

BMJ Open Physician and nurse well-being, patient safety and recommendations for interventions: cross-sectional survey in hospitals in six European countries

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ABSTRACT

Objectives To determine the well-being of physicians and nurses in hospital practice in Europe, and to identify interventions that hold promise for reducing adverse clinician outcomes and improving patient safety.

Design Baseline cross-sectional survey of 2187 physicians and 6643 nurses practicing in 64 hospitals in six European countries participating in the EU-funded Magnet4Europe intervention to improve clinicians' well-being.

Setting Acute general hospitals with 150 or more beds in six European countries: Belgium, England, Germany, Ireland, Sweden and Norway.

Participants Physicians and nurses with direct patient contact working in adult medical and surgical inpatient units, including intensive care and emergency departments.

Main outcome measures Burnout, job dissatisfaction, physical and mental health, intent to leave job, quality of care and patient safety and interventions clinicians believe would improve their well-being.

Results Poor work/life balance (57% physicians, 40% nurses), intent to leave (29% physicians, 33% nurses) and high burnout (25% physicians, 26% nurses) were prevalent. Rates varied by hospitals within countries and between countries. Better work environments and staffing were associated with lower percentages of clinicians reporting unfavourable health indicators, quality of care and patient safety. The effect of a 1 IQR improvement in work environments was associated with 7.2% fewer physicians and 5.3% fewer nurses reporting high burnout, and 14.2% fewer physicians and 8.6% fewer nurses giving their hospital an unfavourable rating of quality of care. Improving nurse staffing levels (79% nurses) and reducing bureaucracy and red tape (44% physicians) were interventions clinicians reported would be most effective in improving their own well-being, whereas individual mental health interventions were less frequently prioritised.

Conclusions Burnout, mental health morbidities, job dissatisfaction and concerns about patient safety and care quality are prevalent among European hospital physicians and nurses. Interventions to improve hospital work environments and staffing are more important to clinicians

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Well-being of physicians and nurses in 64 general acute hospitals across six European countries is studied.
- ⇒ Clinician outcomes, work environments, staffing, care quality and patient safety are measured at the hospital level thus illuminating potential managerial interventions.
- ⇒ Clinicians rated which interventions are most important to improve their well-being.
- ⇒ Participating hospitals volunteered for an intervention to improve clinician outcomes and thus may not be representative of all hospitals.
- ⇒ The cross-sectional design does not permit causal inferences.

than mental health interventions to improve personal resilience.

INTRODUCTION

In March 2023, countries from across Europe came together in Bucharest, Romania, to discuss the crisis in their health workforces, described in detail in a report by the European Regional Office of the WHO.¹ Many of those countries were unable to retain the health workers they had trained and, in some, those who remained in the workforce were voicing their discontent by going on strike, in some cases for the first time ever.² Some of the clinicians leaving were taking advantage of higher salaries and better working conditions in other countries. But others were exhausted, struggling to cope with the increasingly complex needs of ageing populations in health systems that had failed to keep up with advances in technology and modernised human resources policies seen in other sectors. Many were experiencing

burnout. The stresses created by the pandemic were often the final straw³ and large numbers, including many of the most experienced staff, were leaving the health workforce altogether, retiring if their pension arrangements allowed it or taking jobs outside of healthcare.

Those present in Bucharest, many in official positions far from the healthcare frontline, heard harrowing stories of the lived reality of those providing care.¹ But they also heard of initiatives that sought to address their problems, including initiatives that gave health workers greater control of their work environments and recognised the changing needs of workers as they aged and increasingly undertook family caring commitments. They could also have drawn on a growing body of research from many countries that have shed light on the importance of working conditions, not just for satisfaction of staff but also for better patient outcomes.⁴⁻⁷

Some of this knowledge has arisen from studies of Magnet hospitals,⁸ so-called because they attract and retain staff. Originating in the USA, this concept has attracted growing attention internationally.⁹ Magnet is an institution-wide intervention that promotes structural empowerment of clinicians, including physicians and nurses, by offering formal opportunities for clinician engagement in decision-making and institutional priorities, fosters transformational leadership, respects and acts on internal knowledge held by clinicians and others, provides recognition and celebration of accomplishments, and uses empirical evidence to guide practice and management decisions. Magnet4Europe is one of the first initiatives to consider how physicians fare in hospitals that are implementing the Magnet Model. Magnet4Europe¹⁰ is a multicountry study funded by the EU Horizon Europe programme, building on an earlier EU-funded project, RN4CAST, which documented high levels of burnout among nursing staff in European hospitals.¹¹ Magnet4Europe comprises a cluster randomised controlled trial, in which the intervention is a multicomponent organisational redesign based on the Magnet Model, with intervention hospitals twinned with existing US Magnet hospitals.¹² The primary outcome measures are clinician well-being and patient safety aggregated to the hospital level in order to inform organisational interventions. It is being undertaken in over 60 general acute care hospitals in Belgium, England, Germany, Ireland, Norway and Sweden. In this paper, we report baseline measures of physician and nurse well-being, their assessments of their hospital work environments and quality and safety of patient care, and their rankings of interventions they believe would help reduce their experienced burnout.

METHODS

Hospitals and clinicians studied

Data collection employed online surveys of physicians and nurses in participating hospitals and took place between November 2020 and July 2021 as part of the Magnet4Europe initiative. Magnet4Europe is a longitudinal hospital

intervention study¹⁰ which involves a usual-practice wait-list cluster randomised controlled trial. Within each country, eligible general acute hospitals of at least 150 beds and willing to sign a letter of intent to implement the Magnet model and participate in related research were invited to join the Magnet4Europe initiative. All hospitals that met eligibility requirements were accepted, resulting in a convenience sample of 69 hospitals across the six countries. Within each hospital, physicians and nurses were eligible to participate in the survey if they had direct patient contact and worked on adult inpatient medical and surgical units including intensive care and emergency departments.

For this analysis, in which our measures involve aggregating clinicians' responses to the hospital level, a small number of hospitals with fewer than five physician respondents and five nurse respondents were excluded. The remaining 64 hospitals from which these results were obtained included a total of 8830 respondents, an average overall response rate of 18% and an average of 138 physicians and nurses reporting for each hospital. For purposes of estimating hospital level variables, which is the focus of this study, the total numbers of clinicians reporting per hospital is relatively more important than the response rate. Previous research on hospital work environments that obtained responses to similar surveys from over 90% of original non-respondents confirmed no differences in responses to the items included in this study.¹³

Key measures

Indicators of mental health and clinician well-being

Burnout was measured using the 9-item Emotional Exhaustion Subscale of the Maslach Burnout Inventory.^{14 15} This measure has been used extensively and validated with physicians and nurses^{16 17} and has been further linked with patient outcomes.¹⁸ Each item was rated on a 7-point Likert scale ranging from 'never' to 'every day'. Respondents were classified as 'high burnout' if their score was higher than the published top tertile for healthcare workers (≥ 27).¹⁹ Job dissatisfaction and intention to leave employer were measured using single-item indicators. For job satisfaction, participants were asked to rate the question 'How satisfied are you with your current job in this hospital?' on a 4-point Likert scale ranging from 'very dissatisfied' to 'very satisfied'. Participants were classified as dissatisfied if they reported being either 'very dissatisfied' or 'moderately dissatisfied'. Intent to leave was measured by a single item that asked respondents to indicate their intention to leave their current employer within the next year as a result of job dissatisfaction (1='yes', 2='no'). Anxiety was measured using the Generalised Anxiety Disorder-2 item (GAD-2) Scale.²⁰ Depression was measured using the Patient Health Questionnaire-2 item (PHQ-2) Scale.²¹ Each item was rated on a 4-point Likert scale ranging from 'not at all' to 'nearly every day'. Participants were classified as screening positive for anxiety or depression if their score was ≥ 3 .

Additional clinician well-being measures included single-item global self-assessments of work–life balance²² and overall health. For work–life balance, participants were asked to rate the statement ‘My work leaves me enough time for my personal and/or family life’, on a 4-point Likert scale ranging from ‘strongly disagree’ to ‘strongly agree’. Overall health was measured using the global health rating item (‘Overall, how would you rate your health during the past 4 weeks?’) from the Short Form-8 Health Survey (SF-8).²³ The item was rated on a 6-point Likert scale ranging from ‘excellent’ to ‘very poor’.

Quality of patient care

Quality of care reported by clinicians is a single item shown to be highly associated with objective measures of patient outcomes including mortality.²⁴ The item was measured on a 4-point Likert-type scale ranging from ‘excellent’ to ‘poor’. In addition, clinicians were asked to rate their patients’ readiness to manage care after discharge using a 4-point Likert scale dichotomised into ‘not confident’ and ‘confident’. Clinicians were also asked—in two separate questions—whether they would recommend their hospital (1) as a good place to work and (2) to friends or family needing care on a 4-point Likert scale ranging from ‘definitely not’ to ‘definitely yes’.¹¹

Culture of patient safety

Culture of patient safety included six items from the Agency for Healthcare Research and Quality (AHRQ) Hospital Survey on Patient Safety Culture (SOPS) V1 reported as separate items and as an average across all 6.²⁵ Each item was rated on a 5-point Likert scale ranging from ‘strongly disagree’ to ‘strongly agree’. Thus, the higher the percentage response, the worse the assessment of the culture of patient safety.

Work environment and staffing adequacy

Separately for both physicians and nurses, we constructed two hospital-level measures: work environment and staffing adequacy. These measures were derived from items belonging to the Practice Environment Scale of the Nursing Work Index (PES-NWI)^{26 27} that were common to both nurses and physicians, and shown to have excellent predictive validity.¹⁶ The work environment scale is comprised of five domains. Seven-items in four of the domains (nurse–physician relations, management and leadership, involvement in hospital affairs, autonomy) were used to derive physician and nurse work environment scores. The work environment scores were computed separately for physicians and nurses by taking the average of the item(s) in their respective domains, and then taking the average of the domains to compute an overall work environment score from the four domains.

Measures of staffing adequacy were obtained from the fifth domain of the work environment scale, which was obtained by two items for physicians asking them whether there were enough nurses and enough doctors to get necessary care done; and a single item for nurses asking

whether there were enough staff to complete necessary care.²⁶ All items were rated on a 4-point Likert scale ranging from ‘strongly disagree’ to ‘strongly agree’, and the overall scores for both work environment and staffing adequacy could take any number ranging between 1 (worst possible) and 4 (best possible).

Interventions to reduce burnout and improve well-being

Physicians and nurses were provided a list of organisational interventions, developed from recommendations of the National Academy of Medicine²⁸ and published research,^{29 30} and asked to select the top three interventions they thought would be most effective in reducing their own burnout and improving their well-being.

Analysis

We first show the numbers of hospitals, physicians and nurses in the six European countries in our sample (with Sweden and Norway combined because of the small number of hospitals to protect hospital identity). For each country and separately for nurses and physicians, we report the average percentages and ranges across the hospitals of clinicians’ issues with mental health and well-being, namely high burnout, job dissatisfaction, screening positive for depression and anxiety. We use box-and-whisker plots to show how burnout, like other indicators of mental health and well-being, varies not only across countries but across hospitals within countries. We then show how the average percentages and ranges of percentages for physicians and nurses expressing concerns with the quality of patient care and patient safety also varies across hospitals within countries as well as across countries.

We provide estimates from ordinary least squares models that indicate how these indicators of clinician mental health, well-being and clinician reports of patient safety and quality of care are associated with the organisation of the hospitals in our sample, that is, with staffing adequacy and quality of work environments reported by physicians and nurses. In the models for physicians, the measures of the environment and staffing are derived from the physician reports, while the models for nurses use measures of the environment and staffing derived from the nurse reports. In both sets of models, dummy variables are used to control for differences across countries and controls are included for hospital size, teaching status and high technology capability, so the coefficients indicate the average effects of the work environment and staffing on the various dependent measures within countries. Coefficients indicate the expected change in the dependent variable associated with the difference equivalent to the 25th versus 75 percentile of work environment (or staffing)—the IQR. We provide p values for all coefficients, and shade those which have probabilities of <0.05, indicating statistically significant findings. Finally, we show the relative

Table 1 Numbers of hospitals, physicians and nurses, by country

Numbers of hospitals, physicians and nurses	All countries	Country				
		Belgium (BE)	Germany (DE)	England (EN)	Ireland (IE)	Sweden/Norway (SE/NO)
Number of hospitals	64	14	19	14	13	4
Number of physician respondents	2187	493	489	572	315	318
Number of nurse respondents	6643	1730	1607	1803	929	574
Physician respondents per hospital	34	35	26	41	24	80
Nurse respondents per hospital	104	124	85	129	71	144

Source: data are from the clinician surveys, collected from physicians and nurses as part of the Magnet4Europe Project between November 2020 and July 2021.

importance of various interventions to physicians and nurses to reduce their burnout and improve their well-being. Responses from individual physicians, and separately from individual nurses, were aggregated within hospitals to obtain the percentages of physicians and nurses that identified the different interventions as effective, and these percentages were then averaged across all hospitals in all countries.

This study was approved by research ethics committees at KU Leuven, Belgium (S64213), the University of Pennsylvania (#843000) and in participating countries either through a central or decentralised authority.

Patient and public involvement

Patients were not involved in the design or development of research questions in this study.

RESULTS

Descriptive results

Overall, 2187 physicians and 6643 nurses in 64 hospitals completed the surveys, which was on average 34 physicians and 104 nurses per hospital (table 1). There were more than a dozen hospitals in every country except for Sweden and Norway, which were combined, and sizeable numbers of both physicians and nurses from every hospital in each country.

The most reported indicator of unfavourable mental health and well-being among both physician and nurses was poor work/life balance (table 2 and online supplemental table S1). Overall, 57% of physicians reported poor work/life balance, with the highest rates reported in Ireland (73%) and the lowest in Belgium (40%). Overall,

Table 2 Percentages of physicians and nurses indicating poor mental health and well-being on various measures, overall and by country

Indicators of mental health and well-being	Physicians		Nurses				
	Total	Total	Belgium (BE)	Germany (DE)	England (EN)	Ireland (IE)	Sweden/Norway (SE/NO)
Poor work/life balance	57% (15–100)	40% (15–63)	29% (15–39)	49% (31–63)	35% (23–53)	42% (19–60)	46% (37–54)
Intent to leave	29% (0 to 67)	33% (6–73)	19% (8–34)	26% (6–54)	39% (24–63)	52% (30–73)	30% (19–36)
Job dissatisfaction	27% (0–67)	24% (1–58)	9% (1–26)	29% (14–43)	26% (18–44)	36% (17–58)	14% (10–18)
High burnout	25% (0 to 60)	26% (5–50)	12% (5–22)	26% (10–46)	32% (17–50)	33% (17–48)	26% (20–30)
Overall health poor/fair	19% (0–50)	29% (8–56)	26% (14–41)	25% (8–34)	30% (15–56)	33% (19–47)	35% (26–40)
High anxiety	18% (0–48)	22% (5–45)	19% (5–28)	16% (7–31)	28% (16–45)	30% (20–42)	17% (13–24)
Depressed	16% (0–43)	19% (5–40)	13% (5–21)	18% (6–40)	24% (14–38)	24% (17–36)	13% (6–20)

Source: data are from clinician surveys, collected from nurses as part of the Magnet4Europe Project between November 2020 and July 2021. Refer to online supplemental table S1 for country-level physician findings.

40% of nurses reported poor work/life balance, the highest rates reported in Germany (49%) and the lowest in Belgium (29%). Intent to leave (29% physicians; 33% nurses) and job dissatisfaction (27% physicians; 24% nurses) were the next most reported indicators of unfavourable mental health and well-being. Physicians in Ireland consistently reported higher rates of poor mental health and well-being than physicians in other countries, while physicians in Belgium and Sweden/Norway reported the lowest rates across the various indicators. More nurses than physicians reported intent to leave (33% vs 29%), described their health as 'fair' or 'poor' (29% vs 19%), reported high anxiety (22% vs 18%) and being depressed (19% vs 16%). Like physicians, nurses in Ireland generally reported poor indicators of mental health and well-being in greater percentages than nurses in other countries while nurses in Belgium had the lowest percentages.

The ranges in unfavourable well-being outcomes across hospitals within each country are highlighted in [table 2](#) and online supplemental table S1. Even in Belgium where physicians and nurses were less likely to experience unfavourable well-being outcomes, there were wide variations between hospitals. This variation across hospitals in reference to burnout within countries is illustrated in online supplemental figure S1. While Belgium had a lower percentage of physicians and nurses with high burnout than other countries, the range of burnout by individual hospitals in Belgium overlapped the burnout rates of hospitals in other countries where the average burnout rates were higher. Germany had a particularly varied rate of burnout across hospitals, especially among physicians.

One in five clinicians would not recommend their hospital as a place to work ([table 3](#) and online supplemental table S2). Nurses were somewhat more critical of the quality of care in their hospital compared with physicians on all four of quality of patient care measures. The most reported quality of patient care concern—by 43% of physicians and 51% of nurses—was their lack of confidence that their patients could manage their care after discharge. Again, the ranges in all measures of quality across hospitals within countries vary substantially. Overall, 29% of physicians and 26% of nurses gave their hospitals unfavourable ratings of the culture of patient safety. The most reported patient safety concerns—by 38% of physicians and 31% of nurses—were that important information is lost during shift changes and close to or over a third of clinicians reported they were not given feedback from management about changes put into place based on safety incident reports. Over one in four clinicians reported that patient safety was not a top priority of management, they did not feel free to question decisions or actions of authority, and felt mistakes were held against staff.

Inferential results

For both physicians and nurses, reports of better hospital work environments and better staffing adequacy were

associated with lower percentages of clinicians reporting unfavourable indicators of well-being, quality of patient care and patient safety ([table 4](#)). For example, the effect of a 1 IQR improvement in work environments was associated with 7.2% fewer physicians and 5.3% fewer nurses reporting high burnout, and 14.2% fewer physicians and 8.6% fewer nurses giving their hospital an unfavourable rating of quality of care. The relationships between better work environments and better staffing adequacy were significantly associated with lower percentages of clinicians reporting unfavourable well-being, care quality and patient safety, in all cases except five, where the effects of physician-reported work environments and staffing adequacy did not reach statistical significance, and one where the effect of nurse reported environments was marginal ($p < 0.10$), but the coefficients were large and in the hypothesised direction.

Physicians and nurses were provided with a list of interventions and asked to select the top three they believed would be most effective in reducing their experienced burnout and improving their well-being. A large majority of nurses (79%) indicated that improvements in nurse staffing levels would be effective in reducing burnout and improving well-being ([figure 1](#)). Thirty-eight per cent of physicians also noted that improving nurse staffing levels would improve their own well-being, and 44% of physicians agreed that improving *physician* staffing levels would be important to reducing their burnout, though only 11% of nurses indicated that improving physician staffing would reduce nurse burnout. Among physicians, the most important interventions for reducing physician burnout were reducing bureaucracy and red tape (49%), improving physician staffing levels (44%) and reducing clinical documentation burden (41%). For nurses, the most salient interventions were improving nurse staffing levels (79%), reducing clinical documentation burden (41%) and ensuring an adequate minimum safe nurse staffing ratios (38%). Both groups of clinicians gave low priority to interventions related to creating time and places for meditation and reflection and providing resilience training.

DISCUSSION

Our results paint a worrying picture of the mental health and well-being of physicians and nurses in hospitals in these European countries. Almost one in five physicians and nurses would not recommend their hospital as somewhere to work and over half of physicians and 4 out of 10 nurses view their work/life balance as poor. More than one in every four hospital-employed physicians and nurses report high burnout, job dissatisfaction, and report an intention to leave, while many, especially nurses, report fair or poor health.

These findings have implications for staff retention but also for patient safety, with evidence that progress has stalled^{31 32} and clinicians reporting a lack of confidence that their patients can manage after discharge.

Table 3 Physician and nurse reports of quality of care and culture of patient safety, averaged across hospitals (n=64 hospitals)

Quality of patient care	Physicians		Nurses				
	Total	Total	Belgium (BE)	Germany (DE)	England (EN)	Ireland (IE)	Sweden/Norway (SE/NO)
Not confident patients can manage care after discharge	43% (8–100)	51% (17–87)	68% (59–87)	48% (17–70)	38% (26–50)	56% (41–73)	36% (17–62)
Would not recommend hospital as a place to work	19% (0–83)	21% (0–57)	12% (1–34)	21% (0–49)	18% (6–38)	33% (7–57)	20% (6–33)
Quality of care is poor or fair	17% (0–60)	23% (0–53)	21% (5–35)	31% (10–53)	16% (9–25)	18% (0–33)	26% (16–32)
Would not recommend hospital to friends/family if they needed care	12% (0–67)	15% (0–45)	9% (1–22)	21% (6–45)	13% (3–22)	18% (0–43)	11% (9–15)
Culture of patient safety	Total	Total	BE	DE	EN	IE	SE/NO
Culture of patient safety average (six items)	29% (6–65)	26% (7–60)	23% (15–33)	23% (15–31)	24% (17–44)	39% (27–60)	23% (7–31)
Important information is lost during shift changes	38% (0–88)	31% (6–57)	35% (20–44)	23% (6–32)	32% (23–50)	41% (26–57)	19% (8–29)
Not given feedback about changes put into place based on event reports	37% (0–85)	27% (5–60)	26% (11–36)	32% (14–50)	16% (5–31)	33% (19–60)	22% (9–32)
Patient safety is not a top priority of management	29% (0–69)	28% (3–67)	21% (3–36)	28% (11–49)	18% (8–44)	41% (21–67)	43% (10–67)
Do not feel free to question decisions or actions of authority	25% (0–63)	30% (7–60)	25% (21–33)	22% (11–40)	28% (16–56)	46% (22–60)	28% (7–38)
Mistakes are held against staff	25% (0–88)	27% (3–73)	18% (10–29)	15% (4–25)	37% (24–52)	49% (37–73)	10% (3–15)
Do not discuss ways to prevent errors from happening again	17% (0–67)	16% (1–47)	14% (1–24)	17% (9–30)	12% (5–31)	24% (12–47)	13% (4–19)

Source: data are from clinician surveys, collected from nurses as part of the Magnet4Europe Project between November 2020 and July 2021. Refer to online supplemental table S2 for country-level physician findings.

In such circumstances, some interpersonal interactions suffer; patients want high-quality information and advice at discharge³³ but clinicians report how the many pressures they face, with high workloads and understaffing, lead to discharges being rushed and premature.³⁴ It is especially worrying that close to a third of physicians and nurses rate the culture of patient safety at their hospitals unfavourably and are unconvinced that patient safety is a priority of management.

Our results can inform efforts to improve clinician and patient well-being; we provide new empirical evidence to support the intuitive view that better work environments and adequate staff numbers are associated with better clinician well-being, quality and safety. Our finding of significant differences in clinician well-being and patient safety among hospitals in individual countries suggests

the existence of modifiable aspects of work environments that are amenable to management action at the level of the hospital.

The next step is to make these changes, something that, once again, this research can inform by acting on the three management interventions clinicians think would most improve their well-being. Better staffing is a high priority for nurses and physicians, with almost half of physicians prioritising *nurse* staffing as a means to enhance their own well-being, highlighting the crucial importance of good hospital nurse staffing for the hospital as a whole. Clinicians also prioritise reducing documentation burden, organisational changes that enable physicians and nurses to spend more time with patients, and reducing bureaucracy and red tape. Notably, resilience training and meditation/reflection interventions were not ranked highly

Table 4 Effects of better work environment and staffing on clinician well-being and clinician reports of quality of patient care and patient safety in their hospitals

Indicators of clinician well-being	Physician coefficients				Nurse coefficients			
	Indicating the effect of better --				Indicating the effect of better --			
	Work environments		Staffing adequacy		Work environments		Staffing adequacy	
	β	P value	β	P value	β	P value	β	P value
High burnout	-7.2	0.006	-7.5	0.006	-5.3	0.000	-6.9	0.000
Job dissatisfaction	-11.3	0.000	-7.8	0.005	-7.3	0.000	-7.3	0.000
Would leave hospital in next year if possible as a result of job dissatisfaction	-14.1	0.000	-8.8	0.000	-10.1	0.000	-8.2	0.000
High anxiety	-4.7	0.033	-6.6	0.004	-2.4	0.080	-5.1	0.001
Depressed	-3.0	0.187	-3.2	0.167	-2.6	0.040	-5.2	0.000
Poor work/life balance	-7.4	0.017	-7.7	0.018	-1.9	0.237	-7.8	0.000
Overall health poor or fair	-5.9	0.008	-5.5	0.0019	-3.1	0.048	-7.8	0.000
Quality of patient care								
Quality of care is poor or fair	-14.2	0.000	-11.4	0.000	-8.6	0.000	-9.0	0.000
Not confident patients can manage care after discharge	-3.0	0.382	-9.3	0.008	-4.7	0.015	-4.9	0.034
Would not recommend hospital to friends/family if they needed hospital care	-13.4	0.000	-7.8	0.003	-7.6	0.000	-5.5	0.007
Would not recommend hospital as a place to work	-14.2	0.000	-10.1	0.001	-8.3	0.000	-9.6	0.000
Culture of patient safety								
Culture of patient safety average	-13.1	0.000	-8.8	0.000	-7.4	0.000	-6.1	0.000
Important information is lost during shift changes	-16.1	0.000	-14.3	0.000	-5.7	0.000	-6.5	0.000
Mistakes are held against staff	-11.1	0.000	-4.7	0.162	-6.3	0.000	-5.6	0.001
Do not discuss ways to prevent errors from happening again	-10.0	0.000	-9.8	0.000	-7.3	0.000	-3.6	0.036
Not given feedback about changes put into place based on event reports	-15.4	0.000	-11.3	0.002	-10.4	0.000	-7.2	0.001
Do not feel free to question decisions or actions of authority	-6.51	0.009	-1.2	0.628	-4.9	0.003	-4.2	0.037
Patient safety is not a top priority of management	-20.2	0.000	-11.4	0.007	-9.5	0.000	-9.8	0.000

Source: data are from clinician surveys, collected from physicians and nurses as part of the Magnet4Europe Project between November 2020 and July 2021. Better work environments and staffing adequacy are scaled as an IQR difference. Physician work environment IQR: 2.86–3.16. Physician staffing adequacy IQR: 2.04–2.43. Nurse work environment IQR: 2.79–3.00. Nurse staffing adequacy IQR: 1.88–2.26.

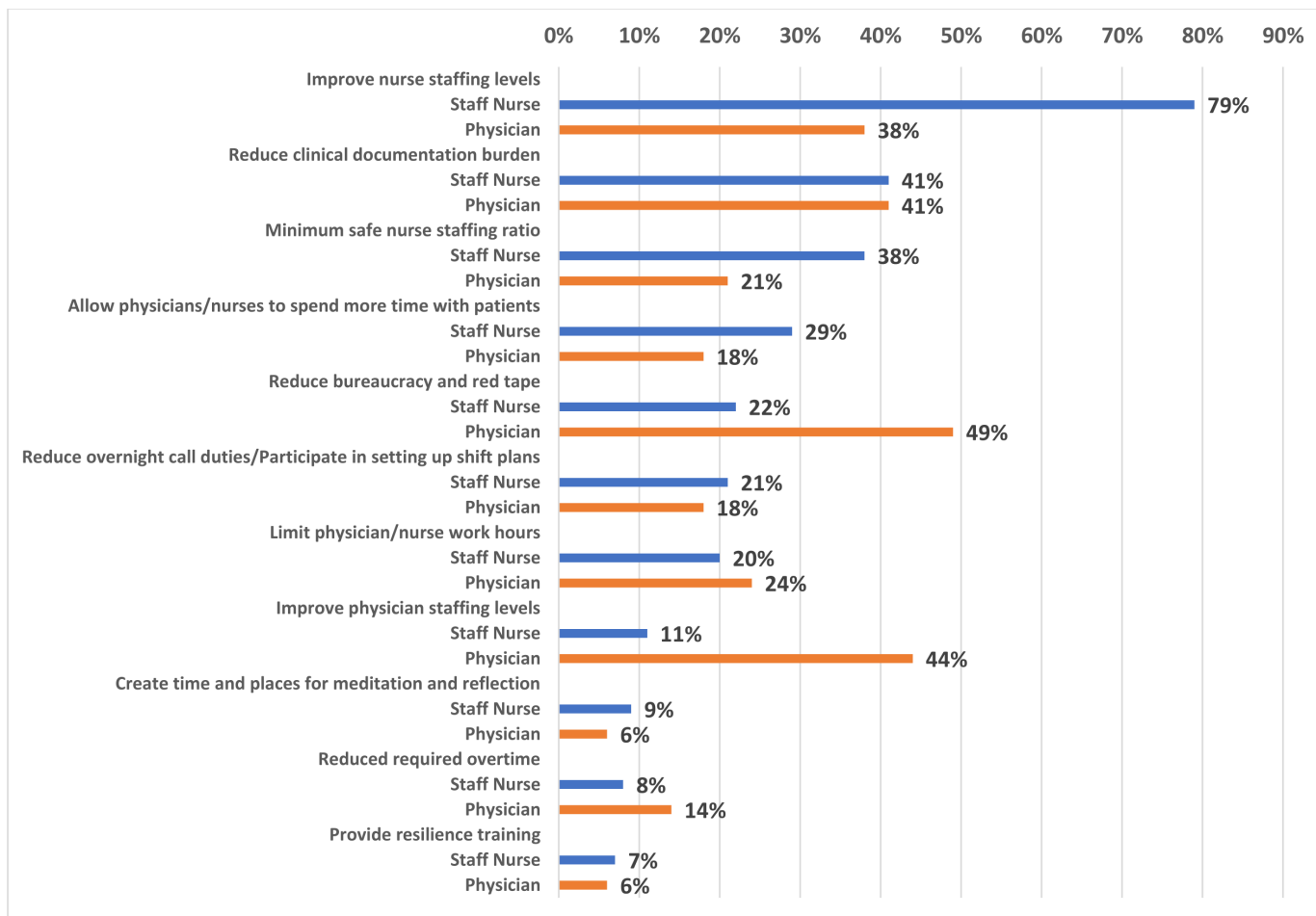


Figure 1 Clinicians' top three preferences for interventions to reduce their burnout and improve their well-being. *Source:* data are from surveys collected from physicians and nurses as part of the Magnet4Europe Project between November 2020 and July 2021. *Note:* 'Reducing overnight call duties' was an option provided only to physicians; 'participating in setting up shift plans' only to nurses.

by clinicians, which is consistent with other evidence that health professionals score higher on resilience than the general population³³ and also the recognition that the problems they face relate to their work environment rather than themselves.

We describe significant differences in clinician well-being among a group of European countries. This could, in part, be due to the relatively small proportion of all hospitals in a country that participated and the extent to which they are representative of the country. However, it should be noted that a similar study¹⁶ to this one, conducted among the 60 US Magnet hospital twinning partners, all seen as good places to work as determined by the awarding of Magnet status, had significantly higher burnout rates and worse clinician and patient safety outcomes than the ones in this study. Research that can shed light on the differences we observed and whether they can be linked to aspects of national policy is an obvious candidate for future work although beyond the scope of this paper. Issues that may be relevant include human resources policies like disability and health benefits, paid time off, differences in number of required hours to meet full time work definitions and retirement

age. Other factors may include levels of long-term investment in facilities, equipment and, above all, staffing, coupled with patterns of financial incentives facing hospitals, all influencing the intensity of work.

These findings should be considered within broader discussions on the health workforce in Europe. All countries have ageing populations, with fewer young people entering the workforce and many health workers now approach retirement. A recent WHO report noted how, in 11 of the countries in the European region for which data were available, at least 40% of physicians were over 55 years of age and will be retiring in the next decade.³⁴ The most common solution, so far, has been to intensify recruitment. This has involved expanding training, although that can be difficult when the existing workforce is so depleted that it struggles to provide trainers. Also, recruitment from outside Europe is a challenge because, in addition to depleting the sending countries of staff, it has been caught up in a wider political debate about migration. Moreover, there is no point in spending large sums of money training staff who will leave as soon as possible. One third of current medical students in the UK do not see their long-term future in the National Health

Service,³⁵ in part because they see the severe discontent among those a few years more senior who have, in an almost unprecedented move, taken strike action (as have nurses in the UK), in protest against a large real terms cut in pay and a severe degradation of working conditions. Consequently, a growing number of politicians are recognising that the only sustainable solution is to improve retention,² although whether they are willing or able to implement the necessary measures is unclear. The aforementioned WHO report does, however, provide a list of recommendations that would help.

The study has some limitations. The first is our inability to establish causality with confidence, given the cross-sectional nature of these data, although causality will be explored in the later phase of the study. There is also an issue of selection as participating hospitals volunteered for Magnet4Europe and so are unlikely to be representative of all hospitals in the participating countries, although given that those who did join are more likely to prioritise safety and staff well-being, our findings are likely an underestimate of the problem.

CONCLUSIONS

Concerns about attracting and retaining a sufficiently large, qualified and committed healthcare workforce in Europe are well founded. Physicians and nurses practicing in hospitals are stretched thin, suffer from poor work/life balance, show signs of looking to leave their clinical positions and are worried about patient quality and safety. Evidence that some hospitals in each of the countries studied have better clinician and quality/safety outcomes than others suggests that organisational interventions to improve clinical work environments, such as the Magnet Model being tested in the Magnet4Europe intervention, hold promise for producing a more satisfied and effective hospital clinical workforce for the future.

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