



## ORIGINAL PAPER OPEN ACCESS

# The Impact of Implementing Virtual Diabetes Group Visits on Staff and Provider Wellbeing, Job Satisfaction, and Burnout: A Mixed Methods Analysis

Rohan Moghe<sup>1</sup> | Mengqi Zhu<sup>2</sup> | Erin Staab<sup>2</sup> | Daisy Nuñez<sup>2</sup> | Sana Basheer<sup>1</sup> | Wen Wan<sup>2</sup> | Amanda Campbell<sup>3</sup> | Michael Quinn<sup>2</sup> | Cynthia T. Schaefer<sup>2</sup> | Arshiya A. Baig<sup>1</sup>

<sup>1</sup>Pritzker School of Medicine, University of Chicago, Chicago, Illinois, USA | <sup>2</sup>Department of Medicine, University of Chicago, Chicago, Illinois, USA | <sup>3</sup>MidWest Clinicians' Network, East Lansing, Michigan, USA

**Correspondence:** Rohan Moghe ([rohanmoghe@uchicagomedicine.org](mailto:rohanmoghe@uchicagomedicine.org))

**Received:** 1 March 2024 | **Revised:** 20 September 2024 | **Accepted:** 27 October 2024

**Funding:** Financial support was provided by the U.S. Department of Health and Human Services Office of Minority Health (1 CPIMP171145-01-00), Chicago Center for Diabetes Translation Research (NIDDK P30 DK092949) and the University of Chicago Center (NIH CTSA UL1 TR000430).

**Keywords:** burnout | community health centre | diabetes intervention | group visits | job satisfaction

## ABSTRACT

**Rationale:** Few have assessed the impact of group visits (GVs), or shared medical appointments, on community health centre (CHC) staff and provider burnout, wellness, and job satisfaction.

**Aims and Objectives:** This study assesses the impact of diabetes GV implementation on staff and provider morale and burnout.

**Methods:** It is a pre-post study from a larger cluster randomised trial. Two cohorts of providers and staff from 13 Midwestern CHC clinics implemented in-person ( $N = 39$ ) and virtual ( $N = 31$ ) GV for adults with diabetes. Semi-structured interviews (post-implementation) and surveys (pre and post-implementation) were conducted with staff and providers in both cohorts to assess changes in burnout, staff morale, and job satisfaction, along with reported benefits and burdens of GVs. Thematic analysis of interview transcripts and significance testing for survey data was then performed.

**Results:** Interview data came from the in-person cohort ( $N = 15$ ) and the virtual cohort ( $N = 19$ ). Survey data were collected from a total of 70 respondents from the in-person ( $N = 39$ ) and virtual ( $N = 31$ ) cohorts. Key results include reported improved relationships with colleagues (*'it has made our professional relationships stronger and I feel more comfortable talking about other things, as well'*), strengthened connections with patients (*'We were able to help patients on a deeper level and provide more detail and one-on-one care'*), and individual reward (*'Morale has increased. They're contributing and doing something positive for the patients'*). When asked about in-person versus virtual GVs, respondents noted they preferred in-person care but appreciated the flexibility virtual care afforded. Survey results revealed improved job satisfaction in the 2018 cohort and improved morale in the 2020 cohort, as well as perceived benefits including increased interprofessional collaboration and increased connection to patients.

**Conclusions:** Implementation of GVs in the CHC setting impacted key areas of burnout, including relationships, job attachment, and feelings of meaningful contribution in the workplace among providers and staff. Future clinic-based implementation studies may consider measuring staff and provider well-being as part of the evaluation.

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2024 The Author(s). *Journal of Evaluation in Clinical Practice* published by John Wiley & Sons Ltd.



in-person GVs. The onset of the COVID-19 pandemic caused the study to adapt to a virtual format [23]. FQHC staff received six additional training webinars to help with the shift to virtual care and instruction. Additionally, a paediatric endocrinologist was invited to present on virtual type I diabetes group care, and a clinical psychologist was invited to present on the effective utilisation of group telehealth services. The research team reviewed literature on the benefits of virtual GVs, and prepared to implement the virtual GVs and worksheets for the visits. Staff were also trained on REDCap, an online survey building platform, so that data could be entered and surveys distributed. Most sites already had an existing telehealth platform by which virtual visits could be conducted [24].

## 2.3 | Group Visit Implementation

FQHCs conducted six 1–1.5 h long virtual GVs monthly, with up to 12 patients with uncontrolled Type 2 diabetes and A1C  $\geq$  8%. The visits were led by trained staff on a video conferencing platform. Guest speakers from various health professions also attended these meetings periodically. The staff helped to facilitate discussions with patients that allowed peer support and conversation.

## 2.4 | Data Collection

### 2.4.1 | Staff Surveys

FQHC staff completed a pre-survey before attending any training sessions, which assessed their confidence in implementing the GVs, and asked about feelings of burnout and overall morale [23, 24]. Additionally, they completed a post-survey after 6 months of virtual GVs, assessing the GVs' impact on patients, clinicians, and the FQHC in general. Surveys included questions that staff could rate on a five-point Likert scale which included the following options: 'Strongly disagree', 'Disagree', 'Neither disagree or agree', 'Agree', and 'Strongly Agree'. To assess staff burnout we used a previously established question from the Physician Well-Being Index, with scores being binary [23]. For the survey questions related to job satisfaction and morale, novel questions were created and a 5-point Likert scale was used to report scores. Details on the survey questions are provided in a supplement.

### 2.4.2 | Staff Interviews

After the intervention had been completed, trained research team members conducted 20–45 min telephone interviews with FQHC staff involved in the GVs. Questions were based on an interview guide designed to assess staff characteristics, barriers and facilitators of GV implementation, intervention characteristics which were site-specific, desire and ability to sustain the GVs, and evaluation of the training. Interviewers also asked staff and providers about perceived benefits and burdens of the GV implementation on themselves, their relationships with colleagues, and their organisation as a whole. Interviews were audio recorded and transcribed by a professional transcription service for further analysis.

## 2.5 | Analysis

### 2.5.1 | Survey Analysis

All quantitative results were summarised with descriptive statistics. To test the difference in perceived measures related to morale and burnout between time points, generalised linear mixed-effects models (GLMM) for binary outcomes and linear mixed-effects models (LMM) for continuous outcomes were performed, where within-site association was accounted for. The standardised difference was obtained by estimated effect in difference between pre- and post-implementation divided by its standard error (SE) by LMM.

### 2.5.2 | Qualitative Analysis of Staff Interviews

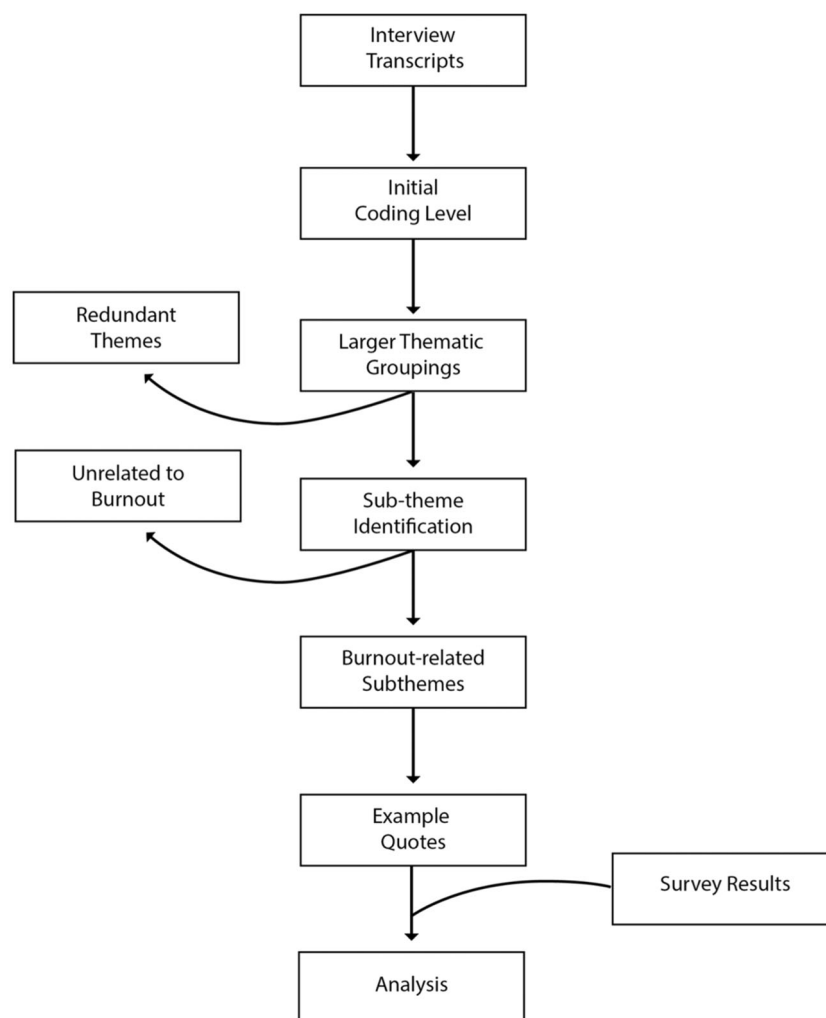
Analysis workflow is outlined in Figure 1. Investigators used a modified template approach using the interview guide to create an initial codebook [25]. The transcripts were assigned to coding pairs. Each member independently coded the assigned transcript thematically and then met with a partner to discuss discrepancies. Further coding was done to identify sub-themes and expand the codebook, utilising previously described techniques for in-depth thematic analysis [25]. NVivo 12 was used to code and organise the interview data. Before further analysis, major domains for job satisfaction and burnout were identified, which included workload, control, reward, community, fairness, values, and job–person incongruity [1, 26]. Specifically, responses to interview questions asking about burdens and benefits to the individual staff and providers were targeted. Excerpts from themes related to job satisfaction, wellness, and burnout were pulled and compiled for a cross-comparison. Relevant quotes were then thematically grouped, and examples were selected for each identified theme. A comparison analysis was performed between cohorts following thematic groupings.

## 3 | Results

In the 2018 cohort (Table 1), providers and staff ( $n = 39$ ) were an average of 46 years old, and were mostly female and non-Hispanic white. The majority of staff and provider participants did not have experience conducting GVs, and those who did have experience had generally conducted less than 6. The 2020 cohort (Table 1) of staff and providers ( $n = 31$ ) had an average age of 44 years old, and was mostly female and non-Hispanic white. There was some experience with GVs, but most had conducted fewer than three visits previously.

## 4 | Quantitative Results

Using LMM, staff and providers in the 2018 cohort reported a significant improvement in satisfaction with providing care for patients after the GV implementation ( $p < 0.001$ ). The 2020 cohort had a trend of improved satisfaction but did not reach statistical significance in our testing ( $p = 0.06$ ). Additionally, the 2020 cohort reported a significant improvement in staff morale after GV implementation ( $p = 0.01$ ). Complete results are shown in Table 2.



**FIGURE 1** | Outline for thematic analysis of post-GV staff interview transcripts.

Barriers and benefits to staff of GV implementation are shown in Figures 2 and 3. Major benefits were consistent between cohorts, with improved collaboration and connection to patients. The 2018 cohort specifically was asked before GV implementation how they expected team morale and collaboration to change, with over 80% of respondents selecting that improvements would be made in both areas. Twenty one out of 23 respondents (91.3%) in the 2018 cohort and 16 out of 17 (94.1%) in the 2020 cohort reporting that a benefit of GVs for staff was improved collaboration and teamwork. Twenty one of 22 (95.4%) in the 2018 cohort and 15 of 16 (93.8%) of 2022 respondents agreed that a better understanding of patients was a perceived benefit of GVs. Perceived burdens of GVs were less consistent between cohorts, with the 2018 cohort reporting overall higher rates of each listed burden than the 2020 cohort.

## 5 | Qualitative Results

There were five major themes identified in the staff and provider interview responses: Individually Rewarding, Colleague Relationships, Time Commitment, Patient Relationships, and Virtual versus In-Person. These could be further divided into sub-themes, which have been shown in Table 3. Themes were consistent across both cohorts, with the exception of the ‘Virtual versus In-Person’ theme, which only was relevant for the 2020 cohort.

### 5.1 | Individually Rewarding

Staff and providers described being satisfied with their ability to meaningfully impact patient lives directly. Respondents mentioned that team morale had improved through the group visits. Additionally, the GVs allowed for a change of pace and improved creativity in their workflow. Respondents from both cohorts mentioned that GVs provided a welcome change to their work schedule and also allowed for the development of new skills.

### 5.2 | Colleague Relationships

Respondents described improved relationships between co-workers, both personally and professionally. Some responses also described an increased respect for skills of their colleagues, with mention of improved morale overall in the workplace.

### 5.3 | Time Commitment

Some participants noted increased workload for staff, due to participation in the study as well as the new implementation of GVs. Additionally, the 2018 cohort mentioned that providers

**TABLE 1** | Provider and staff characteristics for 2018 and 2020 cohorts.

Demographic measure	N (%)/ Mean (SD)
2018 Cohort (Pre-training <i>N</i> = 39)	
Age <sup>a</sup>	42.4 (14)
Female <sup>a</sup>	29 (76)
Race	
Hispanic/Latino <sup>a</sup>	3 (8)
Non-Hispanic American Indian, Native American, Alaska Native	1 (2)
Non-Hispanic Black or African American	2 (5)
Non-Hispanic White	33 (80)
More than one race	1 (2)
Previous experience	
Years in practice <sup>a</sup>	11.0 (11.6)
Years providing care to adult patients with diabetes <sup>a</sup>	8.9 (11.1)
Years at health centre site <sup>a</sup>	6.7 (8.1)
Do you have any previous experience with group visits? <sup>a</sup>	13 (39.39)
Number of GVs conducted <sup>a</sup>	4.6 (2.5)
Last time conducting visit <sup>a</sup>	1.4 (0.5)
Position	
Primary care provider	5 (13)
Nurse	6 (15)
Clinical support staff	6 (15)
Admin clinical	0 (0)
Admin non-clinical	6 (15)
Other Professional	16 (40)
2020 Cohort (Pre-Training <i>N</i> = 31)	
Age	42.0 (11.1)
Female	28 (90)
Race	
Hispanic/Latino	1 (3)
Non-Hispanic American Indian, Native American, Alaska Native	1 (3)
Non-Hispanic Asian or Pacific Islander	1 (3)
Non-Hispanic Black or African American	5 (16)
Non-Hispanic White	19 (61)
More than one race	5 (16)
Previous experience	
Years in practice <sup>a</sup>	11.5 (9.0)
Years providing care to adult patients with diabetes <sup>a</sup>	11.1 (10.8)

**TABLE 1** | (Continued)

Demographic measure	N (%)/ Mean (SD)
Years at health centre site <sup>a</sup>	4.2 (4.4)
Do you have any previous experience with group visits? <sup>a</sup>	6 (33)
Number of GVs conducted <sup>a</sup>	2.5 (0.8)
Last time conducting visit <sup>a</sup>	1.6 (0.8)
Position	
Primary care provider <sup>a</sup>	3 (14)
Nurse <sup>a</sup>	8 (38)
Clinical support staff <sup>a</sup>	2 (10)
Admin clinical <sup>a</sup>	2 (10)
Admin non-clinical <sup>a</sup>	4 (19)
Other clinician <sup>a</sup>	2 (10)

<sup>a</sup>Indicates missing values  $\geq 5\%$ .

felt their time was being stretched when other providers were busy with GVs, leading to a higher perceived workload. This sentiment was not described in the 2020 cohort. Concerns related to workload and time expenditure were the most common reported concerns related to wellness, with many staff and providers noting that the increased workload due to participation in a quality improvement (QI) project was a stressor.

#### 5.4 | Patient Relationships

The individual connection with patients was described as having been improved, and glimpses into the personal lives of patients allowed for more meaningful work. Responses consistently noted that there was increased attention to the patients' personal lives, which was often perceived by providers as satisfaction with patient care and overall interpersonal connection.

#### 5.5 | Virtual Versus In-Person

The 2020 cohort also uniquely touched on the difference between in-person and virtual GVs, and the most common sentiment was that in-person visits were preferred for patient engagement, but virtual GVs offered a flexibility for patients which made them more accessible.

### 6 | Discussion

Group visits have been an emerging useful tool in clinical settings, but there has been little study into their benefits to staff and provider work satisfaction and wellness. The literature has shown that burnout and job dissatisfaction have been associated with increased workload, decreased reward, and depersonalisation [27, 28]. The primary aim of this research was to understand how GVs influenced provider and staff perception related to wellness, job satisfaction, and burnout, and to

**TABLE 2** | Staff and provider job satisfaction and burnout from pre-training and post-GV implementation.

	<b>Pre-training (Mean, SD) n = 26</b>	<b>Post-GV (Mean, SD) n = 23</b>	<b>p value</b>	<b>Standardised difference (95% CI)*</b>
<b>2018 Cohort</b>				
During the past month, have you felt burned out from your work? (number of 'yes' responses, %)	10 (0.42)	11 (0.48)	0.3	—
How satisfied are you with your experience providing care to adult patients with diabetes at this health centre? (1 = Very satisfied; 2 = Satisfied; 3 = Neutral; 4 = Dissatisfied; 5 = Very dissatisfied)	2.23 (0.59)	1.61 (0.66)	< 0.001	-1.29 (-1.98, -0.60)
Please rate the level of staff morale in your clinic. (1 = Poor; 2 = Fair; 3 = good; 4 = Very good; 5 = Excellent)	3.19 (0.85)	2.96 (1.18)	0.42	-0.40 (-1.09, 0.29)
	<b>Pre-training (Mean, SD) n = 21</b>	<b>Post-GV (Mean, SD) n = 17</b>	<b>p value</b>	<b>Standardised difference (95% CI)*</b>
<b>2020 Cohort</b>				
During the past month, have you felt burned out from your work? (number of 'yes' responses, %)	9 (0.43)	8 (0.50)	0.4	—
How satisfied are you with your experience providing care to adult patients with diabetes at this health centre? (1 = Very satisfied; 2 = Satisfied; 3 = Neutral; 4 = Dissatisfied; 5 = Very dissatisfied)	2.05 (0.74)	1.625 (0.62)	0.06	-0.78 (-1.80, 0.25)
Please rate the level of staff morale in your clinic. (1 = Poor; 2 = Fair; 3 = good; 4 = Very good; 5 = Excellent)	2.81 (0.93)	3.25 (0.93)	0.01	1.13 (-0.09, 2.34)

\*Due to missing data, the standardised difference was obtained by estimated effect in difference between pre- and post-implementation divided by its SE by LMM.

understand their experiences in delivering care in this format. Significance testing revealed a reported improvement in satisfaction in providing care in the 2018 cohort, and a similar trend was observed in the 2020 cohort, although statistical significance was not reached. These results, along with reported improvement in staff morale in the 2020 cohort post-implementation, were encouraging and showed that there was a quantifiable benefit to GVs for providers. We found that the benefits of GVs for staff and providers were increased collaboration among colleagues, increased individual satisfaction and reward, and increased patient connection from interviews. The major reported drawback was an increase in time taken due to the evaluation component and implementation of the virtual group visits. The interview results reveal a potential association between GV implementation and increased provider and staff job satisfaction in community health centres.

The strengthening of both professional and personal relationships between colleagues through working on the GV implementation was the single most consistent theme in responses from both cohorts, which could be particularly important in community health centres with a smaller staff and higher rates of turnover [29]. Increased collaboration is an effective inhibitor of burnout, leading to more work engagement and combating depersonalisation [30]. Effort-reward imbalance has been studied as a factor for burnout and job fatigue, and so it was worth

looking for signs of reward in interview responses [31]. Individual satisfaction with work and the feeling of reward was a commonly reported sentiment in both cohorts, supporting the idea that GVs can be an effective method of improving job satisfaction and work engagement. These results are consistent with findings from a 2017 meta-analysis which looked at workplace implementations which improved burnout in physicians [32]. In that study, it was demonstrated that implementations which increased communication and cultivated teamwork between colleagues were the most effective in improving feelings of burnout.

The patient-provider relationship is a complex one that is often only discussed in the context of improving patient care. There has been an observed inverse relationship between provider burnout and patient-provider communication, but the reverse relationship has not been studied [33]. This study demonstrates the perceived improvement in patient-provider relationship due to GVs, which included a deepened connection to patients. Further investigation of the importance of patient-provider connection in the prevention of burnout should be conducted, to test the viability of interventions that target the strengthening of this relationship.

The nature of the feelings of work overload varied between cohorts, with no clear agreement that running the GVs themselves increased workload when compared to baseline. While

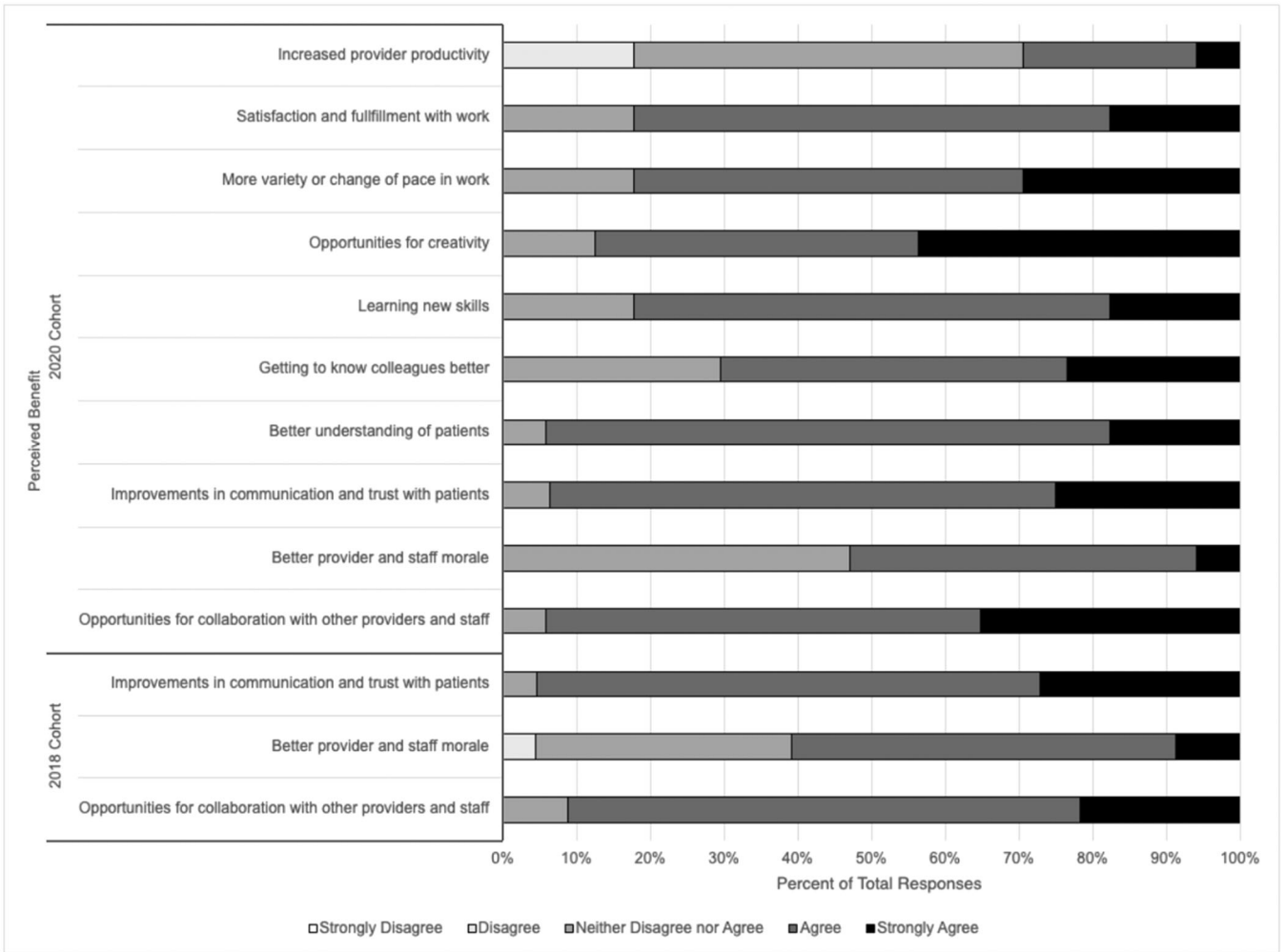


FIGURE 2 | Responses from 2018 to 2020 cohorts related to perceived benefits of GVs ( $n = 23$ ).

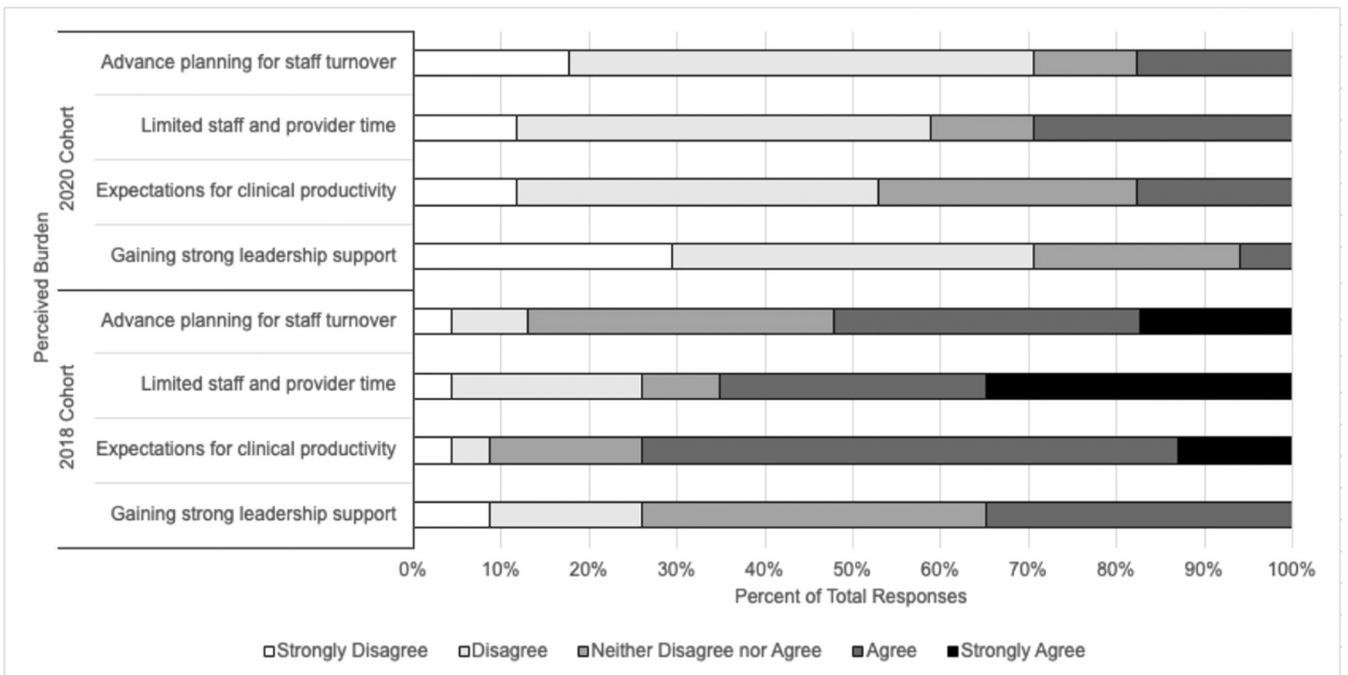


FIGURE 3 | Responses from 2018 to 2020 cohorts related to barriers to implementation of GVs ( $n = 17$ ).

**TABLE 3** | Example quotations of staff and provider job satisfaction, wellness, and burnout from post-GV interviews ( $N = 13$ ).

Theme	Subtheme	Example quotation
Individually Rewarding	Improved Morale	<p>“The people on the team, their morale has increased. They feel like they’re contributing and doing something positive for the patients.”</p> <p>— 2018 Cohort Participant</p>
	Satisfaction	<p>“It’s the satisfaction of knowing that we’ve helped in some way, somehow. Because we know that our population of people, they’re very hard to get through to sometimes, let alone get a hold of.”</p> <p>— 2020 Cohort Participant</p>
	Change of Pace	<p>“This has just been something different for me personally. So I have gotten a lot out of it from that aspect. It’s still the work I do, but it’s just a different way of doing it. That has been beneficial.”</p> <p>— 2020 Cohort Participant</p>
Colleague Relationships	Increased Collaboration	<p>“I think having that strong team building within the study and collaboration,... it has made our professional relationships stronger and I feel more comfortable talking with them about other things, as well.”</p> <p>— 2018 Cohort Participant</p>
		<p>“I would say it definitely benefited our staff in that we worked together creating education that we wanted to go over with our patients.”</p> <p>— 2020 Cohort Participant</p>
	Improved Morale	<p>“I think that we’ve been able to all get a lot closer, not only through work, but ...there’s a better morale between everyone.”</p> <p>— 2018 Cohort Participant</p>
		<p>“It helps me to relate to the other team members in a different way and bring us closer together. There’s a newfound respect for many of my colleagues who had some role in all of this project.”</p> <p>— 2020 Cohort Participant</p>
Taken Time	Less Time for Other Patients	<p>“Sometimes I think it puts stress on the other providers covering that they... might have to see more patients because one provider’s out, but I think that’s more of perceived than what it really is.”</p> <p>— 2018 Cohort Participant</p>
	Increased Workload	<p>“I think the biggest resource for us was staff time. So all of the coordination and the planning and the data to identify the patients to focus on, that was probably that the most, the highest expense.”</p> <p>— 2020 Cohort Participant</p>
		<p>“That’s the part where we all felt overloaded because nothing really fell by the wayside. We just got more tacked on.”</p> <p>— 2020 Cohort Participant</p>
Patient Relationships	Individual Connection with Patients	<p>“I know that the doctors liked that we were doing this because we were better able to assist and help their patients on a deeper level and provide more detail and one-on-one care in a manner of speaking.”</p> <p>— 2020 Cohort Participant</p>
Virtual versus In-Person	Virtual Preference	<p>“I actually felt like engagement was a little bit better when we were doing our tele-health, obviously depending on the topic. So I thought they actually went really well.”</p> <p>— 2020 Cohort Participant</p>
	In-Person Preference	<p>“I think in-person training is always nice to build some comradery, to be able to just bring people, like-minded people together and idea sharing. I do think that in our busy world today, though, having those trainings held virtually does allow people to participate without having to travel.”</p> <p>— 2020 Cohort Participant</p>

the 2018 cohort expressed that provider time was being occupied by the GVs, the 2020 cohort often mentioned increased work and time-related stressors related to participation in the study itself. The responses from the 2018 cohort related to a perceived increase in workload per provider during GV implementation could be attributed to a range of tasks from administrative and research related to programme implementation, and so it is unclear what specific burdens this group faced. While programmatic tasks related to GV implementation would remain as long as GVs remained, research tasks would not persist past the study length. The difference in workload-related concerns between cohorts could be due to a variety of reasons, but the onset of the COVID-19 pandemic may have been a contributing factor, as workload did increase during the pandemic [26]. There is growing evidence that the added burdens associated with working through a pandemic made it difficult for staff and providers to engage with quality improvement projects, and this idea is supported by the feelings of increased workload in the 2020 cohort [34]. On the other hand, another study showed that the sudden onset of the pandemic rendered it a driving force for change in the workflow of healthcare staff [35]. In this study, the use of separate cohorts makes it difficult to directly compare the effects of virtual versus in-person GVs on staff wellness and workload. However, the shift to virtual care with the 2020 cohort did provide a sort of natural experiment through which these observations could be collected. This model, where staff and provider responses to the same implementation could be collected both before and during the COVID-19 pandemic, offers a unique perspective into how staff engage with quality improvement projects as a whole.

Limitations of this study include the length of time of GV implementation only being 6 months, which could have affected staff and provider responses as they may have not had adequate time to adjust to the new format. When looking at survey results, the sample size may have been too small to accurately measure any significant differences in feelings of morale and burnout; despite this, in the interview responses we found that staff and providers did feel the GVs improved feelings of morale amongst team members. In a 2023 meta-analysis which focused on exhaustion as an outcome, it was shown that the average standardised effect size of  $-0.30$  was modest, and our measures for quantitative changes in morale hovered at this mark as well [36]. These issues could be accounted for due to the limited scope of questions asked by the survey, which did not ask about specific dimensions of burnout. Additionally, survey results could be affected by ceiling effect in responses, but this should be consistent across questions. The validity of the known measures of burnout have been called into question as well, with a newer index being proposed by Schaufeli [11]. Finally, this study consisted of only Midwestern CHCs and was limited to responses by only staff and providers from these sites, so the results may not be generalisable to all populations.

Group visits are a unique tool which place the provider in a more patient-focused and collaborative role [37]. Looking into the effect of GV implementation on wellness and burnout measures in CHCs is especially important because of the specific challenges that they face, which include limited staff availability and increased staff and provider turnover rates.

Implementations that increase perceived patient-provider connection and collaboration among colleagues should be further researched to combat provider burnout and improve work satisfaction. Finally, these results should encourage future quality improvement and novel implementation projects to measure impact on provider wellness, burnout, and job satisfaction.

## 7 | Conclusions

Our study found that staff and providers felt that GVs allowed for work that improved relationships and collaboration with colleagues, deepened the patient-provider connection, and fostered a feeling of reward from the work. These findings are encouraging in that they address key aspects of burnout theory, including combating a sense of depersonalisation and lack of reward. These findings were consistent between qualitative and survey results. Statistical analysis did not find a significant change in measures of burnout or morale as a result of the implementation, although interview results remain encouraging. The findings of this study are especially important for CHCs to review and consider, as they are already burdened by high rates of staff and provider turnover. This work supports GVs as a sustainable model of care in CHCs, and showcases a need for future implementations which are aimed at improving workplace environments.

### Author Contributions

R.M. performed thematic analysis and drafted the manuscript. M.Z. performed the statistical analysis. E.S. and D.N. helped design and carry out the study. S.B., W.W., A.C., M.Q., and C.T.S. helped with the design and with editing the manuscript. A.A.B. designed the study and oversaw its components, including editing the manuscript.

### Acknowledgements

A special thank you goes to the health centres that participated in this study. Funded by the U.S. Department of Health and Human Services Office of Minority Health (1 CPIMP171145-01-00). The contents of this presentation are solely the responsibility of the authors and do not necessarily represent the official views of OMH. Additional funding by the Chicago Center for Diabetes Translation Research (NIDDK P30 DK092949) and the Dean's Office of the Biological Sciences Division of the University of Chicago Study data were collected using REDCap, hosted by the University of Chicago Center for Research Informatics (NIH CTSA UL1 TR000430). This work was presented as a poster at the Society of General Internal Medicine Annual Conference, Aurora, CO, 10 May 2023.

### Ethics Statement

The University of Chicago IRB approved this study. The trial was registered at [clinicaltrials.gov](https://clinicaltrials.gov) (NCT02347514).

### Conflicts of Interest

The authors declare no conflicts of interest.

### Data Availability Statement

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

## References

1. C. Maslach, S. E. Jackson, and M. P. Leiter, "Maslach Burnout Inventory: Third Edition," in *Evaluating Stress: A Book of Resources*, eds. C.P. Zalaquett and R.J. Wood (Scarecrow Education, 1997), 191–218.
2. T. D. Shanafelt, C. M. Balch, G. Bechamps, et al., "Burnout and Medical Errors Among American Surgeons," *Annals of Surgery* 251, no. 6 (2010): 995–1000, <https://doi.org/10.1097/SLA.0b013e3181bfdab3>.
3. T. D. Shanafelt, J. A. Sloan, and T. M. Habermann, "The Well-Being of Physicians," *The American Journal of Medicine* 114, no. 6 (2003): 513–519, [https://doi.org/10.1016/S0002-9343\(03\)00117-7](https://doi.org/10.1016/S0002-9343(03)00117-7).
4. C. Stehman, Z. Testo, R. Gershaw, and A. Kellogg, "Western Journal of Emergency Medicine," *Western Journal of Emergency Medicine* 20, no. 3 (2019): 485–494, <https://doi.org/10.5811/westjem.2019.4.40970>.
5. "ICD-11 for Mortality and Morbidity Statistics," accessed July 14, 2024, <https://icd.who.int/browse/2024-01/mms/en#129180281>.
6. M. Ruhe, R. S. Gotler, M. A. Goodwin, and K. C. Stange, "Physician and Staff Turnover in Community Primary Care Practice," *Journal of Ambulatory Care Management* 27, no. 3 (2004): 242–248, <https://doi.org/10.1097/00004479-200407000-00008>.
7. R. Willard-Grace, M. Knox, B. Huang, H. Hammer, C. Kivlahan, and K. Grumbach, "Burnout and Health Care Workforce Turnover," *The Annals of Family Medicine* 17, no. 1 (2019): 36–41, <https://doi.org/10.1370/afm.2338>.
8. A. Johnson-Kwochka, W. Wu, L. Luther, M. W. Fischer, M. P. Salyers, and A. L. Rollins, "The Relationship Between Clinician Turnover and Client Outcomes in Community Behavioral Health Settings," *Psychiatric Services* 71, no. 1 (2020): 28–34, <https://doi.org/10.1176/appi.ps.201900169>.
9. I. Savic, A. Perski, and W. Osika, "MRI Shows That Exhaustion Syndrome Due to Chronic Occupational Stress Is Associated With Partially Reversible Cerebral Changes," *Cerebral Cortex* 28, no. 3 (2018): 894–906, <https://doi.org/10.1093/cercor/bhw413>.
10. A. F. T. Arnsten and T. Shanafelt, "Physician Distress and Burnout: The Neurobiological Perspective," *Mayo Clinic Proceedings* 96, no. 3 (2021): 763–769, <https://doi.org/10.1016/j.mayocp.2020.12.027>.
11. R. Bianchi, I. S. Schonfeld, and E. Laurent, "Burnout Syndrome and Depression," in *Understanding depression: Volume 2. Clinical manifestations, diagnosis and treatment*, ed. Y.-K. Kim (Publications and Research, 2018), [https://academicworks.cuny.edu/gc\\_pubs/473](https://academicworks.cuny.edu/gc_pubs/473).
12. R. S. Nocon, P. C. Fairchild, Y. Gao, et al., "Provider and Staff Morale, Job Satisfaction, and Burnout Over a 4-Year Medical Home Intervention," *Journal of General Internal Medicine* 34, no. 6 (2019): 952–959, <https://doi.org/10.1007/s11606-019-04893-z>.
13. B. Aust, J. L. Møller, M. Nordentoft, et al., "How Effective Are Organizational-Level Interventions in Improving the Psychosocial Work Environment, Health, and Retention of Workers? A Systematic Overview of Systematic Reviews," *Scandinavian Journal of Work, Environment & Health* 49, no. 5 (2023): 315–329, <https://doi.org/10.5271/sjweh.4097>.
14. A. S. Tenforde, H. Borgstrom, G. Polich, et al., "Outpatient Physical, Occupational, and Speech Therapy Synchronous Telemedicine: A Survey Study of Patient Satisfaction With Virtual Visits During the COVID-19 Pandemic," *American Journal of Physical Medicine & Rehabilitation* 99 (2020): 977–981, <https://doi.org/10.1097/PHM.0000000000001571>.
15. E. B. Noffsinger, "The Drop-In Group Medical Appointment Model: A Revolutionary Access Solution for Follow-Up Visits," *Running Group Visits in Your Practice* (Dordrecht, New York, NY: Springer, 2009).
16. S. T. Wong, A. Browne, J. Lavoie, M. Macleod, M. Chongo, and C. Ulrich, "Incorporating Group Medical Visits Into Primary Healthcare: Are There Benefits?," *Healthcare Policy | Politiques de Santé* 11, no. 2 (2015): 27–42.
17. D. I. Bisno, M. W. Reid, J. L. Fogel, E. A. Pyatak, S. Majidi, and J. K. Raymond, "Virtual Group Appointments Reduce Distress and Improve Care Management in Young Adults With Type 1 Diabetes," *Journal of Diabetes Science and Technology* 16, no. 6 (2022): 1419–1427, <https://doi.org/10.1177/19322968211035768>.
18. J. F. Garcia, E. Faye, M. W. Reid, et al., "Greater Telehealth Use Results in Increased Visit Frequency and Lower Physician Related-Distress in Adolescents and Young Adults With Type 1 Diabetes," *Journal of Diabetes Science and Technology* 17, no. 4 (2023): 878–886, <https://doi.org/10.1177/19322968221146806>.
19. D. C. Klonoff, A. M. Yeung, J. Huang, et al., "Twenty-first Century Management of Diabetes With Shared Telemedicine Appointments," *Journal of Telemedicine and Telecare* (2023): 1357633X231184503, <https://doi.org/10.1177/13576333X231184503>.
20. A. Thompson-Lastad and P. Gardiner, "Group Medical Visits and Clinician Wellbeing," *Global Advances in Health and Medicine* 9 (2020): 2164956120973979, <https://doi.org/10.1177/2164956120973979>.
21. F. Sasangohar, S. L. Jones, F. N. Masud, F. S. Vahidy, and B. A. Kash, "Provider Burnout and Fatigue During the COVID-19 Pandemic: Lessons Learned From a High-Volume Intensive Care Unit," *Anesthesia & Analgesia* 131, no. 1 (2020): 106–111, <https://doi.org/10.1213/ANE.0000000000004866>.
22. J. S. Abildgaard, P. Ø. Saksvik, and K. Nielsen, "How to Measure the Intervention Process? An Assessment of Qualitative and Quantitative Approaches to Data Collection in the Process Evaluation of Organizational Interventions," *Frontiers in Psychology* 7 (2016): 1380, <https://doi.org/10.3389/fpsyg.2016.01380>.
23. D. Nuñez, D. Marino-Nuñez, E. M. Staab, et al., "Adapting In-Person Diabetes Group Visits to a Virtual Setting Across Federally Qualified Health Centers," *Frontiers in Health Services* 2 (2022): 961073, <https://doi.org/10.3389/frhs.2022.961073>.
24. L. N. Dyrbye, D. Satele, J. Sloan, and T. D. Shanafelt, "Utility of a Brief Screening Tool to Identify Physicians in Distress," *Journal of General Internal Medicine* 28, no. 3 (2013): 421–427, <https://doi.org/10.1007/s11606-012-2252-9>.
25. B. F. Crabtree and W. F. Miller, "A Template Approach to Text Analysis: Developing and Using Codebooks," in *Doing Qualitative Research. Research Methods for Primary Care*, eds. B.F. Crabtree and W.L. Miller (Sage Publications, Inc, 1992), 93–109.
26. C. Maslach and M. P. Leiter, "Early Predictors of Job Burnout and Engagement," *Journal of Applied Psychology* 93, no. 3 (2008): 498–512, <https://doi.org/10.1037/0021-9010.93.3.498>.
27. M. E. Hoogendoorn, S. Brinkman, R. J. Bosman, J. Haringman, N. F. de Keizer, and J. J. Spijkstra, "The Impact of COVID-19 on Nursing Workload and Planning of Nursing Staff on the Intensive Care: A Prospective Descriptive Multicenter Study," *International Journal of Nursing Studies* 121 (2021): 104005, <https://doi.org/10.1016/j.ijnurstu.2021.104005>.
28. A. Moukarzel, P. Michelet, A. C. Durand, et al., "Burnout Syndrome Among Emergency Department Staff: Prevalence and Associated Factors," *BioMed Research International* 2019 (2019): 6462472, <https://doi.org/10.1155/2019/6462472>.
29. L. A. Brabson, J. L. Harris, O. Lindhiem, and A. D. Herschell, "Workforce Turnover in Community Behavioral Health Agencies in the USA: A Systematic Review With Recommendations," *Clinical Child and Family Psychology Review* 23, no. 3 (2020): 297–315, <https://doi.org/10.1007/s10567-020-00313-5>.
30. C. Foà, M. C. Guarnieri, G. Bastoni, et al., "Job Satisfaction, Work Engagement and Stress/Burnout of Elderly Care Staff: A Qualitative Research," supplement, *Acta Bio-Medica: Atenei Parmensis* 91, no. S12 (2020): 2020014, <https://doi.org/10.23750/abm.v91i12-S.10918>.
31. C. Padilla Fortunatti and Y. K. Palmeiro-Silva, "Effort-Reward Imbalance and Burnout Among ICU Nursing Staff: A Cross-Sectional Study," *Nursing Research* 66, no. 5 (2017): 410–416, <https://doi.org/10.1097/NNR.000000000000239>.

32. M. Panagioti, E. Panagopoulou, P. Bower, et al., “Controlled Interventions to Reduce Burnout in Physicians: A Systematic Review and Meta-Analysis,” *JAMA Internal Medicine* 177, no. 2 (2017): 195–205, <https://doi.org/10.1001/jamainternmed.2016.7674>.
33. R. Robbins, M. Butler, and A. Schoenthaler, “Provider Burnout and Patient-Provider Communication in the Context of Hypertension Care,” *Patient Education and Counseling* 102, no. 8 (2019): 1452–1459, <https://doi.org/10.1016/j.pec.2019.03.014>.
34. S. Hughes Spence, Z. Khurshid, M. Flynn, J. Fitzsimons, and A. De Brún, “A Narrative Inquiry Into Healthcare Staff Resilience and the Sustainability of Quality Improvement Implementation Efforts during Covid-19,” *BMC Health Services Research* 23 (2023): 195, <https://doi.org/10.1186/s12913-023-09190-4>.
35. Z. Khurshid, E. McAuliffe, and A. De Brún, “Exploring Healthcare Staff Narratives to Understand the Role of Quality Improvement Methods in Innovative Practices During COVID-19,” *BMC Health Services Research* 21 (2021): 1271, <https://doi.org/10.1186/s12913-021-07297-0>.
36. I. Bes, Y. Shoman, M. Al-Gobari, V. Rousson, and I. Guseva Canu, “Organizational Interventions and Occupational Burnout: A Meta-Analysis With Focus on Exhaustion,” *International Archives of Occupational and Environmental Health* 96, no. 9 (2023): 1211–1223, <https://doi.org/10.1007/s00420-023-02009-z>.
37. S. E. Mannon, E. M. Staab, J. Li, et al., “Patient and Clinician Satisfaction With Diabetes Group Visits in Community Health Centers,” *Journal of Patient Experience* 8 (2021): 23743735211056467, <https://doi.org/10.1177/23743735211056467>.
38. M. Maguire and B. Delahunt, “Doing a Thematic Analysis: A Practical, Step-By-Step Guide for Learning and Teaching Scholars,” *All Ireland Journal of Higher Education* 9, no. 3 (2022): 2017, <https://ojs.aishe.org/index.php/aishe-j/article/view/335>.

### Supporting Information

Additional supporting information can be found online in the Supporting Information section.