

# Performance-Based Reimbursement, Illegitimate Tasks, Moral Distress, and Quality Care in Primary Care: A Mediation Model of Longitudinal Data

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## ABSTRACT

**PURPOSE** We tested for direct and indirect effects that performance-based reimbursement (PBR) in primary care has on perceived individual and organizational quality of care, and the role of illegitimate tasks and moral distress as potential mediators.

**METHOD** We used results from the Longitudinal Occupational Health survey in Healthcare Sweden with data collected in 2021, 2022, and 2023. The sample of primary care physicians who answered at all 3 years and were aged 68 or less was 433. Performance-based reimbursement was measured using a single item. The Bern Illegitimate Tasks Scale measured illegitimate tasks, and moral distress was measured with a 10-item scale. Six items from the English National Health Staff Survey were used to measure the quality of individual and organizational care.

**RESULT** Of the 433 participants, 70% reported that PBR negatively impacted their work. Performance-based reimbursement was negatively associated with illegitimate tasks ( $b = -0.160$ ; 95% CI,  $-0.240$  to  $-0.080$ ) and moral distress ( $b = -0.134$ ; 95% CI,  $-0.210$  to  $-0.058$ ). These work factors were in turn associated with both individual and organizational quality of care. Using mediation models, we found an indirect effect ( $b = 0.011$ ; 95% CI,  $0.004$  to  $0.021$ ) but no direct effect ( $b = 0.062$ ; 95% CI,  $-0.019$  to  $0.143$ ) between PBR on the quality of individual care.

**CONCLUSION** Performance-based reimbursement systems should account for the experience of individual primary care physicians to ensure effective, safe, and quality care, as this study shows how the level of illegitimate tasks and moral distress due to a PBR system can undermine care delivery. Consequently, it is imperative for stakeholders to consider how health care systems relate to the health care staff's experience, well-being, and the care being provided.

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## INTRODUCTION

New public management is an approach to running public service organizations that embraces performance monitoring systems focused on quantifying outcomes.<sup>1</sup> For health care organizations, effective and efficient quality of care is a key performance output that is regularly measured.<sup>2-4</sup> In Sweden, the health care system is universal, publicly funded, and is organized under 21 decentralized political assemblies that set the goals for health care organizations and determine how results toward the goals are measured.<sup>5</sup> Goals are operationalized through performance management and measurement systems, which are processes designed to assess, analyze, and improve the performance of individuals, teams, departments, or entire organizations. There is increasing criticism about the lack of effectiveness of new public management;<sup>6</sup> however, little is known about the consequences of these systems on physicians' experience of work and on care outcomes.

A common form of performance management and measurement systems is performance-based reimbursement (PBR).<sup>7</sup> This is a control system in which clinics are reimbursed for services provided with the intention of providing effective and efficient care. In Sweden, PBR operates at the clinic level and is not a financial incentive system for individual physicians. Use of PBR has been found, however, to lead to shorter patient visit times and selection of low-risk or less-ill patients.<sup>8-10</sup> This has resulted in physicians arguing against PBR as it undermines current medical standards, practices, and values.<sup>9-11</sup>

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The increased use of PBR systems has been associated with increased formalization and bureaucratization,<sup>1</sup> leading to a large amount of work for preparation and reporting of performance metrics,<sup>1,12</sup> and physicians reporting less autonomy and poorer well-being.<sup>13</sup> A qualitative study of Swedish physicians<sup>8</sup> highlighted how PBR systems increased the amount of illegitimate tasks (ie, tasks beyond the scope of an employee's primary responsibilities); unreasonable tasks (ie, tasks outside a professional's role); and unnecessary tasks (ie, tasks not anticipated for a particular position).<sup>14,15</sup> These tasks include completing additional paperwork, entering specific details and diagnoses into data systems, booking separate consultations for separate conditions of one patient, and physicians seeing patients that a nurse could treat.<sup>8</sup>

In a PBR system, increases in illegitimate tasks reduce time available for clinical work<sup>8</sup> which could create a feeling of moral distress (eg, feelings of stress or guilt due to forced unethical decisions).<sup>16,17</sup> Although long understood in the health care sector, recognition of moral distress gained substantial traction during the COVID-19 pandemic.<sup>18,19</sup> The focus, however, has been on the demands from trauma exposure that do not allow health care workers to be able to give the level of care that they want to.<sup>19</sup> In this study, we apply moral distress to the context of PBR, responding to calls to examine moral distress in relation to business and corporate structures.<sup>20</sup> Reduced time spent on core clinical tasks due to more administrative (ie, illegitimate) tasks<sup>21,22</sup> could cause feelings of moral distress due to being unable to provide the care needed by the patients, and undermining their belief in the quality of care they are providing.<sup>23,24</sup>

While moral distress has been postulated to be linked to patient care,<sup>16,18,25</sup> to date there has been limited empirical testing of the relationship. One cross-sectional study reported no association between moral distress and satisfaction with care quality among hospital physicians.<sup>26</sup> The quality of care measure in this study contained items pertaining to care provided by the clinician and the health care team. As moral distress is closely linked to an individual's appraisal of their personal situation and control of it,<sup>17</sup> the appraisal of their own behaviors is more proximal than outcomes at the care unit level—which could be reliant on the actions of others.<sup>27,28</sup> A negative appraisal of PBR with its increase of illegitimate tasks and feelings of moral distress could also strengthen the belief that the full potential of the clinic is not being utilized. This harms patients and health care workers, and could undermine the level of care provided at the organizational level.

Growing evidence attests to the link between poor working conditions of physicians and low standards of care being provided, which have been attributed to poor safety culture and the withdrawal of resources and attention from patient care.<sup>29–31</sup> As the health care organizational system and structure have been positioned as an antecedent to the working conditions of the individual physicians and their well-being,<sup>28,32</sup> it is plausible to position PBR as an antecedent to the working experience of physicians.

We used a longitudinal cohort design to test the interrelationships between PBR, quality of care, illegitimate tasks, and moral distress. This design accounts for the typical lag that the working environment has on worker health and patient care.<sup>31</sup> Here, we distinguish between the quality of care physicians perceive they provide personally vs the quality that their organization provides.<sup>27</sup> This is to examine if there may be a difference in how PBR systems (organizational level) and moral distress and illegitimate tasks (individual level) relate to the perception of care among different organizational levels. In this study, we test the direct and indirect effect of PBR systems on the perceived quality of care provided by the individual and the organization, where illegitimate tasks and moral distress are positioned as mediators.

## METHODS

The data was pulled from the Longitudinal Occupational Health survey in Healthcare Sweden.<sup>8,33</sup> Statistics Sweden (SCB) was responsible for sampling and data collection. From March through May 2021 (Phase 1 [baseline]), SCB sent a survey invitation to a representative sample of 6,699 physicians listed in the Swedish Occupational Registers in 2020 and 2,761 (41.2%) responded. Of all the physicians surveyed, 3,259 (48%) were registered as working in primary care and 1,013 (31.1%) of them responded. More detail of the baseline data collection is available elsewhere.<sup>33</sup> Follow-up surveys were administered to the original cohort of responding physicians (excluding those who retired, died, or migrated during the study period) from March through May 2022 (Phase 2 [year 1]) and October through December 2023 (Phase 3 [year 2.5]). At each phase, SCB sent an initial postal invitation letter with credentials to log in to a web survey hosted by SCB. Three reminders were sent to those who had not responded. The second reminder included a paper version of the survey.

All study participants were informed that participation was voluntary and they could drop out anytime. They agreed to participate by answering and submitting the survey. The Swedish Ethical Review Authority reviewed and approved this study (Dnr: 2020 to 06613; 2021 to 05574 to 02; 2022 to 03105 to 01; 2023 to 04100 to 02).

## Measurements

**Figure 1** illustrates the 3 phases of the study and their measurements. At baseline, PBR was assessed using a single item that asked respondents to rate if the PBR system impacts them positively or negatively, with answers on a 4-point scale ranging from very negative to very positive. The development of the question is described elsewhere.<sup>8</sup> Participants who responded that they were not affected by PBR were computed as the middle value. This resulted in a 5-value item where the middle value represented those not affected by PBR (ie, neutral), a high value indicated a positive impact from PBR, and a low value indicated negative impact.

Illegitimate tasks and moral distress were measured at the Phase 1 survey. We used the 8-item Bern Illegitimate Tasks Scale<sup>15</sup> rated on a 5-point Likert scale where a higher value indicates more illegitimate tasks and a grand mean was computed ( $\alpha = 0.84$ ). We measured moral distress using an instrument developed for Norwegian physicians,<sup>34</sup> which we had translated into Swedish by a bilingual individual who worked in both Norwegian and Swedish health care systems. Respondents rated 10 items about how stressful each was on a 4-point Likert scale (ie, 0 for not at all; 3 for very stressful). A grand mean was computed across all 10 items where a higher value indicated more stress ( $\alpha = 0.85$ ). Earlier studies using these measures of moral distress<sup>35</sup> and illegitimate tasks<sup>8</sup> in the Swedish context support their validity.

In the Phase 3 survey (2.5 years after the baseline), we measured quality of care using 6 items from the English National Health Staff Survey<sup>27,36</sup> that were translated into Swedish by a bilingual individual with knowledge of both health care contexts. These were separated into 2 dimensions of 3 items, each related to the perceived quality of care provided by the individual (eg, "I am able to deliver the patient care I aspire to";  $\alpha = 0.82$ ) and by the organization (eg, "If a friend or relative needed treatment, I would be happy with the standard of care provided by this organization";  $\alpha = 0.71$ ). Responses to each item were on a 5-point Likert scale (ie, 1 for strongly disagree; 5 for strongly agree) and a grand mean was calculated for each dimension where a higher score represents better perceived quality of care.

Gender and age at baseline were included as covariates after retrieval from the Longitudinal Database on Education, Income, and Occupation at Statistic Sweden. We also included quantitative demands as a covariate, given its strong influence on the constructs within the study.<sup>31,37</sup> This was measured at baseline using 3 items ( $\alpha = 0.88$ ) from the third version of the Copenhagen Psychosocial Questionnaire.<sup>38</sup> All reliability tests showed that the construct had a Cronbach's  $\alpha$  above 0.70, indicating good to high internal consistency.<sup>39</sup>

### Analytical strategy

Data analysis was carried out using SPSS Statistics for Windows version 28.0 (IBM Corp). To test for serial mediation, we used Model 6 of the PROCESS macro v4.2,<sup>40</sup> where PBR (baseline) was the predictor variable, and illegitimate work tasks and moral distress were mediators (Phase 2). Two

separate models were run, 1 for each of the quality-of-care constructs (Phase 3). We used a calculation of 5,000 bias-corrected bootstrapped 95% CIs to test the indirect associations of both mediators. Participants' age and gender, and quantitative demands were included as covariates.

## RESULTS

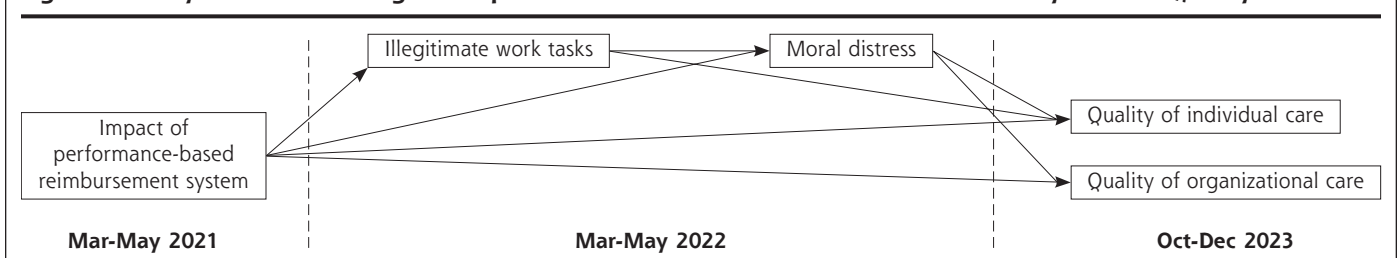
In total, 454 primary care physicians responded at all 3 time periods. We further restricted respondents to those under the retirement age (ie, age 68 years or less), resulting in a final sample of 433 physicians. Comparisons by SCB show no systematic differences between the missing data in the sample and that of the population.

The study sample included a larger share of female (61.9%) primary care physicians than males (38.1%). At baseline, the mean age was 45 years. In the group, 36.5% had up to 10 years of experience working as physicians, 23.8% had 10 to 15 years of experience, and 39.7% had more than 15 years. Most (53.5%) responding primary care physicians reported working less than 40 hours a week, while 30.6% reported working 41 to 45 hours per week.

Of the 433 in the study sample, 1 (0.2%) reported that the PBR system very positively impacted them, while 29 (6.9%) reported a positive impact. In contrast, negative impacts were reported much more often with 249 (58.9%) responding that the PBR negatively impacted them and 52 (12.3%) reporting very negative impact. The remaining 92 (21.7%) participants reported no impact from the PBR system. [Table 1](#) presents descriptive statistics for the measurement scores and age.

Complete serial mediation was observed between PBR and the quality of individual care provided by the individual physician, adjusting for age, gender, and quantitative workload ([Table 2](#)). Results show an indirect effect of PBR on the quality of individual care via illegitimate work tasks and moral distress ( $b = 0.011$ ; 95% CI, 0.004-0.021), although there was no direct effect of PBR on the quality of individual care ( $b = 0.062$ ; 95% CI, -0.019 to 0.143). PBR did negatively predict illegitimate work tasks ( $b = -0.160$ ; 95% CI, -0.240 to -0.080) and moral distress ( $b = -0.134$ ; 95% CI, -0.210 to -0.058). In addition, illegitimate work tasks ( $b = -0.229$ ; 95% CI, -0.326 to -0.132) and moral distress ( $b = -0.203$ ; 95% CI, -0.300 to -0.106) had a direct effect on the quality of individual care provided.

**Figure 1. Study Model Measuring the Impact of the Performance-Based Reimbursement Systems on Quality of Care**



No serial mediation was observed where the quality of organizational care was the outcome variable ( $b = 0.004$ ; 95% CI,  $-0.001$  to  $0.015$ ) adjusting for age, gender, and quantitative workload. There was no direct ( $b = 0.055$ ; 95% CI,  $-0.039$  to  $0.149$ ) effect between PBR and the quality of care provided by the organization. Unlike the quality of individual care, there was also no relationship observed between moral distress and the quality of organizational care ( $b = -0.109$ ; 95% CI,  $-0.225$  to  $0.008$ ). [Table 2](#) shows an indirect effect between PBR and the quality of organizational care through illegitimate work tasks ( $b = 0.046$ ; 95% CI,  $0.019$ - $0.077$ ).

## DISCUSSION

Providing high-quality care is a key aspect of health care services. This 3-phase longitudinal study shows that PBR negatively impacts physician's perceived quality of care through illegitimate tasks and moral distress in Swedish primary care.

The results demonstrate the pathways by which organizational processes and systems are associated with the care being provided.

The findings raise concern that despite expected benefits (ie, increased internal and external efficiency)<sup>41,42</sup> of new public management in public organizations in Sweden, it may be detrimental to the working experience and well-being of primary care physicians, and undermine their perception of the care provided. Although PBR systems are salient to health care provision and known to increase physicians'

administrative work,<sup>8</sup> few studies have explored PBRs' impact on perceived quality of care. Our findings emphasize that organizational goals must be grounded in medical practices at the operational level and metrics of success have to encompass a broader perspective that accounts for both staff experience and patient care.<sup>28,43</sup> Quality of care must be viewed in the context of organizational demands and the conditions that primary care physicians' need to carry out clinical work.

Our results should be viewed against the backdrop of an increase in unreasonable and unnecessary primary care physicians work over recent decades.<sup>44,45</sup> This added work has the effect of not only increasing the quantitative workload, but also created increased levels of moral distress among physicians who do not feel able to provide the quality of care they should be providing. This pathway of PBR systems, illegitimate tasks, moral distress, and perceived quality of care is congruent with the theoretical<sup>46,47</sup> and empirical<sup>31,48</sup> literature advocating a link between organizational systems and outcomes. While this study focused on the perceived quality of care, illegitimate tasks and moral distress are central aspects of health care workers' environment related to burnout, sickness absence, and turnover.<sup>22,49,50</sup> Although beyond the scope of this study, it raises the question of how PBR systems may impact other measures involving the health care workforce. This may cause a vicious circle, where the PBR-related administrative work leads to poor working conditions and well-being with subsequent sickness absence and turnover, which in turn increases the administrative work of those that remain.

This study also raises the question of the suitability of current processes to monitor and manage performance, and measure quality in health care. Traditionally, health care quality has been measured by population health, care experiences, and low costs.<sup>51</sup> This was later expanded to the quadruple aim, including physicians, and other health care workers, well-being.<sup>43,52</sup> While these aims fill an important role in health care, they disregard the significance, impact, and state of physicians' working conditions.<sup>27,32,43</sup> It is thus clinically relevant to acknowledge system-level structures and processes that impact the work of primary care physicians. Future studies should continue to research how various performance

**Table 1. Descriptive Statistics for Measurements and Age**

Measurement	Range	No.	Mean (SD)
Impact of PBR system	1-5	423	2.24 (0.76)
Illegitimate tasks	1-5	431	3.15 (0.66)
Moral distress	0-3	425	1.58 (0.66)
Quality of individual care	1-5	429	3.82 (0.63)
Quality of organizational care	1-5	426	3.70 (0.73)
Quantitative demands	1-5	427	3.39 (0.91)
Age, y	28-67	433	45.16 (11.21)

PBR = performance-based reimbursement.

**Table 2. Direct and Indirect Effects Between Impact of PBR System on Quality of Care**

Effect type	Relationship	Quality of individual care			Quality of organizational care		
		Effect <sup>a</sup>	95% CI	t	Effect <sup>a</sup>	95% CI	t
Direct effect	PBR → QoC	-0.013	-0.091 to 0.066	-0.317	0.055	-0.039 to 0.149	1.144
Total effect	PBR → QoC	0.062	-0.019 to 0.143	1.522	0.121	0.026 to 0.216	2.512
Indirect effect	PBR → IWT → MD → QoC	0.011	0.004 to 0.021	...	0.006	-0.001 to 0.015	...
Indirect effect	PBR → IWT → QoC	0.075	0.041 to 0.112	...	0.046	0.019 to 0.077	...
Indirect effect	PBR → MD → QoC	0.027	0.001 to 0.049	...	0.015	-0.001 to 0.015	...

IWT = illegitimate work tasks; MD = moral distress; PBR = performance-based reimbursement; QoC = quality of care.

<sup>a</sup> Adjusted for age, gender, quantitative workload.



management and measurement systems impact primary care physicians working conditions and quality of care.

### Limitations

The findings of this study have several limitations. First, attrition over the study period needs to be addressed. In total, 1,510 physicians answered the survey at all 3 time points (22.5% of the baseline sample of 6,699; 54.7% of the 2,761 baseline respondents). Drop-outs were due to death, migration, retirement, parental leave, illness, or a change to employment outside of health care. In addition, by including only those who worked in primary care facilities for the full study period, we need to account for individuals who may have moved to other clinics or onto staffing agencies. It is important to note, however, that our response rates are in line with studies with similar samples,<sup>53–55</sup> and that SCB analyzed missing data at baseline comparing the sample to the population and found no systematic differences.

Second, self-report surveys risk response and recall biases, although our use of longitudinal data at 3 phases limits the risk of common method bias. Third, primary care physician's rating individual and organizational quality care is both a strength and a limitation. Previous research has pointed out the need to encompass health care workers' perspectives on quality care.<sup>24</sup> Perceived quality of care may be affected, however, by an individual's state of mind or level of stress, and the evidence of its relationship with actual patient care outcomes remains inconsistent.<sup>28</sup> The measure of quality of care has also not been validated in the Swedish context, and studies like this are important to support its use in Sweden. Finally, PBR was measured using a single question that assesses participants' general assessment of its impact. Using additional items that are less evaluative and more descriptive could yield a more valid representation of the construct. In addition, to obtain a PBR score, we recorded participants' responses on 2 separate items. A clearly labeled 5-point scale where the middle number is labeled as not being affected would have improved the validity of the item and possibly reduced the positive skew within the distribution.

### CONCLUSION

This longitudinal 3 phase survey of 433 physicians shows that PBR in Swedish primary care indirectly impacts perceived poor individual and organizational quality of care. The level of illegitimate tasks and moral distress due to a PBR system can undermine care delivery. The clinical implication of this study is that quality of care is not limited to best practices and evidence-based medicine, but also relies on primary care physicians' work systems.

In practice, it would be desirable that the use of PBR accounts for the experience of individual physicians to ensure good quality care. The identification of illegitimate tasks and moral distress as potential mediators present targeted intervention opportunities to support better implementation of

PBR and mitigate detrimental effects. For example, intervention studies to reduce bureaucracy, and non-core tasks have been found to improve health care workers' well-being.<sup>56</sup> Overall, it is imperative for stakeholders across the political and health care management sphere to consider how health care systems relate to the health care workforce's experience on the job, well-being, and the care being provided.



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**Key words:** delivery of health care; health care systems; primary health care; occupational health; primary care physicians; Sweden

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### REFERENCES

1. Diefenbach T. New public management in public sector organizations: the dark sides of managerialistic enlightenment. *Public Adm.* 2009;87(4):892-909.
2. Arnaboldi M, Lapsley I, Steccolini I. performance management in the public sector: the ultimate challenge. *Financ Account Manag.* 2015;31(1):1-22. doi: [10.1111/faam.12049](#)
3. Ferreira A, Otley D. The design and use of performance management systems: an extended framework for analysis. *Manage Account Res.* 2009;20(4):263-282. doi: [10.1016/j.mar.2009.07.003](#)
4. Pollanen R, Abdel-Maksoud A, Elbanna S, Mahama H. Relationships between strategic performance measures, strategic decision-making, and organizational performance: empirical evidence from Canadian public organizations. *Public Manage Rev.* 2017;19(5):725-746. doi: [10.1080/14719037.2016.1203013](#)
5. Tikkanen R, Osborn R, Mossialos E, Djordjevic A, Wharton G. *International Profiles of Health Care Systems.* The Commonwealth Fund; 2020.
6. Dhillon JPS. Accountability fragmented? Exploring disjointed performance measurement in government. *Public Money Manag.* 2022;42(2):106-113. doi: [10.1080/09540962.2020.1764253](#)
7. Fredriksson M, Isaksson D. Fifteen years with patient choice and free establishment in Swedish primary healthcare: what do we know? *Scand J Public Health.* 2022;50(7):852-863. doi: [10.1177/14034948221095365](#)
8. Brulin E, Ekberg K, Landstad BJ, Lidwall U, Sjöström M, Wilczek A. Money talks: performance-based reimbursement systems impact on perceived work, health and patient care for physicians in Sweden. *Front Psychol.* 2023;14: 1216229. doi: [10.3389/fpsyg.2023.1216229](#)
9. Höglund L, Mårtensson M, Nylinder P. Public value accounting and the use of performance measurements as a management tool in a context of various assessments. *J Account Organ Chang.* 2023;19(4):603-621. doi: [10.1108/JAOC-12-2021-0186](#)
10. Vengberg S, Fredriksson M, Burström B, Burström K, Winblad U. Money matters - primary care providers' perceptions of payment incentives. *J Health Organ Manag.* 2021;ahead-of-print(ahead-of-print):458-474. doi: [10.1108/JHOM-06-2020-0225](#)
11. Firtin CE, Karlsson TS. (Re)descriptions of medical professional work: exploring accounting as a performative device within an emergency unit health-care context. *J Pub Budg Account Financ Manag.* 2020;32(2):159-176. doi: [10.1108/JPAFM-05-2019-0084](#)
12. Frey BS, Homberg F, Osterloh M. Organizational control systems and pay-for-performance in the public service. *Organ Stud.* 2013;34(7):949-972. doi: [10.1177/0170840613483655](#)
13. Saraswathula A, Merck SJ, Bai G, et al. The Volume and cost of quality metric reporting. *JAMA.* 2023;329(21):1840-1847. doi: [10.1001/jama.2023.7271](#)
14. Ding H, Kuvaas B. Illegitimate tasks: a systematic literature review and agenda for future research. *Work Stress.* 2023;37(3):397-420. doi: [10.1080/02678373.2022.2148308](#)

15. Semmer NK, Tschan F, Meier LL, Facchin S, Jacobsen N. Illegitimate tasks and counterproductive work behavior. *Appl Psychol*. 2010;59(1):70-96. doi:[10.1111/j.1464-0597.2009.00416.x](https://doi.org/10.1111/j.1464-0597.2009.00416.x)
16. Lamiani G, Borghi L, Argentero P. When healthcare professionals cannot do the right thing: a systematic review of moral distress and its correlates. *J Health Psychol*. 2017;22(1):51-67. doi:[10.1177/1359105315595120](https://doi.org/10.1177/1359105315595120)
17. Morley G. What is "moral distress" in nursing? How, can and should we respond to it? *J Clin Nurs*. 2018;27(19-20):3443-3445. doi:[10.1111/jocn.14332](https://doi.org/10.1111/jocn.14332)
18. Thibodeau PS, Nash A, Greenfield JC, Bellamy JL. The association of moral injury and healthcare clinicians' wellbeing: a systematic review. *Int J Environ Res Public Health*. 2023;20(13):6300. doi:[10.3390/ijerph20136300](https://doi.org/10.3390/ijerph20136300)
19. Williamson V, Lamb D, Hotopf M, et al. Moral injury and psychological wellbeing in UK healthcare staff. *J Ment Heal*. 2023;32(5):890-898. doi:[10.1080/09638237.2023.2182414](https://doi.org/10.1080/09638237.2023.2182414)
20. Nielsen K, Agate C, Yarker J, Lewis R. "It's business": a qualitative study of moral injury in business settings; experiences, outcomes and protecting and exacerbating factors. *J Bus Ethics*. 2024;194:233-249. doi:[10.1007/s10551-024-05615-0](https://doi.org/10.1007/s10551-024-05615-0)
21. Aronsson G, Marklund S, Leineweber C, Helgesson M. The changing nature of work - job strain, job support and sickness absence among care workers and in other occupations in Sweden 1991-2013. *SSM Popul Health*. 2021;15:100893. doi:[10.1016/j.ssmph.2021.100893](https://doi.org/10.1016/j.ssmph.2021.100893)
22. Thun S, Halsteinli V, Løvseth L. A study of unreasonable illegitimate tasks, administrative tasks, and sickness presenteeism amongst Norwegian physicians: an everyday struggle? *BMC Health Serv Res*. 2018;18(1):407. doi:[10.1186/s12913-018-3229-0](https://doi.org/10.1186/s12913-018-3229-0)
23. Quek CWN, Ong RRS, Wong RSM, et al. Systematic scoping review on moral distress among physicians. *BMJ Open*. 2022;12(9):e064029. doi:[10.1136/bmjopen-2022-064029](https://doi.org/10.1136/bmjopen-2022-064029)
24. Farr M, Cressey P. Understanding staff perspectives of quality in practice in healthcare. *BMC Health Serv Res*. 2015;15(1):123. doi:[10.1186/s12913-015-0788-1](https://doi.org/10.1186/s12913-015-0788-1)
25. Čartolovni A, Stolt M, Scott PA, Suhonen R. Moral injury in healthcare professionals: a scoping review and discussion. *Nurs Ethics*. 2021;28(5):590-602. doi:[10.1177/0969733020966776](https://doi.org/10.1177/0969733020966776)
26. Bekes C. Nurse-physician perspectives on the care of dying patients in intensive care units: Collaboration, moral distress, and ethical climate. *Yearb Crit Care Med*. 2008;2008:295-297. doi:[10.1016/s0734-3299\(08\)70630-0](https://doi.org/10.1016/s0734-3299(08)70630-0)
27. Teoh KR-H, Hassard J, Cox T. Individual and organizational predictors of patient care: a multilevel analysis of the English National health service staff survey. *Int J Stress Manag*. 2022;29(1):97-111. doi:[10.1037/str0000183](https://doi.org/10.1037/str0000183)
28. Teoh KR-H, Hassard J, Cox T. Doctors' working conditions, wellbeing and hospital quality of care: a multilevel analysis. *Saf Sci*. 2021;135:105115. doi:[10.1016/j.ssci.2020.105115](https://doi.org/10.1016/j.ssci.2020.105115)
29. Cullati S, Semmer NK, Tschan F, Choupay G, Chopard P, Courvoisier DS. When illegitimate tasks threaten patient safety culture: a cross-sectional survey in a tertiary hospital. *Int J Public Health*. 2023;68:1606078. doi:[10.3389/ijph.2023.1606078](https://doi.org/10.3389/ijph.2023.1606078)
30. Løvseth LT, de Lange AH. An introduction to the system-based perspective of Healthy Healthcare. In: Løvseth LT, de Lange AH, eds. *Integrating Organisation, Workers' Wellbeing and Quality of Care*. Springer Nature; 2020:3-14.
31. Teoh K, Singh J, Medisauskaite A, Hassard J. Doctors' perceived working conditions, psychological health and patient care: a meta-analysis of longitudinal studies. *Occup Environ Med*. 2023;80(2):61-69. doi:[10.1136/oemed-2022-108486](https://doi.org/10.1136/oemed-2022-108486)
32. de Lange AH, Løvseth LT, Teoh KR-H, Christensen M. Editorial: healthy healthcare: empirical occupational health research and evidence-based practice. *Front Psychol*. 2020;11:2236. doi:[10.3389/fpsyg.2020.02236](https://doi.org/10.3389/fpsyg.2020.02236)
33. Hagqvist E, Ekberg K, Lidwall U, et al. The Swedish HealthPhys study: study description and prevalence of clinical burnout and major depression among physicians. *Chronic Stress (Thousand Oaks)*. 2022;6:24705470221083866. doi:[10.1177/24705470221083866](https://doi.org/10.1177/24705470221083866)
34. Førde R, Aasland OG. Moral distress among Norwegian doctors. *J Med Ethics*. 2008;34(7):521-525. doi:[10.1136/jme.2007.021246](https://doi.org/10.1136/jme.2007.021246)
35. Månsson Sandberg H, Landstad BJ, Tjulin Å, Brulin E. COVID-19- related work, managerial factors and exhaustion among general practitioners in Sweden: a cross-sectional study. *BMC Prim Care*. 2023;24(1):269. doi:[10.1186/s12875-023-02228-w](https://doi.org/10.1186/s12875-023-02228-w)
36. NHS Staff Survey Coordination Centre. *NHS Staff Survey 2022: National Results Briefing*. 2023.
37. Lee RT, Seo B, Hladkyj S, Lovell BL, Schwartzmann L. Correlates of physician burnout across regions and specialties: a meta-analysis. *Hum Resour Health*. 2013;11(1):48. doi:[10.1186/1478-4491-11-48](https://doi.org/10.1186/1478-4491-11-48)
38. Berthelsen H, Westerlund H, Bergström G, Burr H. Validation of the Copenhagen Psychosocial Questionnaire Version III and establishment of benchmarks for psychosocial risk management in Sweden. *Int J Environ Res Public Health*. 2020;17(9):3179. doi:[10.3390/ijerph17093179](https://doi.org/10.3390/ijerph17093179)
39. Tavakol M, Dennick R. Making sense of Cronbach's alpha. *Int J Med Educ*. 2011;2:53-55. doi:[10.5116/ijme.4dffb.8dffd](https://doi.org/10.5116/ijme.4dffb.8dffd)
40. Hayes AF. *Introduction to Mediation, Moderation, and Conditional Process Analysis*. Guildford Press; 2013. 978-1-60918-230-4
41. Funck EK, Karlsson TS. Twenty-five years of studying new public management in public administration: accomplishments and limitations. *Financ Account Manag*. 2020;36(4):347-375. doi:[10.1111/faam.12214](https://doi.org/10.1111/faam.12214)
42. Knutsson H, Mattisson O, Näsi S, Nyland K, Skærbæk P. New public management in a Scandinavian context. *Mod Public Sect Scand Perspect*. Published online 2016:18-33. doi:[10.4324/9781315560328](https://doi.org/10.4324/9781315560328)
43. Bodenheimer T, Sinsky C. From triple to quadruple aim: care of the patient requires care of the provider. *Ann Fam Med*. 2014;12(6):573-576. doi:[10.1370/afm.1713](https://doi.org/10.1370/afm.1713)
44. Bejerot E, Gustavsson M, Hasselblad H, Kankkunen TF, Ekberg K. Occupational control on drift—national and local intervention in clinical work at emergency departments. *Prof Professionalism*. 2017;7(2). doi:[10.7577/pp.1765](https://doi.org/10.7577/pp.1765)
45. Bejerot E, Aronsson G, Hasselblad H, Bejerot S. Läkarkåren en profession med allt mindre stöd och inflytande Enkätstudie av svenska läkares arbetsmiljö 1992 och 2010. *Lakartidningen*. 2011;108(50):2652-2656.
46. Bakker AB, Demerouti E. Job demands-resources theory: taking stock and looking forward. *J Occup Health Psychol*. 2017;22(3):273-285. doi:[10.1037/ocp0000056](https://doi.org/10.1037/ocp0000056)
47. Hobfoll SE, Halbesleben J, Neveu J-P, Westman M. Conservation of resources in the organizational context: the reality of resources and their consequences. *Annu Rev Organ Psychol Organ Behav*. 2018;5(1):103-128. doi:[10.1146/annurev-orgpsych-032117-104640](https://doi.org/10.1146/annurev-orgpsych-032117-104640)
48. Teoh KR-H, Hassard J. Linking organisational factors and patient care: does healthcare workers' well-being matter? In: Montgomery A, van der Doef M, Panagopoulou E, Leiter M, eds. *The Triple Challenge: Connecting Health Care Worker Well-Being, Patient Safety and Organisational Change*. Springer; 2020.
49. Moncayo-Rizzo J, Alvarado-Villa G, Cossio-Urbe C. The impact of illegitimate tasks on burnout syndrome in a healthcare system: a cross-sectional study. *Int J Nurs Stud Adv*. 2024;6:100185. doi:[10.1016/j.ijnsa.2024.100185](https://doi.org/10.1016/j.ijnsa.2024.100185)
50. Kilponen K, Huhtala M, Kinnunen U, Mauno S, Feldt T. Illegitimate tasks in health care: illegitimate task types and associations with occupational well-being. *J Clin Nurs*. 2021;30(13-14):2093-2106. doi:[10.1111/jocn.15767](https://doi.org/10.1111/jocn.15767)
51. Berwick DM, Nolan TW, Whittington J. The triple aim: care, health, and cost. *Health Aff (Millwood)*. 2008;27(3):759-769. doi:[10.1377/hlthaff.27.3.759](https://doi.org/10.1377/hlthaff.27.3.759)
52. DiGiorgio AM, Ehrenfeld JM, Miller BJ. Improving health care quality measurement to combat clinician burnout. *JAMA*. 2023;330(12):1135-1136. doi:[10.1001/jama.2023.15512](https://doi.org/10.1001/jama.2023.15512)
53. Barnhart BJ, Reddy SG, Arnold GK. Remind me again: physician response to web surveys: the effect of email reminders across 11 opinion survey efforts at the American Board of Internal Medicine from 2017 to 2019. *Eval Health Prof*. 2021;44(3):245-259. doi:[10.1177/01632787211019445](https://doi.org/10.1177/01632787211019445)
54. Lamb D, Gnanaprasam S, Greenberg N, et al. Psychosocial impact of the COVID-19 pandemic on 4378 UK healthcare workers and ancillary staff: initial baseline data from a cohort study collected during the first wave of the pandemic. *Occup Environ Med*. 2021;78(11):801-808. doi:[10.1136/oemed-2020-107276](https://doi.org/10.1136/oemed-2020-107276)
55. Stevens ER, Cleland CM, Shunk A, El Shahawy O. Evaluating strategies to recruit health researchers to participate in online survey research. *BMC Med Res Methodol*. 2024;24(1):153. doi:[10.1186/s12874-024-02275-6](https://doi.org/10.1186/s12874-024-02275-6)
56. Teoh KR-H, Dhensa-Kahlon R, Christensen M, Frost F, Hatton E, Nielsen K. *Organisational Wellbeing Interventions: Case Studies from the NHS*. Birkbeck, University of London; 2023.