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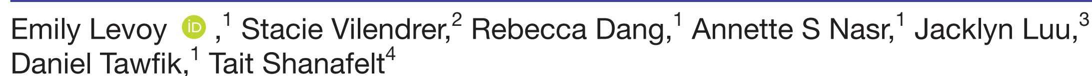
Physician perspectives of clinical performance feedback and impact on well-being: a qualitative exploration



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ABSTRACT

Objectives Providing clinical performance feedback to physicians is an established method to improve care, but the impact on physician well-being is unclear. This evaluation aimed to better understand physician perspectives on clinical feedback and its potential impact on well-being.

Design A qualitative design using semi-structured interviews was undertaken. Data were analysed via consensus coding using an inductive–deductive approach informed by Clinical Performance Feedback Intervention Theory. Findings were used to develop a novel framework describing the relationship between feedback and well-being.

Setting Interviews were conducted in a large academic medical centre from June–September 2021.

Participants We conducted 25 semi-structured interviews with general outpatient and inpatient paediatricians and internists.

Results Physicians felt that feedback supported well-being based on its perceived purpose (intended to promote professional growth vs serving an alternative purpose), which they discerned based on feedback content (aligned with physician priorities vs not aligned), validity (accurate vs inaccurate), actionability (specific vs not, within a physician's sphere of control vs not) and delivery (supportive vs punitive). The Clinical Performance Feedback Well-Being Model is presented to understand how feedback and recipient variables impact well-being.

Conclusions Attention to the process and content of physician clinical performance feedback may advance both the quality of care and physician well-being.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This evaluation provides new knowledge of physician perceptions of the impact of clinical performance feedback on well-being.

⇒ Though we explored physician perceptions in both the inpatient and outpatient setting and in internal medicine and paediatrics, our findings were limited to a single academic medical centre and did not include subspecialist perspectives.

⇒ Our qualitative exploration offers rich insight into the experiences of participants, however, there is a risk of selection bias given the volunteer nature of participation.

INTRODUCTION

Providing physicians with feedback, or measures of clinical performance delivered formally by the health system, is an established improvement tool across healthcare, but inconsistencies in implementation have led to variable impact.[1 2] Feedback best practices to promote acceptance and change include choosing feedback topics that are meaningful and relevant to the physician,[3–5] emphasising the importance of stakeholder buy-in and engagement, but less is known about physician perspectives on feedback and their potential impact on well-being. The clinical focus area, means of measurement and means of delivery all appear to matter, with performance feedback in some contexts associated with improved well-being[6–8] and in others with decreased job satisfaction.[9 10] Given the adverse association between physician burnout and quality of care,[11–16] patient experience,[17 18] access to care[18–21] and the ability to engage in improvement,[22–24] healthcare organisations can benefit from a deeper understanding of how feedback systems might be designed to simultaneously promote quality of care and support physician well-being.

One way to optimise feedback impact is to include feedback on performance content areas that physicians deem valuable. An underemphasis on feedback metrics corresponding to physician values may contribute to perceived value misalignment between physicians and healthcare organisations, with physicians placing high value on patient relationships and quality of care but perceiving that their organisations place greater emphasis on financial performance and operational efficiency.[25–27] For example, institutions often provide feedback on clinical productivity measured in relative value units (RVUs), which is often interpreted by

physicians as a sign the organisation cares more about financial considerations than the provision of high-quality care.[25 28 29] In one qualitative study exploring burnout in primary care physicians, the theme of 'professional dissonance' with feedback metrics emerged, suggesting potential harm when feedback is exclusively provided in areas that do not align with a physician's professional values.[30] A better understanding of which areas physicians most value and desire to develop may support more holistic feedback content.

How clinical performance is measured and how feedback is delivered may also play a role in physician well-being. New evidence suggests that publicly comparing a physician's performance to peers may negatively impact well-being without improving performance;[10] physicians appear to instead favour receiving performance feedback through private one-on-one discussions focused on professional development.[8] Evidence suggests feedback that is valid, formative rather than punitive, actionable and anchored within an overarching improvement structure leads to improved performance; however, the impact of these characteristics on well-being has not been examined.[4 31]

This qualitative evaluation draws from the Clinical Performance Feedback Intervention Theory (CP-FIT)[3] conceptual framework in order to understand physicians' perspectives regarding clinical performance feedback and well-being. Based on findings indicating the importance of new dimensions not emphasised by CP-FIT, the data were also used to inform the development of a novel framework expounding on the relationship between feedback and well-being. The results provide a foundation for the design of future feedback initiatives to optimise both well-being and performance improvement.

METHODS

Setting and participants

Faculty physicians at the Stanford University School of Medicine practice in two large healthcare systems (Stanford Healthcare and Stanford Children's Health), both of which capture measures of clinical performance to feedback to physicians; however, divisions within these two affiliated health systems vary in the type, amount and structure of feedback provided (online supplemental file A). Four generalist practice settings including paediatric primary care (PedsPCP), paediatric hospital medicine (PedsHosp), adult primary care (AdultPCP) and adult hospital medicine (AdultHosp) were chosen to explore a range in the types of feedback valued as well as the types of feedback provided. 48 potential participants were chosen via maximum variation sampling to represent a diversity of perspectives across age, extraclinical roles as determined by per cent clinical full-time equivalent, gender and race/ethnicity and were contacted by email.[32] Eight potential participants responded that they were unable to participate and 15 individuals did not respond to two email attempts. Each participant gave informed consent prior to being interviewed. Interviews were conducted until no new themes emerged.[33]

Qualitative analysis

Interviews ranging from 16 to 48 min (mean 29 min) using a semi-structured protocol (online supplemental file B) were conducted from June to September 2021 by two paediatric hospitalists in the organisation who had undergone training in qualitative interviewing (EL, RD). Interviews occurred over web conference (Zoom Video Communications, San Jose, California, USA) and were transcribed verbatim. Data collection and analysis occurred simultaneously using inductive–deductive thematic analysis to identify themes related to physician feedback preferences through periodic consensus discussions by three authors (EL, doctorate-level researcher ASN, masters-level trainee JL) initially guided by the CP-FIT framework[3] (deductive) with adjustments based on emergent interview data (inductive) (table 1). Feedback characteristics explored from CP-FIT included: Goal (the improvement goal chosen for feedback and its relevance and importance to participants), data collection and analysis and feedback delivery. Feedback on non-clinical topics such as teaching and scholarly activity was initially explored in the interviews given their importance in academic medicine, however, the focus of the analysis

Table 1 Participant interview items as they relate to elements of Clinical Performance Feedback Intervention Theory (CP-FIT)[2]

CP-FIT feedback characteristic	Interview item	Code
Goal	What qualities and skills do you aspire to embody as a doctor?	Aspirational goals
	What would you say are the domains addressed by the clinical performance feedback you currently receive?	Clinical performance feedback received
	What areas would you like to receive feedback on?	Desired feedback
Data collection/analysis	How do you know if you are doing your job well?	Clinical performance feedback received
Feedback delivery	What are some of the ways that you receive clinical performance feedback?	Clinical performance feedback received
	How would you like to receive feedback on your clinical performance in the future?	Desired feedback

was on clinical performance feedback encapsulating commonly used ongoing professional practice evaluation metrics.[34]

Three authors (EL, ASN, JL) independently coded three interviews from each cohort of physicians, initially using deductive codes derived from CP-FIT then identifying new inductive codes, and met to discuss codebook revisions based on inductive analysis. The remaining interviews were then coded independently by at least two authors with weekly meetings to discuss discrepancies and codebook revisions using a consensus coding approach. Coded data were summarised into a thematic matrix where rows represented participants and columns were divided into codes. The matrix was colour coded based on the valence of comments (favourable or unfavourable) to identify patterns within subpopulations of physicians based on practice setting.

The lead author (EL) reviewed the analysed data in depth to draft an early outline of a novel framework to better describe the relationship between performance feedback and well-being which was reviewed, discussed and edited at several stages with input from all authors.

The work presented here was guided by the consolidated criteria for reporting qualitative research.[35]

This evaluation was reviewed by the Stanford Institutional Review Board and did not meet the definition of human subject research (Protocol ID: 59894).

Patient and public involvement

This evaluation focused on the physician experience so it did not involve coproduction with patients or the public.

RESULTS

A total of 25 interviews were conducted with faculty physicians. The majority of participants were women (15/25, 60%) and aged<50 years (16/25, 64%). The most common self-identified ethnicities represented were Asian or Asian American (8/25, 32%), White (6/25, 24%) and South Asian (5/25, 20%) (table 2).

Table 2 Participant demographics

Characteristic	N (% of total)
Total	25 (100)
Division	
Primary care and population health (AdultPCP)	7 (28)
General paediatrics (PedsPCP)	7 (28)
Paediatric hospital medicine (PedsHosp)	6 (24)
Hospital medicine (AdultHosp)	5 (20)
Sex	
Female	15 (60)
Male	10 (40)
Age category (years)	
<40	8 (32)
40–49	8 (32)
50–59	4 (16)
≥60	4 (16)
Missing	1 (4)
Race/ethnicity	
Multiracial	2 (8)
South Asian (Indian)	5 (20)
White	6 (24)
Black or African American	0 (0)
Latinx (Latino, Latina)	1 (4)
Asian or Asian American	8 (32)
Missing	3 (12)
Years in practice (years)	
<10	9 (36)
≥10	15 (60)
Missing	1 (4)
% Clinical time	
<50%	7 (28)
≥50%	18 (72)

On the discussion of their preferences about feedback, participants described a desire to improve communication and clinical skills and believed feedback held the potential to be supportive of well-being through fostering professional growth. The absence of any feedback was felt to be suboptimal. When feedback occurred, physicians discussed five feedback variables that influenced its impact on well-being (see figure 1 and table 3): The perceived purpose of feedback (intended to promote professional growth vs serving an alternative purpose), feedback content (aligned with physician priorities vs not aligned), feedback validity (accurate vs inaccurate), feedback actionability (specific vs vague, within a physician's sphere of control vs outside of a physician's sphere of control) and feedback delivery (supportive vs punitive). Additionally, two recipient variables (low feedback expectations and reliance on self-assessment) seemed to attenuate the potential negative impact of suboptimal feedback or lack of feedback on well-being and improvement.

Feedback supports well-being by fostering professional growth

Overall, physicians described that receiving feedback on their clinical performance would support their well-being or at worst would have no impact on their well-being. Even corrective feedback was seen as beneficial to well-being if it allowed for 'recognizing how you might be able to improve' (PedsPCP5). In contrast, lack of feedback from the health system was viewed as detrimental to well-being by not providing opportunities for professional growth 'because the worst-case scenario is never to get feedback' (PedsPCP5).

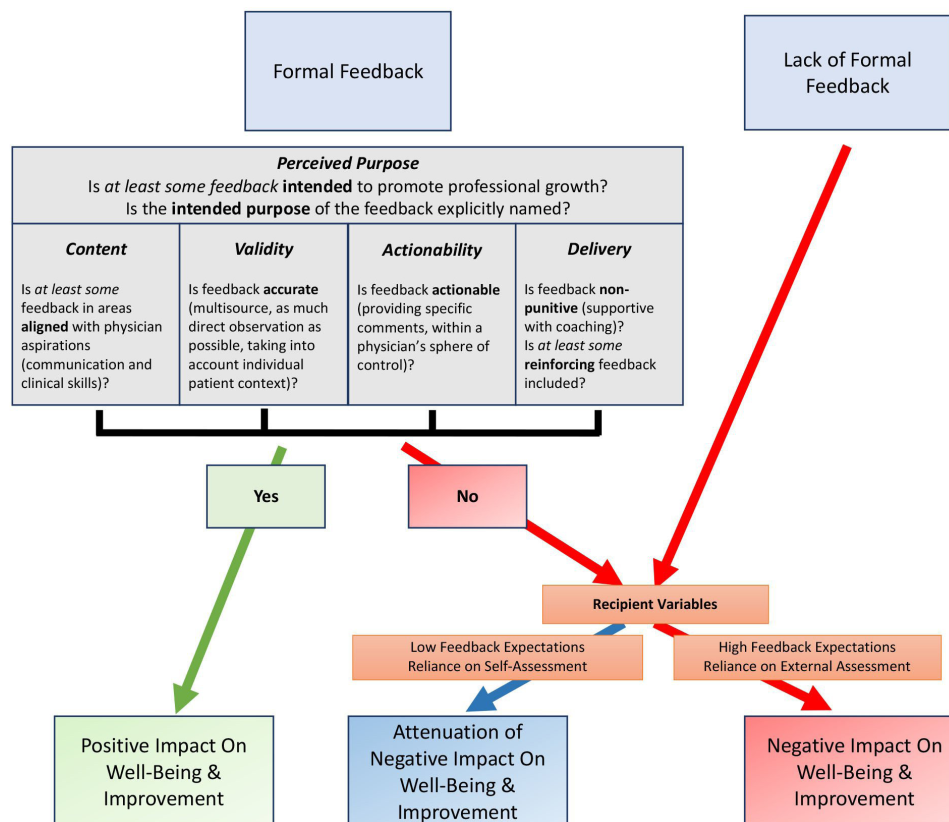

Figure 1 Formal feedback from the health system was perceived to have a positive impact on well-being and improvement if the perceived purpose of the feedback was to promote professional growth, if at least some of the content areas of the feedback aligned with physician aspirations, if feedback was valid and actionable and if feedback was non-punitively delivered with at least some reinforcing feedback included. Feedback with the reverse characteristics was perceived to have a potentially negative impact on well-being and improvement as was a lack of formal feedback from the health system. The potential negative impact of suboptimal formal feedback or lack of formal feedback on well-being and improvement was attenuated by recipient variables of low feedback expectations and reliance on self-assessment of performance.

Perceived purpose of feedback

Physicians spoke of the perceived purpose of feedback from the health system when considering its impact on well-being. One physician named this the most important factor: 'at the end of the day, the intention is everything' (AdultHosp1). Another commented that well-being was supported when they perceived that 'somebody set it up so that I can see how I'm doing so that I can set goals and improve and feel good about that' (PedsPCP7).

While perceived intentions of promoting professional growth supported well-being, physicians also described experiences with other perceived intentions such as using feedback as a means to increase revenue for the health system. Others perceived the purpose of feedback was to evaluate a physician's baseline performance: 'it's sort of like a check of like, okay, this person is doing okay,' as compared with feedback they received in a different work setting which they described as 'supposed to be a lot more actionable feedback, it's a little different mindset' (PedsPCP2). Finally, some physicians perceived intentions behind feedback as 'punitive… a way for people to be political and to lash out' (AdultHosp5).

Feedback content

We explored feedback content preferences (the 'goal' in CP-FIT) through a discussion of the qualities and skills that participants aspired to embody as a physician. Physicians' comments converged on clinical and communication abilities as aspirational goals. Many mentioned compassion, kindness and patience as well as evidence-based decision-making. Operational elements such as efficiency were only mentioned by one participant and with a caveat: 'I think those [other] skills I mentioned are often not exactly aligned with efficiency. But the holy grail is if you can do all of that in an efficient manner' (AdultPCP5).

Though operational elements were largely absent in the discussion of physician aspirations, some physicians did note the practical importance of billing for clinic revenue and of quick documentation turnaround time for continuity of patient care and they were not opposed to receiving feedback in these areas. Others were less interested in operations feedback, commenting that 'billing is something I don't want to learn… Someone else should do it, not us' (AdultPCP7).

Table 3 Sample quotations supporting clinical performance feedback well-being model

Feedback variables	Example quotation(s)
Perceived purpose of feedback	'The most important thing I can say is the system from which the messages come in are as important as the messages, probably more important than the messages themselves… I think you just have to look at the system and say, 'Here's the system that we're providing. What's the intention of it?' And at the end of the day, the intention is everything.' AdultHosp1 'I do think that it could be helpful to people's well-being to know… somebody set it up so that I can see how I'm doing so that I can set goals and improve and feel good about that.' PedsPCP7
Feedback content	'We do get documentation queries and… I think most people find them as an annoyance… I guess in some ways that is documentation feedback.' AdultHosp5
Feedback validity	'A [clinical] note hasn't even come to me [for signature] and I had to send multiple emails, and there was some error… And the fact that you have to get this full [email] saying… 'If you don't do this tonight, you'll be suspended on Thursday.' No one wants to see that.' AdultHosp1
Feedback actionability	'What does this number even mean?… Why did that person not recommend me? What was that encounter like? What could I have done differently?… So that, to me, also is not very useful feedback… While high numbers make you feel good and low numbers make you feel bad, ultimately, [they] aren't very useful in thinking about what I'm doing right or wrong.' AdultPCP6
Feedback delivery	
Non-punitive	'I think I kind of mentioned it depends on how feedback is deployed, I guess, if it feels like a punitive thing and stuff, of course, it's not going to help your well-being and it makes you kind of question. So I think it's really delicate, it's a delicate line to walk in terms of being able to convey that feedback is meant for improvement vs it being punitive, I guess.' AdultHosp5
Includes reinforcing feedback	'I think when you get positive feedback… it makes you feel good. And so that's always helpful because if you're slugging away at things… I mean academic medicine is so funny where we're like martyrs, like, you know, it's not for the money, I guess, (it's) for the praise.' PedsPCP2 'I think it's been really helpful to hear both reinforcing and corrective feedback. I think you need to have both.' PedsHosp6
Recipient variables	
Feedback expectations	'I think in terms of the lack of overall feedback, I think for me personally it's very expected, I guess… So I don't know how much it really affects me.' AdultPCP3
Reliance on self-assessment	'I'm sorry, I don't really care that much about feedback anymore because I know myself so well now… Since I know myself so well, I usually would not be bothered that much, but when I was younger, I would take it so seriously and personally that I would get depressed and sad for a long time. I felt like I lost my confidence. I lost my self-esteem. But, with getting older, I know where I stand. I know exactly what I'm doing. It never bothered me again.' AdultPCP7
Reliance on external assessment	'It creates a sense of insecurity when you don't know how you're doing. And when you only get feedback rarely, it increases your fear of getting feedback.' PedsPCP1

AdultHosp, adult hospital medicine; AdultPCP, adult primary care; PedsHosp, paediatric hospital medicine; PedsPCP, paediatric primary care.

Many commented that operations feedback was the only structured feedback they received and some found it so irrelevant they hesitated to consider it feedback at all: 'I don't really think that I do [receive feedback]. I mean, I get some report that I don't look at from somebody… I think they're from the hospital about the clinical activity I've had… and I think that's more relevant for the RVU people probably. But I find it not at all helpful, so I don't look at it at all, because it feels like to me there's no benefit' (PedsHosp5).

Some physicians additionally discussed that the areas chosen for feedback seemed reflective of their importance to the health system: 'I guess probably of the various domains that I shared… right now it seems like some things are disproportionately reported [back to us as feedback] and some things are underreported… So if these things all matter, shouldn't they be shared in a relatively comparable frequency?' (AdultPCP5).

Feedback validity

Physicians considered the validity of feedback, described as the accurate measurement of the intended outcome, when reflecting on feedback and well-being. Physicians described experiences with validity concerns that had a negative impact on well-being, particularly when the feedback was corrective. One physician described being evaluated on data that proved to be inaccurate, 'which really bothered' them (PedsPCP1).

Many challenges with validity related to lack of direct observation: 'there is no one else really observing our clinical work who could give us feedback' (PedsHosp4). The validity of feedback was questioned when it came from supervisors who had never interacted with the recipient clinically. Some used this as a call for multisource feedback including multiple team members:

> I wish the nurses could do my evaluation since they know when I spend time with families and they know that I respond to them when I have my pager on… Let's have the nurses do my evaluations and I might be a happier person (PedsPCP1).

Many physicians also discussed frustrations with the validity of feedback when nuanced individualised care was lost in population-level metrics: 'a major downside to that being the context is not at all considered… It does not take into consideration everything else going on, which could include patient specific information that would influence what one does' (PedsHosp5).

Feedback actionability

The actionability of feedback, described as the provision of sufficient information to drive changes in practice, was also perceived to impact well-being. Some physicians described challenges with actionability that negatively impacted well-being even in the content areas they valued most.

Discussions of feedback actionability centred around the use of comments versus numerical scales. One physician described frustration with the current system, because 'it just shows up as like a number on your bonus. And so, I mean, I don't even look at it very much' (AdultPCP6), whereas comments were described by others as 'most helpful' to 'change your practice' and were 'more concrete' (AdultHosp2). Physicians discussed the impact of actionable feedback on well-being, stating that feedback 'that is less specific in terms of what exactly someone can do' (AdultHosp4) can contribute to burnout while more actionable feedback can promote well-being.

Participants also described actionability challenges when feedback seemed reflective of systems-level issues outside of their direct control. There was a desire for team-level feedback as opposed to individual-level feedback in these situations. Otherwise, 'you just happen to be part of the system when an outcome happens… Because you can't get the labs earlier if the lab gives them to you late' (PedsHosp1). Another physician described frustrations with cancer screening metrics because such measures are dependent on the clinic's outreach abilities, so 'it's tough to do something on an individual level… It's not like oh, I've been forgetting about asking about cervical cancer screening, and that's why the number's low' (AdultPCP6).

Feedback delivery

Physicians additionally discussed the impact of feedback delivery on well-being. Many discussed the importance of having feedback be non-punitive, suggesting this could be supported by a third party with skills in reflection such as a coach or 'someone who's disconnected from the supervisor, employer, evaluator role, but someone who's clearly on my side trying to help me' (PedsHosp2).

Many physicians also spoke of the importance of reinforcing feedback to promote well-being. Others posited that a balance between corrective feedback and reinforcing feedback was best for well-being, otherwise 'you always wonder is it just people are afraid to give kind of constructive feedback too' (AdultPCP5). Regardless of the exact balance, physicians discussed that an overemphasis on corrective feedback did not support well-being: 'The negative feedback is always frustrating and is always vexing because it never adds the, you know, 'but I'm trying' (AdultPCP4).

Recipient variables

Physicians described recipient variables that could attenuate the potential negative impact of lack of feedback or suboptimal feedback on well-being, including expectations around feedback and reliance on self-assessment. Some physicians who did not receive feedback from the healthcare system did not identify any impact on their well-being, noting that because they were not expecting feedback, they 'haven't necessarily made a link between feedback and the lack of feedback, and well-being' (PedsPCP6).

Some physicians relied on their personal ability to self-assess performance, lessening the negative impact of lack of feedback or suboptimal feedback on well-being, while others relied more heavily on external assessment, causing feedback or lack thereof to play a larger role in their well-being. Some physicians discussed that they have 'the habit of a very self-reflective self-feedback' and track their own growth, causing a lack of routine formal feedback to no longer 'bother me that much' (PedsHosp4). Others expressed discomfort with solely relying on self-assessment: '[You] don't know how you're doing, sometimes it's ambiguous and you're not sure if you're doing a good job' (PedsPCP5), leading 'the lack of a structured, consistent anticipated process' for feedback to 'create some stress sometimes… walking on eggshells sort of feeling' (PedsHosp2). Some physicians commented that they grew to rely more on self-assessment of performance over the course of their career, making them more resilient to critical feedback and less dependent on formal feedback. However, some later career physicians still desired feedback to help them gauge their performance and continue to improve.

DISCUSSION

The results of this novel qualitative analysis into the impact of clinical performance feedback on well-being among a diverse group of frontline physicians suggest that physicians prefer to receive feedback from health systems to help them improve performance. Consistent with prior literature,[8] the lack of any type of feedback misses an opportunity to enhance, and could possibly

erode, physician professional fulfilment. Physicians also had strong viewpoints on the purpose and characteristics of feedback. The purpose of optimal feedback was perceived as intending to promote professional growth, as demonstrated by whether feedback content aligned with areas physicians desire to improve (eg, communication and clinical skills), whether feedback was valid (ie, accurate, multisource when possible, using as much direct observation as possible, taking into account individual patient context) and actionable (ie, specific and within a physician's sphere of control) and whether delivery was non-punitive with at least some component of reinforcing feedback (when appropriate). Feedback with the opposite characteristics, especially if perceived as primarily serving an alternate purpose such as hospital financial performance, was viewed unfavourably. Finally, individual recipient characteristics such as low expectations for feedback or reliance on self-assessment appeared to decrease the perceived negative impact of a lack of feedback or suboptimal feedback on well-being.

Although our qualitative analysis evaluating the link between clinical performance feedback and well-being in a diverse group of physicians is novel, our findings are limited to a small sample from a single academic institution and did not include subspecialist perspectives, which may limit generalisability. Our evaluation additionally did not include any participants who self-identified as Black or African American. We also may have encountered selection bias given the volunteer nature of participation with almost half of the interview requests either declined or unanswered. It is possible that non-responders had different views on feedback as they may have represented a busier population, precluding their participation, or they may have been less motivated to participate due to less strongly held views on feedback. Despite these limitations, the fact that many characteristics identified as influencing the impact of feedback on well-being aligned with multiple studies evaluating the impact of feedback on performance (eg, valid, formative rather than punitive, actionable) supports the potential benefits of continued research in this area.[4 31]

Our novel analysis provides important additions to the existing feedback literature. While we used the CP-FIT[3] framework variables to guide our data collection and analysis, CP-FIT was developed to understand feedback's impact on performance, whereas our aim was to understand the complementary question of how feedback and lack thereof impacts physician well-being. The results indicated the importance of novel dimensions not emphasised by CP-FIT, leading us to use the data to develop a complementary framework: the Clinical Performance Feedback Well-Being Model (figure 1). The dominant impact of the presence or absence of feedback as well as the purpose of feedback are incorporated in this novel framework based on our inductive analysis.

Feedback initiatives to improve performance primarily face challenges in implementation rather than theory,[36] where feedback recipients are key stakeholders who must be engaged in order for feedback to foster desired outcomes.[2] In this regard, occupational burnout in physicians is associated with decreased engagement[16] and quality of care[11–16] as well as impaired ability to improve systems and processes,[22 24 37] all of which have both direct and indirect implications for feedback effectiveness in the realms of quality, safety and performance. Our exploration adds insight into specific physician preferences regarding the purpose, content, validity, actionability and delivery of feedback and offers new practical guidance for healthcare leaders as they design and optimise formal feedback initiatives with the intent of fostering professional growth, well-being and improved quality of care. This opportunity might be approached by considering feedback from the vantage of 'Why?', 'What?' and 'How?'.

Most health systems have multiple 'why's' behind providing feedback to physicians including improved clinical care, ensuring basic qualifications are met, punishing poor performance, improving business operations and promoting professional development. While it thus is not expected that health systems provide feedback exclusively aimed at promoting professional growth, our findings align with prior work suggesting that transparently and explicitly highlighting existing learning-oriented feedback systems can support both performance improvement and well-being.[38] Our findings additionally identify communication skills and clinical acumen as the aspirational content areas for the 'what' of feedback, consistent with prior literature on physician perceptions of qualities and skills core to being a 'good doctor'.[39 40] Ensuring that the content of at least some feedback is provided in these valued areas in addition to necessary operational feedback, which some physicians found so irrelevant they did not even classify it as feedback, can promote feedback effectiveness[3 4] and foster perceptions of personal-organisational values alignment.[41] Finally, our findings highlight the 'how' of performance measurement and feedback delivery, suggesting that even feedback in valued areas may be detrimental to well-being if it is perceived as unactionable, invalid or punitively delivered. This could explain why, even though many physicians aspired to embody qualities and skills related to patient experience, feedback within this area can have either a negative[8] or positive[9] impact on job satisfaction depending on how performance is measured and feedback delivered.

The finding that recipient characteristics influence how feedback is received is also relevant and consistent with prior work.[42 43] Physicians who relied on external sources to assess their performance and had high expectations of receiving feedback were particularly impacted by a lack of regular feedback, describing a sense of constant apprehension toward looming infrequent corrective feedback. Notably, physicians relying on self-assessment of their performance may still have poorly calibrated self-evaluation and could benefit from regular valid and actionable feedback from external sources.[44] In these cases, suboptimal corrective feedback may have an attenuated negative impact on well-being but could still be poorly accepted, particularly if perceived as lacking

validity.[3 22 23] Additionally, although desired, physicians may struggle with receiving corrective feedback, perhaps due to perfectionistic tendencies reinforced by the professional culture.[45 46] Our findings indicate the importance of non-punitive delivery of corrective feedback and ensuring balanced valence of feedback with the inclusion of reinforcing feedback.[42 43] Coaching may additionally help physicians understand the value of professional feedback and integrate it into their practice, supporting professional growth and in some circumstances, well-being.[47 48]

Additional study is needed to further investigate these findings in diverse populations across diverse settings, including non-academic health systems and specialty care, as well as to help health systems understand how to operationalise these insights into practice. Many organisations currently follow a piecemeal approach in which operational leaders design feedback based on productivity, patient experience teams design feedback on patient satisfaction, education teams design feedback on teaching performance and so forth. The physician experience of receiving feedback can thus be fragmented and may neglect critical dimensions, engendering perceived values misalignment. Future exploration of the novel feedback framework proposed here as part of interventional studies could assess the impact of thoughtfully designed, holistic feedback programmes guided by evidence-based best practices and could better define how to operationalise feedback systems to improve both physician performance and well-being.

CONCLUSIONS

This evaluation offers a novel analysis of the impact of clinical performance feedback on physician well-being and sets the stage for further work evaluating optimised feedback programmes to improve both clinical performance and physician well-being. The deliberate design of holistic performance feedback programmes has the potential to advance both physicians' professional development as well as organisational goals. Based on our findings, we propose such programmes begin by ensuring at least some feedback is provided with the explicit intent of fostering professional growth and that the content of at least some feedback is provided in the clinical performance areas that physicians value. Feedback must also be valid and actionable. Finally, it is important to deliver feedback in a non-punitive way that includes reinforcing feedback. Further evaluation of the novel feedback framework proposed here as part of interventional studies may also better define how to design and operationalise feedback systems to improve both physician performance and well-being as well as foster professional development.

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Contributors EL contributed to the conception and design of the work, the acquisition of data, the analysis and interpretation and the drafting and editing of the manuscript. SV contributed to the conception and design of the work, the interpretation of the data, the reviewing and editing of the manuscript. RD contributed to the acquisition of data and the reviewing and editing of the manuscript. ASN and JL contributed to the analysis and interpretation of the data and the reviewing and editing of the manuscript. DT and TS contributed to the conception and design of the work, the interpretation of the data and the reviewing and editing of the manuscript. EL is responsible for the overall content as guarantor.

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