


BMJ Open Systematic RADaR analysis of responses to the open-ended question in the Culture of Care Barometer survey of a Dutch hospital

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ABSTRACT

Objectives Systematically measuring the work environment of healthcare employees is key to continuously improving the quality of care and addressing staff shortages. In this study, we systematically analyse the responses to the one open-ended question posed in the Dutch version of the Culture of Care Barometer (CoCB-NL) to examine (1) if the responses offered new insights into healthcare employees' perceptions of their work environment and (2) if the original CoCB had any themes missing.

Design Retrospective text analysis using Rigorous and Accelerated Data Reduction technique.

Setting University hospital in the Netherlands using the CoCB-NL as part of the annual employee survey.

Participants All hospital employees were invited to participate in the study (N=14 671). In total, 2287 employees responded to the open-ended question.

Results 2287 comments were analysed. Comments that contained more than one topic were split according to topic, adding to the total (n=2915). Of this total, 372 comments were excluded because they lacked content or respondents indicated they had nothing to add. Subsequently, 2543 comments were allocated to 33 themes. Most comments (n=2113) addressed the 24 themes related to the close-ended questions in the CoCB-NL. The themes most commented on concerned questions on 'organisational support'. The remaining 430 comments covered nine additional themes that addressed concerns about work environment factors (team connectedness, team effectiveness, corporate vision, administrative burden and performance pressure) and themes (diversity and inclusion, legal frameworks and collective bargaining, resilience and work-life balance, and personal matters).

Conclusions Analysing responses to the open-ended question in the CoCB-NL led to new insights into relevant elements of the work environment and missing themes in the CoCB-NL. Moreover, the analysis revealed important themes that not only require attention from healthcare organisations to ensure adequate improvements in their employees' work environment but should also be considered to further develop the CoCB-NL.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The first study to rigorously assess responses to the open-ended question in the Culture of Care Barometer.
- ⇒ Using Rigorous and Accelerated Data Reduction on a large set of written qualitative data (2915 comments) proved effective for systematic analysis and concise presentation.
- ⇒ Surveying all (clinical, non-clinical and research) employees of a university hospital ensured the diversity that provides a representative perspective on all healthcare organisations' employees' experiences.
- ⇒ Study limitations include potential response bias, because employees who chose to respond may hold different views than those who chose not to participate.
- ⇒ This study took place in the last phase of the COVID-19 pandemic in the Netherlands; some results could be influenced by the dire circumstances and the need to work from home.

INTRODUCTION

Worldwide, healthcare organisations face severe workforce shortages that pose a threat to the quality of care.¹ According to the WHO the global deficit of nurses, constituting half of the healthcare workforce, reached 5.9 million in 2018.² In an article in the *Nursing Times*, the US Bureau of Labor Statistics projects that 'more than 275 000 additional nurses are needed from 2020 to 2030,³ and employment opportunities for nurses are projected to grow at a faster rate (9%) than all other occupations from 2016 to 2026'.³ Hence, a major challenge for healthcare organisations is to attract and retain sufficient numbers of healthcare employees. Improving the work environment can help organisations attract and retain healthcare employees.^{4 5} Reasons for quitting the profession include

high workload, forced overtime, lack of influence on practices and insufficient use of employees' professional competencies.⁴⁻⁷ In contrast, a positive work environment reduces the intention to leave,^{4 8} enhances employee outcomes (eg, job satisfaction^{5 9}) and patient outcomes (eg, lower hospital-acquired infection rates^{6 10} and fewer readmissions¹¹). Work environment (WE) is defined as 'the internal setting of the organisation where employees work'. It consists of the physical environment, culture, social climate and context of functions, tasks and roles in organisations in general.¹² In healthcare, a positive WE is characterised by respect and trust between employees at all levels, effective cooperation and communication, recognition and appreciation, management support and a work environment that is both physically as well as psychologically safe.¹³ For healthcare organisations, creating and sustaining a positive WE begins with understanding employees' current perceptions of their WE.

A common strategy for healthcare organisations to gain insight into employees' perceptions of their WE is to conduct a (satisfaction) survey.¹⁴ Multiple validated questionnaires are available to assess WE, each with a slightly different area of focus, target audience or length.^{15 16} These questionnaires are commonly composed of statements linked to Likert-type scales that ask how much a respondent agrees with the specific statement.¹⁶ Although Likert-type scales are often used to examine self-reported perceptions as they allow standardised and/or numerical information collection,¹⁷ the results presented can be difficult to interpret and translate into daily practice, especially when seeking to improve the measured construct.¹⁸ Furthermore, scale items are usually generated from the underlying latent construct the scale developer aimed to measure.^{17 19} If certain topics are not captured during the survey development, relevant items based on the latent construct may not be addressed and could thus remain out of scope or be interpreted differently.

To tackle the potential loss of information when studying perceptions with closed-ended questions, it is common to finish with an open-ended question at the end of the survey.²⁰ Hence, the questionnaires frequently used by healthcare organisations contain such a question, for WE (eg, Practice Environment Scale of the Nursing Work Index²¹; Essentials of Magnetism Tool²²; Safety Attitudes Questionnaire²³; Hospital Survey on Patient Safety Culture (HSOPSC)²⁴). Responses to open-ended questions could offer valuable contextual information and provide indications and directions for improvements. For example, Boussat *et al*²⁴ found that responses to the open-ended question of the HSOPSC included necessary contextual information complementary to the HSOPSC scores. Therefore, responses to open-ended questions could offer insights beyond numerical results.²³ Although many questionnaires often allow respondents to comment on issues in the open-ended question,²⁰ their answers are rarely reported in scientific publications. Researchers and practitioners often face dilemmas in valuing and analysing the open answers.²⁰ Due to the lack of reports on these

responses, the content of the questionnaire might not match the current opinions of the respondents. Although it is common to establish survey validity and reliability, most validation strategies occur within the framework of the statements and Likert-scale answers developed by the researchers.²⁰ Hence, it is conceivable that shifts in perceptions over time are not captured, particularly for constructs like WE that are multifaceted and subjective.¹⁸

We examined the content of answers given to the open-ended question in the Dutch Culture of Care Barometer (CoCB-NL),^{25 26} a measurement tool to explore healthcare employees' perspectives on their WE. The CoCB-NL found its origin in the CoCB, developed by Rafferty *et al*²⁵ and both showed good validity and reliability in the previous studies.^{25 26} Therefore, the instrument has become part of the annual employee survey of a university hospital. The CoCB-NL assesses healthcare organisational WE with 30 positively formulated items on five factors: 'organisational support', 'leadership', 'collegiality and teamwork', 'relation with manager' and 'employee influence and development'.²⁶ It concludes with one open-ended question: 'What, if any, action needs to be taken to improve the culture of care of your work environment?'²⁵ By systematically analysing the responses to this open-ended question we aimed to examine (1) if the responses led to new insights or additional information on healthcare employees' perceptions of their WE and (2) if any themes are missing in the CoCB-NL questionnaire. The knowledge gained would be valuable for ongoing improvements to measuring and enhancing WE, a prerequisite for attracting and retaining healthcare employees.

METHODS

Design

We conducted a qualitative analysis of comments responding to the open-ended question of the validated CoCB-NL²⁶ using the RADaR (Rigorous and Accelerated Data Reduction) technique.²⁷ RADaR is a systematic way of transforming raw textual data into manageable data tables fit for rigorous analysis and concise presentation and therefore suitable for thematic analysis of large amounts of qualitative data, as was available in this study.²⁷ The reporting in this study complies with the Standards of Reporting Qualitative Research.²⁸

Sample and setting

The setting was a Dutch university hospital (14671 employees, 1100 beds with 30288 admissions and 628904 outpatient visits in 2022) that annually conducts employee surveys, including the CoCB-NL.²⁶ For this study, all hospital employees were invited to participate by email, after they were informed by their management and through the organisation's communication channels. The survey took place in February 2022 and was available in both Dutch and English to be accessible to both national and international employees.

Data collection

Data were collected via the digital tool LimeSurvey, compliant with the hospital's data security principles. The annual employee survey comprised several validated questionnaires measuring the employee's experience of 'work environment' (CoCB-NL^{25 26}), 'safety climate' (Safety Attitudes Questionnaire, (subscale Safety Climate^{23 29}), 'work engagement' (Utrecht Work Engagement Scale³⁰), 'work-life balance'³¹ and 'workability' (Work Ability Index item 1³²). The survey concluded with a demographics section (respondent's department, profession or function) applying categorical response options to guarantee anonymity. This study only concerned responses to the CoCB-NL, which was in the first part of the survey. It posed a total of 30 closed-ended questions followed by one open-ended question: 'What, if any, action needs to be taken to improve the culture of care in your work environment.' The response field for this open-ended question had no word or character limit. We included all the completed questionnaires containing a response to this open-ended question (2287 comments/6144 respondents, 37 %).

Patient and public involvement

Patients and the public were not involved in conducting this study.

Study participation was anonymous and voluntary. Participants were informed about the study in the announcement email and on the first page of the questionnaire. Participants gave implicit consent by proceeding to the substantive questions on the second page. Researchers only had access to the output file of responses to the open-ended question. This file contained no information retrievable to individuals such as email addresses or personnel identification numbers.

Data analysis

Data analysis involved five steps taken in three phases. In the first phase, we built the database (table format) and filled in all the data relevant to answering the research questions. Subsequently, comments were given initial codes. The second phase reduced the collection by excluding, sorting and clustering data, and refined the coding. Finally, themes were formulated in the third phase.

Phase 1: building the database: steps 1 and 2

We began with a table containing all 2287 individual comments and codes labelling the five CoCB-NL factors ('organisational support', 'leadership', 'collegiality and teamwork', 'relation with manager' and 'employee influence and development') as well as the topics related to the 30 closed-ended questions, which we refer to as 'themes'. In the first step, two junior researchers (SMM and LS) independently labelled an initial group of 280 comments (12%) according to one or more factors and themes. A comment that did not match any factor or theme was labelled 'other' and given a keyword that fitted

the comment. SMM and LS discussed their results and wrote a draft description of each theme, which the whole research team then discussed. In the second step, SMM and LS independently coded the next 25% of comments according to one or more themes. They compared the results (75% agreement) and discussed differences up to consensus with a third—senior—researcher experienced in qualitative research and an expert on healthcare employees' work environment (CJvO). This resulted in the next version of the code list which SM used to label the remaining 63% of the comments.

Phase 2: data reduction and identification of themes and subthemes: steps 3 and 4

We began step 3 in the second phase by ordering the data table. If a comment referred to two or more themes, it was split into multiple comments and assigned to the corresponding themes. Of 2915 comments in total, 501 comments referred to multiple issues, 391 comments addressed 2 themes, 97 addressed 3 themes, 9 addressed 4 themes and 4 comments addressed 5 themes. In total, 128 comments were excluded either because the respondents indicated that they had nothing to add, found the questionnaire inappropriate or had recently started their job and thought that they did not know enough to be able to answer the questions. The final dataset contained 2787 comments given by 2159 individual respondents.

SMM reread the comments labelled to 1 of 5 CoCB-NL factors and subcategorised them into 24 themes. Two researchers (LS and CJvO) crosschecked 70% of the labelling (82% agreement) and suggested alternatives in the case of disagreement. The alternatives were discussed up to consensus by CJvO and JWMW-J, two senior researchers in qualitative research. Then we wrote a first draft of theme descriptions. The whole research team checked the descriptions of each theme several times for consistency and comprehensibility. Several descriptions were altered and some themes were merged.

Subsequently, in the fourth step, SMM reread, sorted and labelled the 'other' comments, which resulted in the identification of nine additional themes. LS crosschecked all these comments (97% agreement) and the whole research team discussed the results. This led to the exclusion of another 244 comments (total excluded n=372) because they did not contain enough information for the researchers to assess what exactly the respondent meant (eg, 'internal alignment' (r1662) and 'more communication' (r431)).

Phase 3: formulating the final themes: step 5

In the final stage, one researcher not involved in the coding/labelling process (JWMW-J) reviewed the final themes and descriptions for clarity and distinctiveness. Keeping the research questions in mind, then the whole research team critically discussed the identified themes and further clustered the overlapping themes. The final code list contained 33 themes, of which 24 were based on

Table 1 Respondent characteristics

N=2283		N	%
Department type	Diagnostic and laboratory	166	7
	Functional departments	285	12
	Medical department	536	23
	Outpatient clinic and day treatment	154	7
	Support and service department	455	20
	Nursing ward	410	18
	Science and research department	200	9
	Other	77	3
Professional group	Administrative staff	274	12
	Care assistants	96	4
	Consultants	219	10
	Information and Communication Technology	40	2
	Laboratory staff	154	7
	Management	132	6
	Medical supportive staff	94	4
	Nursing	450	20
	Pharmacy staff	42	2
	Physicians	258	11
	Radiology staff	54	2
	Researcher	294	13
	Teachers	42	2
	Other	53	2

the closed-ended questions of the CoCB-NL and 9 were additional to the CoCB-NL.

RESULTS

The diverse group of respondents (table 1) came from all parts of the university hospital.

We analysed 2915 comments, excluding 372 comments in total, based on the criteria 'lack of content' (n=244), 'nothing to add' (n=104), question not appropriate' (n=13) and 'new in job' (n=11). After exclusion, the 2543 remaining comments are allocated to 33 themes. In total, 2113 comments are labelled with 24 themes related to the 5 CoCB-NL factors and associated close-ended questions, and 430 comments addressed additional themes (n=9). Figure 1 gives an overview of the themes related to the CoCB-NL factors and the additional themes. Online supplemental file 1 defines the themes.

Themes aligning with the CoCB-NL closed-ended questions

We identified 24 themes that align with the closed-ended questions in the CoCB-NL (figure 1). These themes

represent almost all of the 30 closed-ended questions, except for two items, 'a good place to work' and 'proud to work', which both belong to the factor 'organisational support'. Respondents did not differentiate between organisational level and team level for the items 'informed about what's going on in team/organisation' and 'influence in team/organisation' of the factors 'leadership' and 'influence and development of employees'. Based on respondents' comments on the lack of kind or collegial behaviour, we distinguished the theme 'demeanour', which matches the factor 'collegiality and teamwork'. Although formulated positively, current the CoCB-NL items 'friendly colleagues', 'rely on colleagues' and 'being treated with respect by colleagues' are commensurate with this theme.

The CoCB-NL factor most frequently commented on was 'organisational support' (n=556), while the factor with the least number of comments was 'relation with manager' (n=291). The 'resources' theme belonging to the factor 'organisational support' was most frequently commented on (n=286) and was most diverse. We were able to identify six types of resources: 'suitable physical worksite', 'sufficient equipment and material', 'enough staff to do the job well', 'functioning service facilities', 'Information and Communication Technology (ICT) systems' and 'enough financial resources available'.

For the factor 'collegiality and teamwork', we found 56 positive comments on WE in which respondents said they had no suggestions for improvement (theme 'team climate'). In contrast, 16 respondents reported unacceptable behaviour from colleagues (theme 'demeanour') and 113 respondents called for action on undesirable or dysfunctional behaviour by leaders (theme 'tackling unacceptable behaviour'; factor 'leadership').

Emerging themes

In total, we identified nine additional themes (green spheres in figure 1). Five themes relate to the CoCB-NL factors 'collegiality and teamwork', 'organisational support' and 'leadership', but address subjects not covered by the associated closed-ended questions. The themes 'team connectedness' (n=108) and 'team effectiveness' (n=67), relate to teamwork and are therefore assigned to 'collegiality and teamwork'. However, 'team connectedness' and 'team effectiveness' refer to belonging to a team, something that many team members lacked as they were not allowed to meet physically during the COVID-19 pandemic. Respondents mentioned a need for a clear vision and goals to provide direction for their department (factor 'leadership', theme 'corporate vision'; n=34). Furthermore, respondents called for action by the organisation and (higher) management on the persistent 'administrative burden' (n=9) and 'performance pressure' (n=7).

We identified four distinct themes that cannot be allocated to the factor structure of the CoCB-NL: 'diversity and inclusion', 'resilience and work-life balance', 'personal matter' and 'legal frameworks and collective

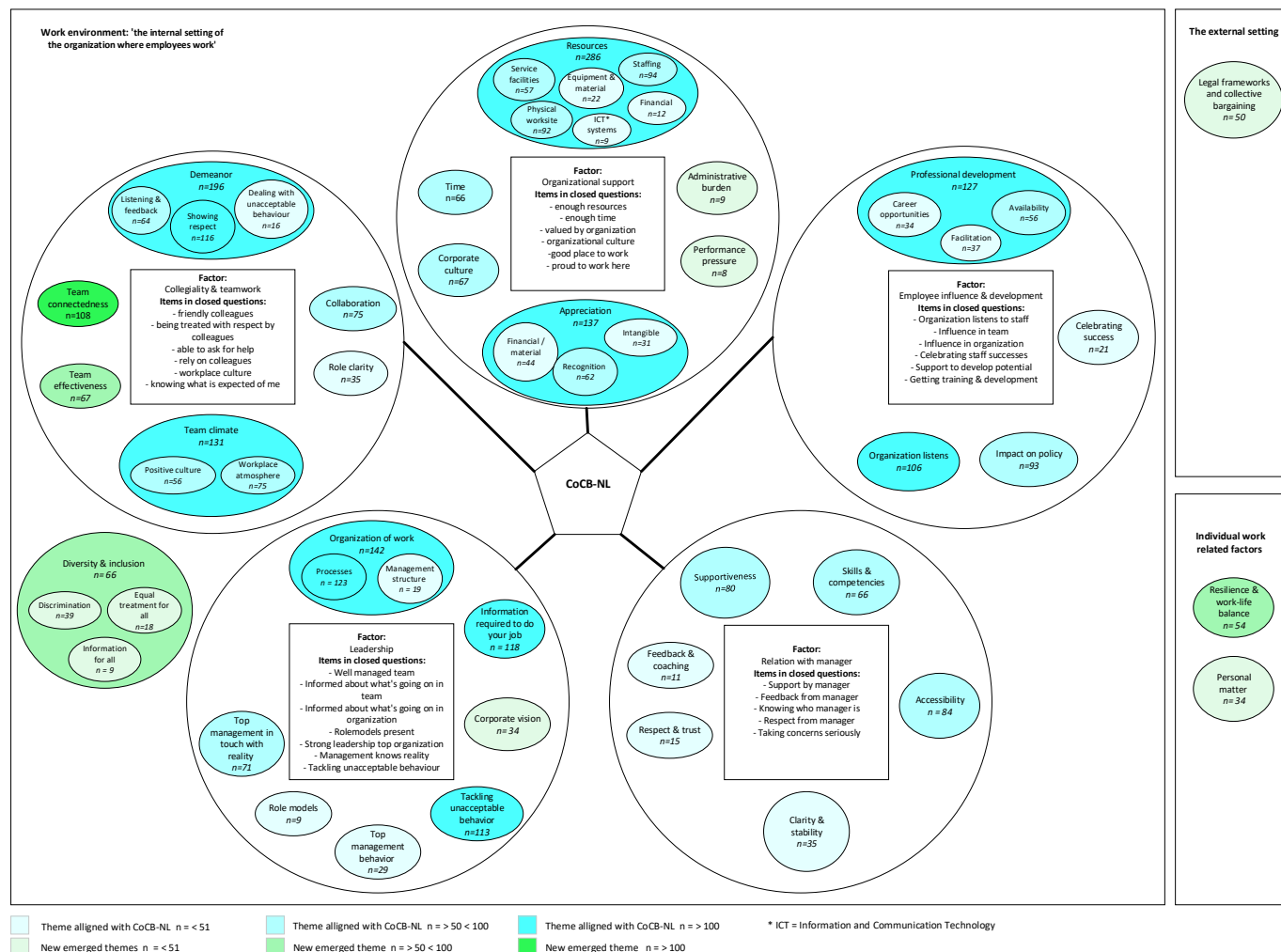


Figure 1 Factors and (sub)themes. CoCB-NL, Dutch version of the Culture of Care Barometer; ICT, Information and Communication technology.

bargaining' (figure 1). The theme 'diversity and inclusion' (n=66) is based on respondents' comments on gender, ethnicity, language and ability differences and encompasses three subthemes: 'discrimination' (n=39), 'equal treatment of all' (n=18) and 'information for all' (n=9). The theme 'resilience and work-life balance' (n=54) includes comments on the requested resilience of employees, mental health issues' and constraints due to a disturbed work-life balance. The comments labelled 'personal matter' (n=34) include comments on positive or negative experiences with the workplace. The theme 'legal frameworks and collective bargaining' (n=50) concerns external conditions and includes comments on how respondents feel about conditions imposed by legislation or the collective bargaining agreement, such as salary, working hours or ageing policy.

DISCUSSION

Our study had two aims. First, to determine if the responses to the open-ended question in the CoCB-NL survey of a Dutch university hospital would lead to new insights into healthcare employees' perceptions of their

WE. Second, to evaluate if any identified themes differed from those addressed by the CoCB-NL.

We identified 33 themes, of which 24 correspond directly with the close-ended questions of the CoCB-NL and nine themes that the CoCB-NL does not address. The 24 corresponding themes include almost all the elements of the Dutch CoCB-NL and the original CoCB,^{25 26} which shows the relevance of using this tool to measure the WE.

Of the nine additional themes we distinguished, five relate to factors of the COCB-NL: 'team connectedness', 'team effectiveness', 'corporate vision', 'administrative burden' and 'performance pressure'. The remaining four themes are: 'diversity and inclusion', 'resilience and work-life balance', 'personal matter' and 'legal frameworks and collective bargaining'. Except for 'resilience and work-life balance', 'personal matter', and 'legal frameworks and collective bargaining', all concern the employees' experience of their work environment. They are known elements of the healthcare employees' WE that have an effect on patient or personnel outcomes.^{5 13 33} Hence, adding these six themes to the CoCB-NL or the original CoCB²⁵ and other translations³⁴ should be considered.

The themes 'team connectedness' and 'team effectiveness' emerged from comments on the employee's experiences during the COVID-19 pandemic. While working at home and meeting only online, employees found it hard to connect with team members and be effective as a team. However, after the pandemic, working remotely (from home) has become the 'new normal' for employees not providing direct patient care.^{35 36} Therefore, our findings show the importance for healthcare organisations to understand the influence of WE on remote working. More research in this direction is needed. Also, the theme 'legal frameworks and collective bargaining' was mentioned quite often. The comments referred especially to the collective bargaining agreements, which were under debate at the time the survey was conducted.³⁷ Although these results can be attributed to a specific event or point in time, it is important to consider measuring 'team connectedness', 'team effectiveness' and 'legal frameworks and collective bargaining' as part of the WE as both patient and personnel outcomes benefit from team connectedness and effectiveness.^{38 39} Also, external conditions or structures, such as a law regulating working hours, influence the employee roster, which in turn affects the work-life balance of the individual professional and fosters employees' concerns.^{40 41} Healthcare organisations should take these concerns seriously.

The distinct theme 'diversity and inclusion' was not related to any factor of the CoCB-NL. Diversity and inclusion in organisations is associated with corporate performance in terms of innovation, profit and personnel engagement and retention.⁴² An inclusive WE is diverse in composition and originates in a climate where employees are willing to speak out and participate, and unacceptable behaviour is less prevalent.⁴³ Recent government-indicated research concluded that the Dutch healthcare sector does not have a diverse workforce that reflects society.⁴⁴ Healthcare organisations are urged to continue working towards a more diverse and inclusive WE.^{42 44} Although the importance of a diverse and inclusive WE is evident, we are not aware of any instrument measuring the diversity and inclusivity of healthcare employees' WE.^{15 16}

Respondents did not address two CoCB-NL items in the open-ended question: 'a good place to work' and 'proud to work'. These two are addressed by the closed-ended questions, so it cannot be said that they do not contribute to a positive WE and could, therefore, be considered as positive outcomes.¹³ It is important to remain critical of questionnaire items. New themes require adaptation of the CoCB-NL, but it is known that long questionnaires are detrimental to low response rates.⁴⁵

The fact that our study found nine new themes important to healthcare employees' WE confirms the value of analysing open comments in questionnaires.^{20 46} These new themes provide context to the WE measured and prove that new perceptions of the WE can be captured. Hence, analysis of open-ended questions serves as a starting point for discussing our results.^{20 46} Moreover, the

WE is in constant flux due to changing circumstances (eg, due to COVID-19 or negotiating a collective bargaining agreement) so what employees find crucial elements of WE evolve over time.^{16 47} Analysing open-ended questions facilitates improvements that align with employees' experiences and requirements.^{20 46} To use responses to open-ended questions, the responses ought to contain sufficient contextual information on experiences with the WE. Given the substantial proportion of excluded responses in our data set, future research should highlight the importance of providing rich responses to open-ended questions that include information on context.

Strengths and limitations

Analyses of responses to open-ended questions have been criticised as they rarely 'meet the bar' for rigorous qualitative research and hence, a rigorous method is recommended.^{20 48} A strength of our study is the application of RADaR²⁷ technique to systematically analyse and quantify the large number of comments on the open-ended question of the CoCB-NL. Moreover, to avoid the risk of missing hidden themes with RADaR only,⁴⁹ at least two junior researchers performed the data analysis by independently allocating comments to themes. Additionally, responses to open-ended questions often lack context, emotional and social nuances, and layers of detail; sometimes these are private opinions.²⁰ As context information is essential to developing themes, we had to exclude the responses lacking context, which means we might have missed relevant information. However, the leading researcher (SMM) in the labelling process knows the hospital context well.

This study is based on data from a single survey conducted in a university hospital during a specific point in time. The strength is the substantial size of the dataset, and the inclusion of all employees in this large university hospital. However, there is a risk of response bias in this survey, as only 42% of employees responded of which 37% responded to the open-ended question. This might impact the generalisability of our findings to other (university) hospitals worldwide. Additionally, the study was performed in the last phase of the COVID-19 pandemic in the Netherlands. Hence, the dire circumstances and the employees' need to work from home may have influenced the results. Because of the size of the dataset and the participation of all the employees of this large university hospital, it is likely that other employees of (university) hospitals worldwide will recognise the themes found in our study.

We welcome further studies to expand the body of knowledge on the applicability of RADaR technique to analyse an extensive dataset of open-ended responses. Furthermore, studies examining the frequency of occurrence of the newly identified themes relevant to measuring WE are important. Moreover, additional studies assessing and improving the WE are essential to prevent even more workforce shortages as this poses a threat to the quality of care.¹

CONCLUSION

Analysing comments on the open-ended question of the CoCB-NL in one Dutch hospital, led us to identify nine additional themes considered important by healthcare employees of their WE. WE suggest that healthcare organisations should consider these themes to improve their employees' WE. They are also useful input for further development of the CoCB-NL; even the original CoCB and all its other translations. As WE is constantly changing and employees' perceptions of their WE evolve over time, we recommend analysing comments on the open-ended question to ensure adequate improvements in measuring employees' WE. Ultimately, such analysis contributes to a more positive WE for personnel which in turn contributes to enhancing the quality of care.^{8 9 46}

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Supplementary file 1: Factors, (sub)themes, descriptions & representative quotes		
Themes belonging to CoCB-NL factors	Description	Representative quotes
Factor: organizational support		
Appreciation: Intangible*	Non-physical recognition and appreciation of employees: e.g., a compliment, positive feedback or reinforcement.	<i>"Supervisors should express appreciation more often as well" (r739)</i> <i>"Make employees feel more appreciated." (r1572)</i>
Appreciation: Recognition*	Acknowledgment of the profession, work, or tasks that creates a sense of being valued for what they do.	<i>"Recognition of individuals and teams not just for obtaining grants and promotions." (r722)</i> <i>"The whole department would welcome more appreciation. We often think that no one outside our department knows what we do. On the other hand, the same applies to us when it comes to, say, a nursing department. More appreciation and understanding of each other's work could help in this regard." (r1863)</i>
Appreciation: Financial/material*	Financial (e.g., salary, remuneration or pay scale) and material (e.g., gifts and tokens) value	<i>"Better compensation for extra tasks and responsibilities. Less dissatisfaction would result." (r823)</i> <i>"A reward or recognition would be welcome, especially since we couldn't have the company outing." (r2163)</i>
Corporate culture	Individual's opinions and thoughts on the organization, without reference to a specific department: e.g., a culture of fear, lack of accountability, pride or a psychologically safe environment	<i>"Less accountability culture. Room to make mistakes." (r670)</i> <i>"[Department X] still has a clear, hopefully unconscious, hierarchical culture" (r2111)</i>
Resources: Equipment & material*	Equipment and materials needed to carry out tasks: e.g., bandages or a patient-monitoring system.	<i>"We often lack resources in the department. Think of blood pressure monitors, saturation meters, crutches or chairs." (r983)</i> <i>"The (sterile) supply cabinets should be better organized so that nurses can find things more easily." (r2813)</i>
Resources: Financial*	Financial resources needed to carry out tasks, directly associated with a stable budget or accounting systems.	<i>"We need more money to fund the work. We try to get external grants but that is not enough. We need support from institutions too." (r360)</i> <i>"More funding so we can replace equipment." (r11)</i>
Resources: ICT systems*	Availability of ICT systems, directly associated with supporting tasks.	<i>"On both team management and technical level: we need policies for software version documentation, etc." (r72)</i> <i>"The computer systems are terrible. Decisions on software (which software, selected settings, etc.) are made centrally without taking users into account." (r821)</i>
Resources: Physical worksite*	The physical environment of the workplace or station (where work is performed): e.g., climate control, noise level, availability of desks and computers or the presence of lunch and relaxation spots.	<i>"I would really like to have a separate office again instead of all of us in the open-plan space that makes concentration difficult and phone calls impossible." (r1142)</i> <i>"Especially the temperature in the workplace. It's often very hot. [Not conducive to] working comfortably." (r961)</i>
Resources: Service facilities*	HR services and admin support needed in the hospital or at home.	<i>"More support for remote work (monitor, desk, and chair). Also, access to a company psychologist when needed." (r2193)</i> <i>"It takes a lot of effort to get things done [at work; HR, equipment, etc.]. It would be nice if things ran more smoothly." (r788)</i>
Resources: Staffing*	The availability of personnel to efficiently execute tasks, associated with staff shortages or high turnover.	<i>"More staff, so there's more time for patients and quality of care." (r408)</i> <i>"More effort to do tasks differently, like with a robot." (r1759)</i>
Time	Time available for tasks, associated directly with enough time to do the job properly.	<i>"Provide enough time to perform complex/time-consuming tasks. Requests often come in late, and time pressure is high." (r1207)</i> <i>"If you want to do the job well, you need more time. It's hard to do all the work in the agreed-upon time." (r2633)</i>
Factor: employee influence & development		
Celebrating success	Coming together to celebrate achievements accomplished by the organization, teams, or individuals.	<i>"Celebrating (shared) successes (e.g., cake, online lunches and drinks)." (r1189)</i> <i>"Pay attention to the 'small' successes of employees, not just the 'stars' who win the grants and awards." (r2724)</i>
Impact on policy	Calls to "flip the pyramid from top-down to bottom-up" and having influence on policy prior to a change.	<i>"Fewer top-down decisions from those who don't actually do the work." (r1217)</i>

		<i>"More authority for (small) decisions by staff members; not everything has to go through the Management Team" (r888)</i>
Organization listens	A call to the organization without specifying who exactly to listen to employees, frequently associated with 'taking action on what employees request'.	<i>"Listen to and take seriously what people on the work floor say." (r910)</i> <i>"Transparent policy. Listening to employees and, especially, acting on their feedback!" (r1415)</i>
Professional development: Availability*	The availability of opportunities for education, workplace learning and professional and personal growth.	<i>"I can develop myself [professionally] how I like, but I don't know if I'm supporting the organization with this." (r810)</i> <i>"We lack targeted development opportunities." (r2169)</i>
Professional development: Facilitation*	Corporate support for education in terms of time, financial resources and/or intangible support	<i>"Being encouraged to take courses and attend conferences, instead of having to work part-time on a fulltime course." (r114)</i> <i>"An adequate budget for relevant training." (r1473)</i>
Professional development: Career opportunities*	Future job perspective, job security and career development pathways toward promotion.	<i>"Ongoing [temporary] contracts, where researchers are employed for only a few years at a time, are not ideal. It's hard to plan your life when you can't have permanent employment." (r1181)</i> <i>"Try to give more opportunities. even outside of group, to support making a career in academia." (r2587)</i>
Factor: relation with manager		
Accessibility	Workplace manager is approachable, available and visible, communicates with staff and knows what is going on.	<i>"More visibility of the manager in the department." (r583)</i> <i>"Leadership leaves much to be desired. They're always in meetings and completely invisible in the department." (r1392)</i>
Clarity and stability	Clarity as to who the manager is, directly associated with changes and/or turnover in management.	<i>"We get a new interim manager every few months, so they're gone after a few months as well." (r1584)</i> <i>"I don't have a direct supervisor (currently). It would be nice if this kind of thing is resolved faster." (r2695)</i>
Feedback & coaching	How a manager offers guidance, support, and constructive criticism to employees with the goal of improving professional development.	<i>"More brief moments of contact with management on progress in personal development." (r302)</i> <i>"I'd like more frequent personal conversations with my supervisor, to develop myself in both professional and personal areas." (r1900)</i>
Respect & trust	Respect and trust the manager gives an employee as the basis of a positive and healthy working relationship.	<i>"A supervisor's respectful approach." (r393)</i> <i>"The director's trust in the advisers; recognizing them more as 'business partners'." (r1993)</i>
Supportiveness	Manager values employees' views and makes a sincere effort to address their concerns. Employees feel heard and understood.	<i>In my opinion, leaders should be alert and listen to employees." (r145)</i> <i>"Being heard faster when our team indicates that the workload is getting too high. That puts the quality of our work at risk." (r2485)</i>
Skills and competencies	The knowledge, competences, and hard and soft skills that employees think their managers should possess.	<i>"Leadership course?" (r1242)</i> <i>"Recruit a strong knowledgeable leader who can drive the team forward." (r1745)</i>
Factor: leadership		
Top management behavior	The behavior, perceived attitude of the organization's top management.	<i>"The distance from the director is also significant; you never see them, and when they do come in, they never engage in conversation, as if you don't even exist. I think this is also part of a pleasant work culture." (r2166)</i> <i>"More positivity and compliments from senior managers." (r2250)</i>
Organization of work: management structure*	The arrangement and structure of management and decision making	<i>"Clear leadership structure." (r1590)</i> <i>"Clearer hierarchical structures and responsibilities and authorities for different roles and tasks." (r1858)</i>
Organization of work: Processes*	Workflow design and organization, e.g., consultation, arrangements, structure of sections, departments or organization, etc.	<i>"There are many projects with their respective project teams: 43 to be exact." (r1314)</i> <i>"Minutes of meetings and agreements are not documented in writing." (r2041)</i>
Information required to do your job	Understandable and transparent information received through timely communication and appropriate sources, sufficient to do your job and understand the developments and choices in the team or organization.	<i>"Sometimes communication doesn't go as expected. It may go through different channels or you hear it from someone else. However, it's done the right way if you speak up about it." (r1771)</i> <i>"Improve communication on developments in working conditions (are new colleagues coming in, what is expected from the rest of the team)." (r2625)</i>
Role models	The presence of role models to act as examples of good conduct/behavior.	<i>"Practice what you preach. Leading by example is so important." (r2033)</i>

		<i>"I'd like to see more role models for employees with disabilities. On an individual level, I get support, but there is a lack of organization-wide support." (r1701)</i>
Tackling unacceptable behavior	Lack of action or not taking steps to address undesirable or dysfunctional behavior: e.g., confront employees and resolve problem behavior.	<i>"I'd really like them to address the absenteeism due to illness. I'm referring to colleagues who often report sick. This has been a pattern for years." (r515)</i> <i>"For both management and colleagues to address colleagues who exhibit behavior that is unacceptable toward students, if they hear or witness it happening." (r1435)</i>
Top management in touch with reality	Top management understands what is happening in the workplace; is visible, accessible to employees and listens to their concerns.	<i>"Senior/top management making informal visits to the work floor and interacting with employees." (r1841)</i> <i>"More understanding of the work from the top of the organization." (r632)</i>
Factor: collegiality & teamwork		
Collaboration	Cooperation, communication and social interaction between teams, departments and professions.	<i>"I think it would be nice for the care support workers if the nurses open up or make more contact." (r1468)</i> <i>"More collaboration across teams and a lower threshold for raising certain things" (r2466)</i>
Demeanor: Showing respect*	Attitudes and manners of employees in the workplace, e.g., showing trust, respect, being kind and not gossiping.	<i>"Being more open and direct to each other as colleagues." (r481)</i> <i>"More respect for each other and trusting everyone's good intentions would also improve the culture." (r1677)</i>
Demeanor: Listening and feedback*	The manner of giving feedback and initiating equal conversations aimed at improving cooperation or learning.	<i>"Among ourselves, we should dare give each other more feedback." (r1153)</i> <i>"Listening to each other and being open to feedback and ideas." (r225).</i>
Demeanor: Dealing with Unacceptable behavior*	Employees' reports of dealing with a colleague's unacceptable behavior in the immediate working environment e.g., bullying, intimidation, shouting, temper and discrimination.	<i>"I don't feel comfortable [bullied[] in the team I work with now." (r144)</i> <i>"We're treated badly, we're insulted for underperforming. Very unacceptable!!!" (r23434)</i>
Role clarity	Agreement on tasks and expressing expectations of responsibilities and boundaries of a specific job profile.	<i>"Sometimes the roles are unclear. There is no clear communication about who does what, you're thrown into the deep end." (r1534)</i> <i>"Bring more focus into tasks. Discuss with others when we can say 'no.' Clearly agree on what we are for and against." (r1950)</i>
Team climate: Positive culture*	Compliments for a positive culture in the team's work environment.	<i>"We have a good atmosphere in the workplace now." (r1431)</i> <i>"Our group culture is very welcoming to everyone." (r884)</i>
Team climate: Workplace atmosphere*	Employees' experiences of e.g., unpleasant atmosphere, resignation or unsafe learning environment.	<i>Less 9-to-5 mentality. Currently, there's a culture of sighing when it comes to overtime/busy periods." (r1125)</i> <i>"A better learning environment for students." (r1393)</i>
New (sub)themes	Description	Representative quotes
Administrative burden	The bureaucratic load associated with record-keeping, documentation and other registration-related tasks.	<i>"National regulations and associated red tape paralyze the work process. Support should come from higher authorities, and more resistance should be directed at national politics." (r363)</i> <i>"Reduce administrative work." (r2571)</i>
Corporate vision	A call for management to have a clear vision, direction or goals that people can hold on to.	<i>"I believe there is little vision, and as a result, little direction." (r809)</i> <i>"Clear vision! Where are we going, when and how do we get there?" (r2216)</i>
Diversity & inclusion: Equal treatment for all*	Fair and unbiased treatment of all individuals; no favoritism.	<i>"My line manager applies rules and principles unfairly, in different ways to different people in the group." (r52)</i> <i>"More equality within the group." (r1688)</i>
Diversity & inclusion: Information for all*	Information is provided for every employee in accessible language.	<i>[International PhD student] 'I believe it would be great to get an English version of some emails I get from the organization" (r348)</i> <i>"More info should be available in English for internationals." (r646)</i>
Diversity & inclusion: Discrimination*	Lacking diversity, discrimination in terms of gender, ethnicity, language, generations and neurodiversity.	<i>"Very little diversity; all white, three women out of 14 men." (r838)</i> <i>"Accept diversity. Stories of gender and ethnic discrimination circulate still too often." (r2330)</i>
Legal frameworks and collective bargaining	National legislation, regulations and agreements negotiated between employers and unions that govern various aspects of employment, including wages, working hours, and employee rights.	<i>"There aren't any provisions for older employees, like more days off, or fewer working hours with salary retention." (r1873)</i> <i>"More attention and appreciation for secondary employment conditions; like unpaid work on weekends/being available in the evening and at night." (r2308)</i>

Performance pressure	The perceived pressure to perform and produce, e.g., ‘publish or perish’ or meet production targets.	<i>“Academic competitiveness can be challenging. The pressure to secure funding and publish is quite high and can be difficult.” (r451)</i> <i>“Performance pressure is high, the standard is high, and competition among staff is palpable.” (r2611)</i>
Personal matter	An individual’s opinion of workplace conditions or of the organization, so personal that it cannot be classified under any other category.	<i>“It would have helped if I’d been properly trained, received further positive feedback on good results, received support for further development, and if overtime was not the standard.” (r2546)</i> <i>“More understanding and insight into long-stay COVID, what it does to your body and your psychological functioning.”(r750)</i>
Resilience & work-life balance	Concerns about personal well-being due to inability to cope and recover effectively from the challenges and stressors encountered on the job.	<i>“I felt worse in the last year I was working in my lab but nobody was there to talk to about our stressful, disrespectful environment.”(r8)</i> <i>“We nurses are exhausted and run down.” (r2755)</i>
Team connectedness	Interpersonal relationships and social interactions among team members; the emotional and social bonds that tie team members together and contribute to a positive dynamic.	<i>“Doing something fun together. Hopefully we can do that again soon.” (r2217)</i> <i>“There needs to be more face-to-face conversation. All the remote work has created a significant distance between everyone.” (r2398)</i>
Team effectiveness	The ability of individuals working as a team to achieve goals efficiently. Subject to change as teams evolve and requires continuously attention.	<i>“It is advisable to do team building so that in future, we’ll have more unity that will improve the level of effort at work.” (r160)</i> <i>“More specific attention to the team process, preferably through external group training and coaching/evaluation.” (r1079)</i>

*subthemes