = least important). (B) Perceptions of potential risks, ranked by both HCP subsamples 1 and 2. The survey question stated: "Rank the following risk factors in terms of their importance as predictors of earlier mortality." (1 = most important; 9 = least important).

**TABLE 1** Items used to assess a healthcare provider's perceptions of various factors' relative importance for health and mortality.

| Survey question | Factors (presented in random order) | Response options |
| --- | --- | --- |
| "To what extent do the following factors negatively contribute to *chronic disease* outcomes?" | Smoking<br>Not quitting smoking,<br>Low or no social support,<br>Physical inactivity,<br>Excessive alcohol consumption,<br>Social isolation,<br>Obesity,<br>Medication nonadherence,<br>Loneliness,<br>Exposure to air pollution,<br>No flu vaccination. | Scale from 0 to 10: 0=no contribution; 10=a significant contribution |
| "Rank the following *protective factors* in terms of their importance as predictors of *reduced mortality risk*." | Availability of social support,<br>Being socially connected,<br>Never smoking,<br>Quitting smoking,<br>Moderate alcohol consumption (less than 2 drinks per day),<br>Flu vaccination,<br>Being physically active,<br>Healthy weight (BMI = 18.5–24.9), Medication adherence | Rank order from 1 to 9: 1=most important; 9=least important |
| "Rank the following *risk factors* in terms of their importance as predictors of *earlier mortality*." | Loneliness,<br>Low social support,<br>Social isolation,<br>Smoking,<br>Excessive alcohol consumption (more than 4 drinks per day),<br>Physical inactivity,<br>Obesity (BMI >30),<br>Medication nonadherence,<br>Exposure to air pollution | Rank order from 1 to 9: 1=most important; 9=least important |
| "To what extent does one's level of social connectedness (loneliness, isolation, social support) influence the following?" | Mental health (e.g., depression, anxiety),<br>Physical health,<br>Chronic disease,<br>Cognitive impairment (e.g., dementia),<br>Emotional well-being (happiness),<br>Quality of life,<br>Self-care (diet, exercise, sleep, etc.) | Scale from 0 to 10: 0=no influence; 10=a significant influence. |
| "Estimate added years to life expectancy for the following factors." | Not feeling loneliness,<br>Receiving social support,<br>Being socially integrated,<br>Not smoking,<br>Quitting smoking,<br>Not drinking excessive alcohol,<br>Flu vaccination,<br>Being physically active,<br>Not being obese (BMI = 18.5–24.9),<br>Medication adherence,<br>Minimal exposure to air pollution | Options: "Years Added: no effect, <1 year, 2 years, 3 years, 4 years, 5 years, 6 years, 7 years, > 7 years" |

accounted for 82.0% of respondents. Nurse practitioners represented 9.02%, while those identifying as "other" made up 6.02%, and both physician assistants and doctors of osteopathy each accounted for 1.50%. No resident physicians were present in HCP subsample 2. While HCP subsample 1 included a wider range of provider types, HCP subsample 2 was more concentrated in medical doctors, reflecting a narrower provider demographic profile.

## Rankings

When HCPs were asked to "rank the following protective factors in terms of their importance as predictors of reduced mortality risk" (1 being most important, 9 being least important), we first examined the subsamples combined (see Figure 1A). However, we discovered important differences between subsample 1 and subsample 2 (see Figure 1B).

**TABLE 2** Items used to assess a healthcare provider's level of and potential barriers to integrating social connection in clinical settings.

|  | Survey item | Response options |
|---|---|---|
| Clinician initiation | "In the last year, how often did you discuss social connectedness (loneliness, isolation, social support) with your patients?" | Every visit, Nearly every visit, Some visits, Almost Never, I have never discussed this with patients. |
|  | "What percentage of your patients do you ask about social connectedness?" | 0–100% |
|  | "Ideally in a clinical setting, how frequently should you discuss social connectedness with your patients?" | Routinely (at all or almost all visits), Periodically (e.g., annually), Only as needed, Never |
|  | "Ideally in a clinical setting, with which patients should you discuss their social connectedness?" | All patients, All patients identified as high risk, Only patients who express concern, No patients |
| Barriers | "Why do you not ask your patients about social support?" | (select all that apply) There is not enough time during standard visits. Our clinic does not have the resources to help patients with social issues. I don't feel adequately trained to help with social issues. Falls out of my scope of work as a healthcare provider. Specialists in my field deal only with our area of expertise. Asking about social support is a risk to my practice. I avoid sensitive or personal issues. I defer to social workers or other clinic staff. Other (please explain) |
| Patient initiation | "How frequently do patients bring up their social lives impacting their health within visits?" | Every visit, Nearly every visit, Some visits, Almost never, My patients never mention this. |
|  | "How frequently do patients bring up loneliness within visits?" | Every visit, Nearly every visit, Some visits, Almost never, My patients never mention this. |
| Clinician confidence | "How confident are you in addressing deficits in social connection (e.g., social isolation, loneliness, inadequate social support) in your patients and the factors that contribute to it?" | Very confident, Confident, Fairly confident, Slightly confident, Not confident |

**TABLE 3** Perceived negative contribution to chronic disease outcomes.

| Factor | Mean score |
|---|---|
| *Smoking* | 8.9 |
| *Not Quitting Smoking* | 8.6 |
| *Low or No Social Support* | 8.2 |
| *Physical Inactivity* | 8.1 |
| *Excessive Alcohol Consumption* | 8.1 |
| *Social Isolation* | 7.8 |
| *Obesity* | 7.6 |
| *Medication Nonadherence* | 7.5 |
| *Loneliness* | 7.5 |
| *Exposure to Air Pollution* | 6.4 |
| *No Flu Vaccination* | 4.7 |

*Note*: The question in the survey: "To what extent do the following factors negatively contribute to chronic disease outcomes?" (0 = no contribution; 10 = a significant contribution).

HCPs from the first subsample ranked "availability of social support" and "being socially connected" 5 and 7 out of 9, respectively. When HCPs in subsample 2 were asked to "rank the following protective factors in terms of their importance as predictors of reduced mortality risk," "availability of social support" and "being socially connected" ranked 2 and 3 out of 9, respectively. HCPs in subsample 1 ranked social factors as less important in terms of their protective ability than those in subsample 2 (see Figure 1B).

HCPs were also asked to rank similar items in order but framed them in terms of *risk* instead of protection. Rankings averaged across

**TABLE 4** Estimates of years added to life expectancy in descending order.

| Factor | Mean | SD |
| --- | --- | --- |
| *Not Smoking* | 7.8 | 1.8 |
| *Being Physically Active* | 7.2 | 1.9 |
| *Quitting Smoking* | 6.5 | 2.1 |
| *Not Being Obese (BMI = 18.5–24.9)* | 6.2 | 2.3 |
| *Being Socially Integrated* | 6.1 | 2.1 |
| *Receiving Social Support* | 5.9 | 2.0 |
| *Not Drinking Excessive Alcohol* | 5.9 | 2.3 |
| *Not Feeling Loneliness* | 5.5 | 2.2 |
| *Medication Adherence* | 5.2 | 2.2 |
| *Minimal Exposure to Air Pollution* | 4.7 | 2.2 |
| *Flu Vaccination* | 3.1 | 1.7 |

*Note*: Question asked: "Estimate <u>added</u> years to life expectancy for the following factors…" Mean scores are not exact year estimates but are mean scores of recoded values from string variable representations of estimated year options in the survey. Here is the actual recode: ("no effect" = 1, "less than 1 year" = 2, "2 years" = 3, "3 years" = 4, "4 years" = 5, "5 years" = 6, "6 years" = 7, "7 years" = 8, "> 7 years" = 9).

**TABLE 5** Perceived influence of social connectedness on various health outcomes.

| How does social connectedness (loneliness, isolation, social support) influence these… | | |
| --- | --- | --- |
| **Health outcomes** | **Mean score** | **SD** |
| *Mental Health (depression, anxiety, etc.)* | 8.9 | 1.3 |
| *Emotional Well-being (Happiness)* | 8.8 | 1.4 |
| *Quality of Life* | 8.7 | 1.4 |
| *Cognitive Impairment (e.g., dementia)* | 7.8 | 1.8 |
| *Self-care (diet, exercise, sleep, etc.)* | 7.8 | 1.6 |
| *Physical Health* | 7.6 | 1.6 |
| *Chronic Disease* | 7.4 | 1.7 |

*Note*: Question asked: "To what extent does one's level of social connectedness (loneliness, isolation, social support) influence the following?" (0 = no influence; 10 = a significant influence).

**FIGURE 3** Mean ratings of the importance of social connection for mental/emotional health and physical health factors (Mental Health, Emotional Well-being, Physical Health, and Chronic Disease). Error bars represent plus or minus one standard deviation (SD).
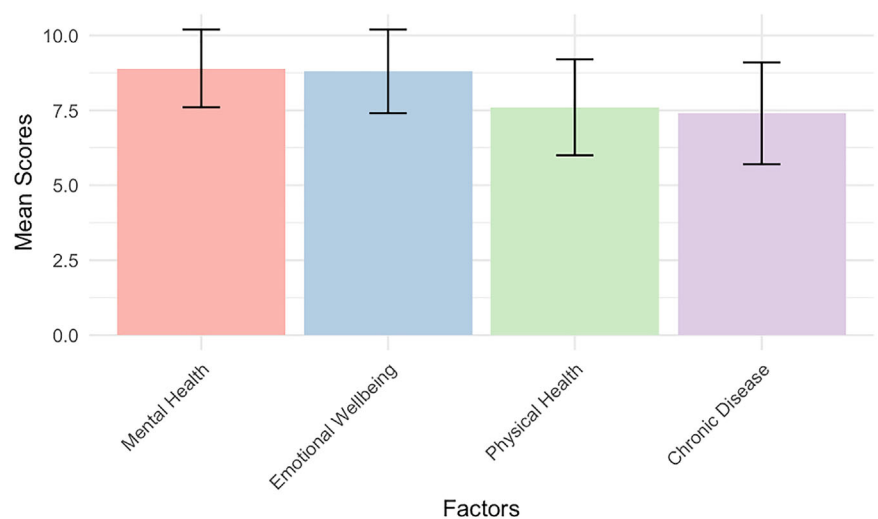
**TABLE 6** Breakdown of respondents' characteristics.

| | Frequency | Percent |
|---|---|---|
| Setting of practice | | |
| Specialty clinic | 145 | 35% |
| Hospital | 109 | 26% |
| Primary care | 79 | 19% |
| Other | 31 | 8% |
| Surgery | 24 | 6% |
| Emergency medicine | 19 | 5% |
| Home-based primary care | 4 | 1% |
| Long-term care (assisted living/skilled nursing facility) | 1 | 0% |
| Type of healthcare provider | | |
| Medical doctor or physician | 508 | 74% |
| Other (please specify)[a] | 75 | 11% |
| Nurse practitioner | 70 | 10% |
| Physician assistant | 22 | 3% |
| Doctor of osteopathy | 11 | 2% |
| Resident physician | 2 | 0% |
| Gender identity | | |
| Female | 241 | 59% |
| Male | 161 | 40% |
| Prefer not to say | 5 | 1% |
| Prefer to self-describe | 3 | 1% |
| Nonbinary/third gender | 1 | 0% |

[a]See Table 7.

all HCPs can be found in Figure 2A. However, we further examined whether rankings differed by subsample. Subsample 1 ranked social risk factors (social isolation, low social support, loneliness) as 5, 7, and 8, respectively, when asked to "Rank…risk factors in terms of their importance as predictors of earlier mortality" (1 being most important and 9 being least important). HCPs in subsample 2 ranked social isolation, low social support, and loneliness as 5, 4, and 6, respectively (see Figure 2B) for the same item.

The results of Welch's *t*-test showed a statistically significant difference in the perceived influence of social connectedness between the emotional and physical health factors among the entire sample ($t(1837.3) = 20.825$, $p < 0.001$; 95% CI [1.278, 1.543]) when including all HCPs in the analysis (see Figure 3). The mean rating for the emotional factors ($M = 8.893$) was significantly higher than that for physical health factors ($M = 7.483$). Thus, HCPs across all samples rated social connectedness as having a more significant influence on mental health and well-being than on physical health and chronic disease.

## Integration and barriers

In exploratory analyses to examine the responses to questions about integrating social connectedness into discussions with patients and barriers to addressing social issues within patient care, we found that

16.7% of HCPs report asking at least 90% of their patients about social connection. When asked "How frequently do patients bring up their social lives impacting their health within visits?" HCPs reported that 77.6% of patients brought it up (58.3% said "Some visits," 15.4% said "Nearly every visit," and 3.9% said "Every visit"). Additionally, when HCPs were asked: "How frequently do patients bring up loneliness within visits?", 42.2% reported that their patients bring it up during "Some visits," and only 1.5% said "Nearly every visit," while 47.6% said "Almost never," and 8.8% said "My patients never mention this." When asked "In the last year, how often did you discuss social connectedness (loneliness, isolation, social support) with your patients?", 4.4% responded "Every visit," 20% responded "Nearly every visit," 54.2% responded "Some visits," 15.6% responded "Almost never," and 5.9% responded "I have never discussed this with patients." Additional questions identified 67% of HCPs reporting there is not enough time during visits to address social issues, 37% reported "Our clinic doesn't have the resources to help patients with social issues," 30% reported "I don't feel adequately trained to help with social issues," and 51% said they were not confident in addressing social health issues. Lastly, when asked, "Ideally, in a clinical setting, with which patients should you discuss their social connectedness?", 70.2% of HCPs responded "All patients," 25.9% responded "All patients identified as high risk," and 3.4% responded with "Only patients who express concern," and less than 1% responded "No patients."

**TABLE 7** "Other" types of providers included in analysis.

| Type of provider | Count |
| --- | --- |
| Physical therapist | 23 |
| Psychologist | 13 |
| Social worker | 9 |
| Dentist | 5 |
| Audiologist | 4 |
| Optometrist | 3 |
| Genetic counselor | 2 |
| Integrative medicine | 2 |
| Occupational therapist | 2 |
| Certified nurse | 1 |
| Clinical neuropsychologist | 1 |
| Clinical pharmacist | 1 |
| Certified nurse midwife (CNM) | 1 |
| Doctor of audiology | 1 |
| Doctor of physical therapy | 1 |
| Fellow in physical medicine and rehabilitation | 1 |
| Health educator | 1 |
| Orthoptist | 1 |
| Periodontist | 1 |
| Neuropsychologist (PhD) | 1 |
| Speech language pathologist | 1 |
| Therapist | 1 |

## DISCUSSION

This study found that, on average, HCPs rank social connection low among a list of behavioral factors that influence health, potentially underestimating the influence of social connection on health and mortality based on previously published effect sizes. This is consistent with a similar study of a US nationally representative sample and a balanced sample from the UK, demonstrating that the public also underestimates the health relevance of social connection.[31] However, rankings varied across time and location, with social connection ranking somewhat higher among the second subsample of HCPs. Despite the variation, all HCPs rated social connection as more relevant for mental health than for physical health outcomes. Together, these findings suggest additional education efforts are needed within medical training and continuing education to raise awareness of the medical and health relevance of social connection, including the risks associated with isolation, loneliness, and inadequate social support. Such awareness is a critical first step to changing how social connection is addressed in clinical settings.

This study further revealed that the vast majority of HCPs do not discuss the health relevance of their social connection with their patients. While underestimating the health relevance of social connection may explain this, results suggest many HCPs also experience significant barriers. This was true for both subsamples despite relative differences in awareness. For example, more than two-thirds of HCPs reported they did not have enough time, approximately a third reported inadequate resources and training, and more than half reported a lack of confidence. These findings suggest that simply increasing education and raising awareness will not be enough. Even if HCPs understand the medical relevance, tangible steps will need to be taken to provide HCPs with adequate time, resources, and training to address the social needs of their patients. To put findings in the context of other health behavior assessments, screening for smoking is conducted at nearly all annual visits because of quality mandates and smoking cessation counseling for approximately 50% of those at high risk.[33] Rates of assessments for healthy diet and exercise are more variable, perhaps as they received a "C" rating from the U.S. Preventive Services Task Force (USPSTF), which recommended individualizing the appropriateness of assessment based on patient needs.[34] The USPSTF could similarly review evidence on social connection to provide a recommendation on screening and assessment. Nevertheless, given high rates of burnout and guideline-based recommendations among HCPs,[35–37] adequate support will be needed for addressing social connection.

These findings build upon and are consistent with prior research. Research suggests that loneliness is common (20%) among primary care visits, with higher rates in younger populations.[38] However, more than half of patients responded that HCPs almost never or never

bring up social connectedness during visits.[31] In this study, we found that nearly a quarter of HCPs discuss social connectedness at nearly all of their visits; however, the vast majority of HCPs infrequently if ever bring it up. Previous research suggests that 82% of patients believe doctors should address social connectedness, and yet, 44% feel uncomfortable discussing social connection with their providers.[31] Furthermore, general practitioners have difficulty identifying patients who are lonely or have low social participation.[39] In this study, we found that HCPs report that while the majority of their patients bring up their social lives, over half report that their patients never or almost never bring up loneliness during the visit. Together, these suggest that HCPs should not wait for patients to bring up their social needs.

This study underscores and builds upon research pointing to the importance of HCPs in addressing the social needs of their patients. Although there is increasing interest in social prescribing, in which HCPs can refer patients to a link or social worker who connects patients to services in their community,[40] HCPs do not always need to refer out. There are many ways to integrate social connection into treatment plans. In clinical settings, interventions include peer or group social support,[41–43] social recreation,[44–46] telephone-based social support, or social cognitive training delivered by health care providers,[47–49] and even social skills training delivered in hospitals.[50] While interventions vary in their effectiveness, a meta-analysis of 106 randomized controlled trials of interventions in medical settings found that these social interventions increased survival by 20% and survival time by 29%.[51] These findings suggest that HCPs can improve patient outcomes by integrating social connection into clinical care.

Engaging HCPs in research can be quite challenging due to time pressures, perceived study burden, and increased workload, but it is nonetheless quite valuable for optimizing healthcare delivery.[52] Therefore, a potential strength of this study is the sample size. This study also had good representation across the major medical settings of primary care, hospitals, and specialty clinics.

## Limitations and implications

Despite the strengths of this study, one major limitation is that despite considerable efforts to recruit from diverse locations, the HCPs represented in this study primarily came from two locations. Only 33 of the 681 HCPs came from other locations. Future research is needed to explore whether regional differences exist across diverse medical settings. Furthermore, the HCPs were recruited primarily from university-affiliated medical centers. Given that medical personnel at university medical centers may be more likely to be educated and aware of the most current scientific advancements, if any bias exists, awareness of the health relevance of social connection may be lower among HCPs more broadly than reported in this study.

Another potential limitation is the timing across recruitment locations. Due to significant delays in ethics approvals to recruit across locations, the timing and location of data collection are confounded. Characteristics of the locations, timing, or both could explain dif-

ferences in rankings of importance between the subsamples. For example, rankings from the first subsample of data collection were consistent with risk perception ratings obtained from the general population[30,31]—suggesting consistent underappreciation of social factors for health among the general population and the medical community. However, the relatively higher rankings among the second subsample of HCPs may be due to the characteristics of the primary sample, the University of California San Francisco Medical Center, which is also the home of SIREN (Social Interventions Research & Evaluation Network) and programs leading the promotion and integration of social services in medical settings. Thus, HCPs at this location may be more aware of the importance of social connection than HCPs elsewhere. Furthermore, the second subsample of data was also collected shortly after the release of the US Surgeon General Advisory on "Our Epidemic of Isolation and Loneliness." Either or both factors may have contributed to the greater awareness among this subsample compared to the first. Regardless, both explanations have important implications for raising awareness among HCPs.

## CONCLUSION

The impact of social determinants of health, including social connection, on various health outcomes cannot continue to be overlooked. Social connection, including social support, loneliness, and social isolation, plays a crucial role in overall health and mortality. Despite the mounting evidence regarding the significance of social connectedness, this study has identified a gap in how HCPs perceive and address these determinants of health in clinical settings. To truly impact health and health outcomes, HCPs must correctly identify what factors impact health the most, and thus, awareness of the impacts of social connection is still needed. This research also identified the significant barriers HCPs face to addressing social connection as a part of patient care, underscoring the crucial need to develop effective strategies to integrate social connection into medical practice. It is essential to advocate for educational programs and institutional policies that promote social connections and equip HCPs with the necessary tools to address the social needs of their patients.

Social disconnection is described as a public health crisis, and urgency to act is needed, yet HCPs are not equipped to address this issue as they first must identify it as a health risk factor. It is critical that we bridge the gap between the evidence demonstrating the robust health impacts and implementation. Additional educational and awareness efforts are needed but will not be enough without adequate resources and support. Such efforts are needed to create a healthcare system that more holistically focuses not only on treating diseases but also prioritizes the overall health of individuals.

## COMPETING INTERESTS

T.K.M.C. reported receiving personal fees from Edenbridge Healthcare and Papa, Inc., outside the submitted work.

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## PEER REVIEW

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