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The need for support among healthcare professionals during COVID-19 pandemic: a mixed methods study

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Short title:

Need for support in healthcare professionals during COVID-19.

Abstract

Objectives

The aim of the current study is to gain insight in the factors that benefit vitality and resilience of healthcare workers during the COVID-19 pandemic, to develop and direct specific support strategies.

Design, setting, participants

This study applies a mixed-methods design. The qualitative part consisted of a focus-group interview study among frontline health care workers in a large Dutch academic hospital. Included were professionals of the intensive care unit, COVID-19 departments, infection prevention units and facility management services. In addition, a survey on support needs was send out to all workers in the same hospital.

Outcomes measures

Thematic content analysis was applied to focus group data to gain insight in the factors that contribute to maintaining vitality and resilience, and to assess specific support needs. Survey data were analysed with descriptive statistics.

Results

Qualitative data-analysis of the focus groups resulted in a model on the factors that contribute to maintaining resilience and vitality. The model stretches over two axes: one ranging from a healthy basis to adequate professional functioning and the other from individual to organization, resulting in four quadrants: recharge and recover (healthy basis, individual), safety and connectedness at work (healthy basis, organizational), collaboration (professional functioning, organizational) and professional identity (professional functioning, individual). Each quadrant contains several themes, and in total fourteen individual themes were identified. Outcomes from the needs assessment survey (n=479) were in line with these findings: at an individual level, a healthy life style was named as most important, whereas at the organizational level the most frequent named needs included appreciation, (decreasing) work load and a proper workplace at home.

Conclusion

Areas for organizational interventions to increase vitality and resilience among healthcare professionals are: consistent communication, realistic job performance expectations, monitor and improve mental resilience, showing appreciation and act upon practical support requests.

Keywords

COVID-19, Mental Health, Qualitative Research

Article summary

Strengths and limitations of this study

- This study goes beyond merely assessing stress and mental health complaints of health care professionals during the COVID-19 pandemic.
- A mixed-methods design was applied to study the specific support needs of both hospital and homeworkers.
- Study insights are summarized in a concise conceptual model, which suggests feasible interventions to meet health care professionals' support needs .
- However, the effectiveness of the proposed interventions has not been tested yet.

Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic had a significant impact on the physical and mental functioning of healthcare professionals[1-6]. The need for high-intensity medical care rapidly increased during the COVID-19 pandemic, resulting in stressful work circumstances[7]. First, at the departments in direct contact with COVID-19 patients, professionals were confronted with the intensity of continuously wearing personal protective equipment, changes in responsibilities and tasks, moral dilemmas, and the risk of infection for the healthcare professionals themselves and consequently their families[8-15]. Interpersonal contact with patients' family members, one of the core features of the professional practice of nurses, was dramatically reduced due to visiting limitations in most hospitals[16, 17]. This sudden shift in activities and responsibilities required additional competences to maintain high-quality healthcare. Second, professionals at non-COVID-19 departments were confronted with a sudden change of or reduction in tasks, as all focus was on the COVID-19 departments. This resulted in delay of treatment of non-COVID-19 healthcare problems and scheduled appointments including increased waiting times[18-20]. Third, the COVID-19 pandemic not only impacted the health care workers within hospitals, but also hospital workers who suddenly had to work from home. In addition to the temporary loss of the work environment and direct contact with colleagues, homeworkers might lack a sense of purpose, solidarity and valuable contribution to the crisis situation[21].

In the short-term, work-related stressors can cause fatigue, sleep disorders, mistakes and moral distress[22]. Long-term effects of high work pressure include burnout, depression and post-traumatic stress disorder, which may result in dropout due to sick leave or abandonment of paid employment[23-25]. These adverse outcomes can be counterbalanced by vitality, resilience and job satisfaction of professionals[26, 27]. Strengthening of these aspects may positively influence health care professionals' retention for work, which may be even more necessary in times of crisis[28-30].

Therefore, the aim of the current study is to gain insight in the factors that benefit vitality and resilience, to develop and direct support strategies that meet healthcare professionals' needs.

Materials and methods

Study design

A mixed-methods design was applied. The study consisted of a focus group study and an online survey, carried out in the Erasmus University Medical Center, a large academic hospital in the Netherlands. The study protocol is described in detail in this journal (see S2 Appendix)[31]. For the purpose of this article, we mainly report on the focus group study, combined with the quantitative results that addressed healthcare professionals' needs. The study was conducted in October and November 2020, during the second wave of the COVID-19 pandemic. The study was supported by the hospital Board of Directors and approved by the Erasmus MC Medical Ethics Committee (MEC-2020-0705).

Patient and Public Involvement

Patients and the public were not involved in the design and conduct of this study.

Focus groups

Participants

Intended groups for the focus groups were: professionals from the intensive care unit (ICU), the COVID-19 department, the infection prevention unit and workers of the facility management services. Participants were selected and invited by the research team in collaboration with the team- or division managers. Intended group size was a minimum of four and a maximum of eight participants. Participation was voluntary and all participants provided written informed consent. Focus groups were led by LK, with the support of MM. Both are female senior investigators with a

background in psychology. Both are clinicians as well, one in the field of psychiatry (LK) and the other in the field of ICU nursing (MM).

Measures

Based on the literature, a topic list was created to guide and structure the focus group meetings (S1 Appendix). The two main questions were: 1. “Which factors contribute to maintaining or regaining vitality and resilience, during the second COVID-19 wave?” 2. “Based on the factors just mentioned, what would be interventions, or policies, that are appropriate to your needs (in terms of maintaining resilience and vitality)?”. For each of the main questions, the answers were elaborated upon to gain understanding of why / what caused that the factors or interventions mentioned were so important for maintain vitality and resilience. Prior to each meeting, participants provided written informed consent and filled out a short questionnaire on demographic variables.

Data analysis

Focus groups data were analysed by means of thematic content analysis[32]. This method allows for a detailed and rich description and organisation of the data and investigation of patterns of response or meaning within the dataset. The interview data were audiotaped and transcribed verbatim. Two researchers (MV and LK) read the transcripts in detail. Based on these transcripts, each of them developed a structured analysis framework that consists of preliminary codes and themes. They made use of mind maps (MV) and tables (LK) to organise the data. After that, they compared their frameworks to reach consensus. Next, one researcher (MV) coded the transcripts line by line according to this framework in the software programme NVivo V.12. Memos for comments were used during coding. In case the code ‘other’ was used, these codes were discussed and renamed into a new or existing code name best reflecting the contents of the otherwise uncategorised text fragment. During and after coding, the two researchers reviewed and checked the themes for internal homogeneity and external heterogeneity. Finally, the two researchers examined each theme for its contribution to (build or maintain) vitality and resilience and analysed the cohesion and inter-relations between themes to come to a coherent account and accompanying narrative of the data.

Survey

Participants

All workers of the Erasmus University Medical Center were invited to participate in the survey via calls on the Intranet and via the organizational weekly livestreams that provided an update on the latest COVID-19 developments and its consequences for daily work in the hospital. Participation was voluntary and all participants provided written informed consent at start of the survey.

Measures

Needs are measured with a self-designed scale with four items. Examples of questions are: 'In which area would you like to be supported?', 'What would this support look like?' and 'What should be offered or developed?'. On predefined lists, respondents could rank 10 individual-related and 14 organisational-related answer options. Individual-related answer options included for example time management, and organisational-related answer options included for example protective measures.

Data-analysis

Survey data were collected anonymously using Limesurvey (Version 2.06 lts Build 160524) and exported to a secure SPSS database (©IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp) for descriptive analysis.

Results

Focus groups

Demographics

Seven focus groups were held with intensivists, infection prevention experts, assistant infection prevention experts, nurses of COVID-19 wards, physicians COVID-19 departments (pulmonologists and internist / infectiologists) and workers from the facility services. Each group consisted of four to

eight participants. Due to the limited number of medical microbiologists, the focus group has been replaced by two individual interviews. Because of the high workload and time constraints, the scheduled focus group interview with ICU nurses were also replaced by individual interviews. A total of 38 professionals participated in the focus groups and interviews (see table 1).

Table 1. Demographic data participant focus groups (*N*=38).

	N
Gender	
Male	11
Female	27
Age (in years)	
<25	1
26-35	10
36-45	11
46-55	6
56>	10
Function	
Physician	13
Nurse	7
Expert infection prevention assistant	8
Infection prevention	4
Facility service worker	6

Conceptual model

Data-analysis of the focus groups and individual interviews resulted in a model on the factors that contribute to maintaining resilience and vitality (figure 1). The model has two axes: one ranging from a healthy basis to adequate professional functioning and the other from individual to organization,

resulting in four quadrants: recharge and recover (healthy basis, individual), safety and connectedness at work (healthy basis, organizational), collaboration (professional functioning, organizational) and professional identity (professional functioning, individual). Each quadrant contains several themes, which are discussed in more detail in the paragraph below.

Factors contributing to vitality and resilience

Healthy basis, individual factors (quadrant: recharge & recover)

Time-off. This theme refers to time-off from work, but also to the expressed wish to take a break from COVID-19 in general. Time-off could be spent in various ways, named were sports, hobbies, time with family and time to rest. In some instances, increased time needed for recovery was reported:

"after three weeks of holiday, I thought: I can take it completely 200%! But the curve spiralled down much faster than the first time, also because there are just too many other things at play that need attention…. people who are ill or take care of others, but colleagues as well. Of whom you think, yes, you know, when are they going to collapse?"

Stability at home. A stable home situation was considered of extra importance during the hectic of the pandemic. It was important as a source of joy and support, but sometimes as an extra stressor when it comes to combining a hectic work situation with children at home school and informal care tasks.

"…in the end you want your child to be doing all right. And that just gives you peace of mind. And I can work just fine if I know that my daughter is taken care off."

Healthy basis, organizational factors (quadrant: safety & connectedness at work)

Safety. This theme covers several areas and included good and sufficient protective personal equipment, supervision of compliance with the COVID-19 rules by hospital staff and by visitors, safety and trust within the team, stability of the work environment and the protection of older/vulnerable

staff:

"I also have some risk factors: a bit overweight, type 2 diabetes, I had surgery on my heart. Basically, if I get COVID, I belong to a category I do not want to belong to. So that is already a pressure on me personally, that I belong to a high-risk population".

Clarity. Clarity was needed first and for all with regard to knowing which care will and will not continue, and per when. Furthermore, respondents marked clarity with regard to the division of tasks within the team, and regarding the COVID-19- rules on the work floor as important.

"I would like to see more clarity indeed. That you do the tasks that you are actually there for, so to say"

Supportive team spirit. This theme refers to connection with team members, for instance via humour:

Speaker1: "Well, humor may also help to keep things going, or put things into perspective".

Speaker2: "Yes, it does apply to acute care. Sometimes almost morbid humour, but that is what you need to process things."

Adherence to working hours. Topics within this theme were: taking breaks, setting limits to overtime and the possibility to take days off/vacation. These help to prevent getting over-involved in work and to keep sufficient personal distance to work.

Professional functioning, individual factors (quadrant: collaboration)

Solidarity. This theme refers to solidarity within the team, between departments within the hospital and between regions in the Netherlands.

"I think the best thing we can learn from the first wave and what we should try to take into the second wave is solidarity. It's gone now. And I think that says it all."

Appreciation and respect. This theme was defined in terms of personal attention, showing appreciation, being trusted, realism, respect, sincere and adequate responding to answers when asked "what do you need?", and bonus/salary.

Speaker1: "That made me really happy, that you think: oh, nice cup of soup. Now you just get over it."

Focus group leader: "Yes. And was that because of the appreciation that it assumed or…"

Speaker : "Yes."

Focus group leader: "… also just for the practicality of when else should I eat?"

Speaker1: "Well, both! I admit that!"

Speaker2: "Both. Yes, both."

Speaker1: "It was busy, so it's nice if you can get a cup of soup."

Speaker2:" [……] but soup doesn't compensate for lack of staff, huh! That should not be the message of we give them a cup of soup and they are satisfied. That's not how it works!"

Practical support. Generic topics were: food in the department (soup, fruit), grocery shopping service, good parking opportunities, support for childcare and timely replenishment of materials at departments. Department-specific topics were: well-equipped ICU overnight rooms, better aprons in the ICU, work telephones with e-mail function, and good quality material for internal transport.

Realistic job demands. This theme was the positive counterpart of a "high workload", as this quote below illustrates:

"But what seriously threatens vitality and resilience, I think, is the fact that now you are also expected to keep the plates spinning. And if you think logically, you just can not. "

Sufficient amount of staff. This was a recurrent theme throughout all layers of the organization; from structural secretarial support to medical specialists.

Professional functioning, organizational factors (quadrant: professional identity)

Professional development. This theme refers to the opportunity for academic development and access to professional training and education.

Autonomy. Autonomy in job performance, for example about the timing of breaks and working from home was considered important to persevere harsh working circumstances. This theme also referred to respect for the autonomy from specific occupational groups.

Work ethos. This factor refers to delivering quality, achieving success, being able to contribute, pleasure in work, curiosity, facing challenges, being meaningful. People find satisfaction and self-

esteem in the fact that they can do their work in a high-quality way. If this is not possible, for whatever reason, this has a negative impact on resilience and vitality, as this quote shows:

"Look, as of my profession, I have seen many patients dying and that is what it is, provided you have done everything you can do. But if you get the feeling that you have fallen short and that perhaps in another era, that patient would have survived, that is a feeling you may have for a while, but you should not have for too long…"

Organizational interventions that could contribute to vitality and resilience

Analysis of the focus groups data resulted in three areas for organizational interventions to increase vitality and resilience among professionals: communication and expectations related to COVID-19; monitor and improve the mental resilience of workers; and appreciation. These areas are addressed the text below.

Communication and expectations related to COVID-19

During this second COVID-19 wave, there was a clear informational need among respondents, for instance with regard to the downscaling of regular care and upscaling of COVID-19 care. Furthermore, consistency in communication was felt to be important: getting different messages is confusing and may even lead to a decreased support for organizational policy. In addition to making decisions and communicating these, respondents felt it was important for the higher management to have realistic expectations. It was perceived unrealistic to continue all care at the same pace during the persisting pandemic. Long-term investment in COVID-19 care was suggested as an option to combat ad hoc organization of this type of care. This was thought to potentially benefit the continuity of personnel, quality and professional development opportunities.

Monitor and improve mental resilience

First, we found that professionals derive support and strength from contact with their colleagues. Second, although the availability of mental support teams were positively valued, few made use of them. Rather, respondents indicated “not for me, but I do see people around me who need it”. Triage in offering mental support is required: easy accessible and at team level when possible, but with the option for rapidly scaling up to individual professional help when needed. Further, it was noted that the fulfilment of basic human needs also contributes to professionals’ mental resilience, such as safety and rest. Professionals who are feeling unsafe or depleted from energy do not have their full capacity to perform on work related tasks that require focus, decision making capacities and emotional stability.

Appreciation: sincerity and practical support

Feeling appreciated and supported by management and/or co-workers was described as important for maintaining vitality. When it comes to expressing appreciation, it was felt important that this was done in a sincere and person-directed manner. Respondents were adverse to compliments just for the sake of compliments, and in those situations compliments sorted adverse effect. Further, it was mentioned that when managers informed on what they could do to help, they should also be reliable in the follow-up to the responses given. In this sense practical support, be it upon specific requests or in general was also experienced as an expression of appreciation. Furthermore, results showed that the need for appreciation existed through all organizational layers, so not only along top-down lines but also vice versa and horizontally.

Results of the needs assessment survey

Four hundred seventy-nine respondents filled out the needs assessment. Table 2 shows respondent characteristics. Results are presented with reference to the working environment of the respondents,

namely working at COVID-19 department, working at non-COVID department and homeworkers. Figure 2 shows the responses to individual-related answer options. Both hospital and homeworkers indicated that a healthy lifestyle, work-life balance and working from home were the most important areas wherein the would appreciate individual support. Figure 3 shows the results for organisation-related answer options. Professionals at COVID-19 departments indicated appreciation at work, work pressure and working hours as the three most important areas for organisational support. Professionals working at non-COVID-19 departments rated respectively appreciation at work, a proper workplace at home and work pressure as most important. Homeworkers appreciated a proper workplace at home as the most important area where the organisation could provide support, followed by team performance and bonding and attention for work-life balance.

Table 2. Demographic data participants needs assessment (*N*=479).

	N (%)
Gender*	
Male	80 (16,7%)
Female	398 (83,3%)
Age (in years)	
<25	22 (4,6%)
26-35	131 (27,3%)
36-45	108 (22,5%)
46-55	103 (21,5%)
56>	115 (24,0%)

* 1 missing gender.

Discussion

Qualitative data-analysis resulted in a conceptual model of the factors that contribute to maintaining resilience and vitality in healthcare professionals during the COVID-19 pandemic. This model was derived by inductive analysis of our focus groups data. However, reflecting upon our model, we see high resemblance with clinical psychology models on personality development, especially with Schema Focused Psychotherapy (SFT)[33]. According to SFT, all humans have basic needs that should be fulfilled, at least to a sufficient extent, during the course of life. These basic needs are: 1. Attachment and security, 2. Autonomy, competence and identity, 3. Freedom to express important needs and feelings 4. Spontaneity and play. 5. Realistic boundaries and self-control. These domains match the factors that we found in our model, such as safety, acceptance, bonding, clarity, autonomy and humour (play). These similarities might make us aware how important the fulfilment of psychological basic needs in fact are. Having said this, we realize that psychological needs in itself are also part of a lager whole. Theories as old as Maslow's, place psychological needs at the higher layers of the pyramid of human needs. In his theory, physical needs come first[34]. This principle still holds true, as is shown in a more modern variant described in the British Psychological Society guidelines for leaders and managers of healthcare services during COVID-19[35] and as was demonstrated in a study from China, where health care professionals first and foremost longed for rest and good sleep instead of psychological help[36].

Results from both the focus group interviews and the survey showed that both practical and team support ranked high in the support needs of healthcare professionals during COVID-19. With regard to support from the managers, it was emphasised that this support should be sincere and that both listening to and acting upon expressed needs were important. These findings are in line with findings from other recent studies[37-40]. Of particular interest here is the study by Bennett et al. (2020), where data of healthcare workers experience was collected through an anonymous website[40].

Results of this study showed that lack of support by the senior management severely impacted upon professionals' well-being and motivation. Next to support by managers, team support and bonding turned out to be important. For this purpose, people usually reverted to natural, pre-existing bonds of trust. The power of positive team spirit and bonding should not be under-estimated: it is known from literature on major disasters that the connection between members from the same group (i.e., the community), harbors strong protective and healing potential[25, 37, 41]. Further, a study by Muller et al. also performed during the COVID-19 pandemic, found that health care workers reported low interest in professional help and greater reliance on social support and contact; and that social support correlated with less mental health problems[42]. These findings underline the need for interventions aiming at facilitating support at the workplace, especially as these may help to identify those workers who are in need for more intensive treatment[43]. Furthermore, special attention is needed for the social support needs of homeworkers, as they are cut-loose from their natural support environment. Our results indeed showed that for homeworkers, team bonding ranked highly in the needs assessment.

Another finding worth highlighting are the high levels of job dedication and high professional standard professionals' wish to adhere to. Normally, health care workers may experience some type of inner rewarding, self-esteem or pride from the quality of care they deliver. Being unable to live up to these standards - in this case because of pandemic-related factors- may lead to moral injury, which is characterized by negative thoughts about themselves or others as well as intense feelings of shame, guilt, or disgust[37, 40]. In those cases, social, moral and mental support from others become even more important, because health care professionals fail to experience their usual inner feelings of reward and fulfilment.

Strengths of this study include its mixed-methods character, whereby the results from the survey were found to support the focus group study results. A second strength lies in the succeeding of that

many live focus group interviews in a short time span, wherein busy participants were both allowed and took the time to participate in his study. The fact that one of the senior investigators (MM) involved in the focus group interviews is experienced as ICU nurse is both a strength and a limitation. The strength lies in increased sensitivity to issues at stake at an ICU-ward. A limitation however may be potential difficulty to take an outsider position. This was accounted for by the fact that the focus group interview leader was LK, who has no ICU experience. In addition, interviews with ICU nurses where held by LK solely. Furthermore, data-analyses were performed by other members of the research team, namely MR and LK. Another limitation of this study is the selection of focus groups, which included frontline health care workers only. Overall outcomes would be more generalizable if we also had included groups of homeworkers and professionals from non-COVID departments. Furthermore, these results are obtained at a large academic hospital in Western Europe, and results therefore cannot be generalized, as perceptions and values of professionals may differ according to culture and context.

Conclusion

This study gives insight in the specific support needs of healthcare workers during the COVID-19 pandemic. Both qualitative and quantitative data analyses pointed towards the importance of appreciation and respect, solidarity, and realistic workload expectations. Consequently, organizational interventions to monitor and promote vitality and resilience among healthcare professionals during the COVID-19 pandemic should focus on these particular topics.

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Competing interest

The authors declare no conflicts of interest.

Author contributions

LK: study design qualitative part study, data collection, data analysis, writing of the paper

MV: creating questionnaire in Limesurvey, data collection, data analysis, writing of the paper

KOH: study design quantitative study, development of questionnaire, review of the paper

TKP: study design, protocol quantitative part of study, review of the paper

AP: initiation of the study and input questionnaire, review of the paper.

WH: study design, review of the paper and final approval

JB: study design, analysis, review of the paper and final approval

MM: study design and protocol, data collection, review of the paper and final approval

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Availability of data and materials: Anonymized data gathered and analysed during the current study are not publicly available due to legal and ethical restriction. These can be requested from the corresponding author as well as text and photo material of the developed intervention. Materials described in the manuscript, including all relevant raw data, will be freely available at a reasonable request to any scientist wishing to use them for non-commercial purposes.

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Figure legends

Figure 1. Conceptual model of factors contributing to vitality and resilience

Figure 2. Individual-related support needs

Figure 3. Organisational-related support needs

Supporting information

S1 Appendix. Topic list focus groups

S2 Appendix. Protocol paper

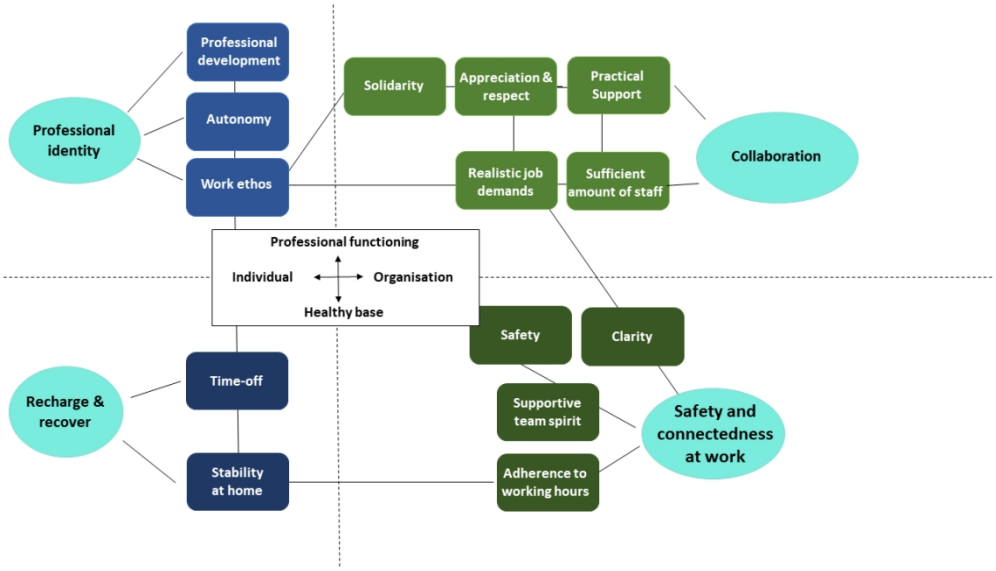
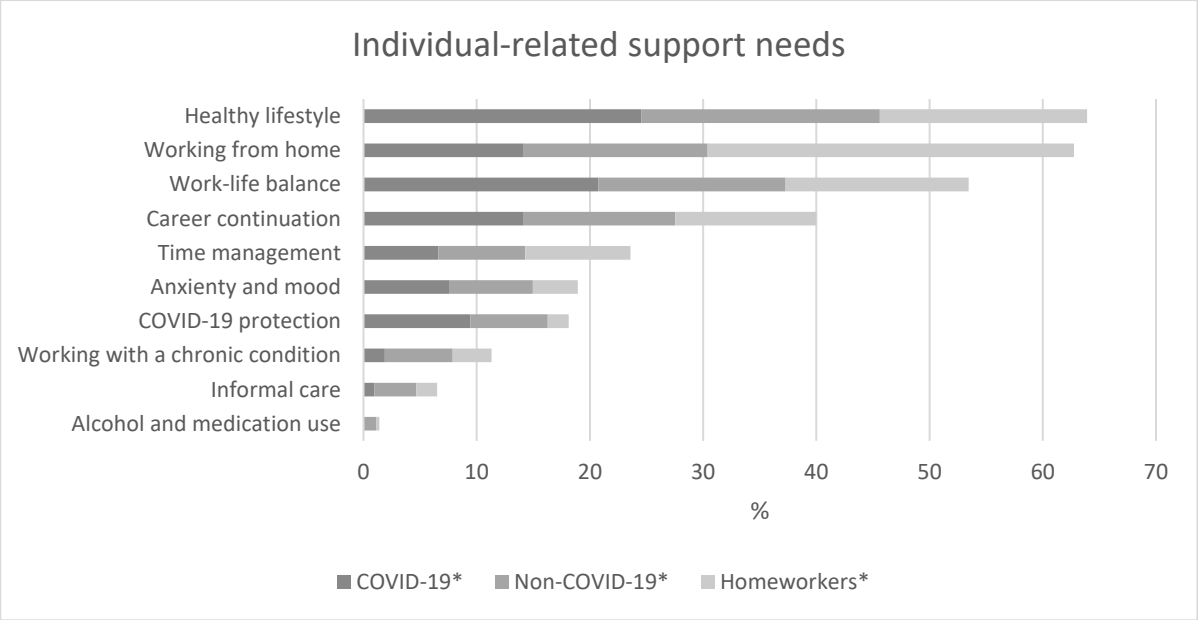


Figure 1. Conceptual model of factors contributing to vitality and resilience

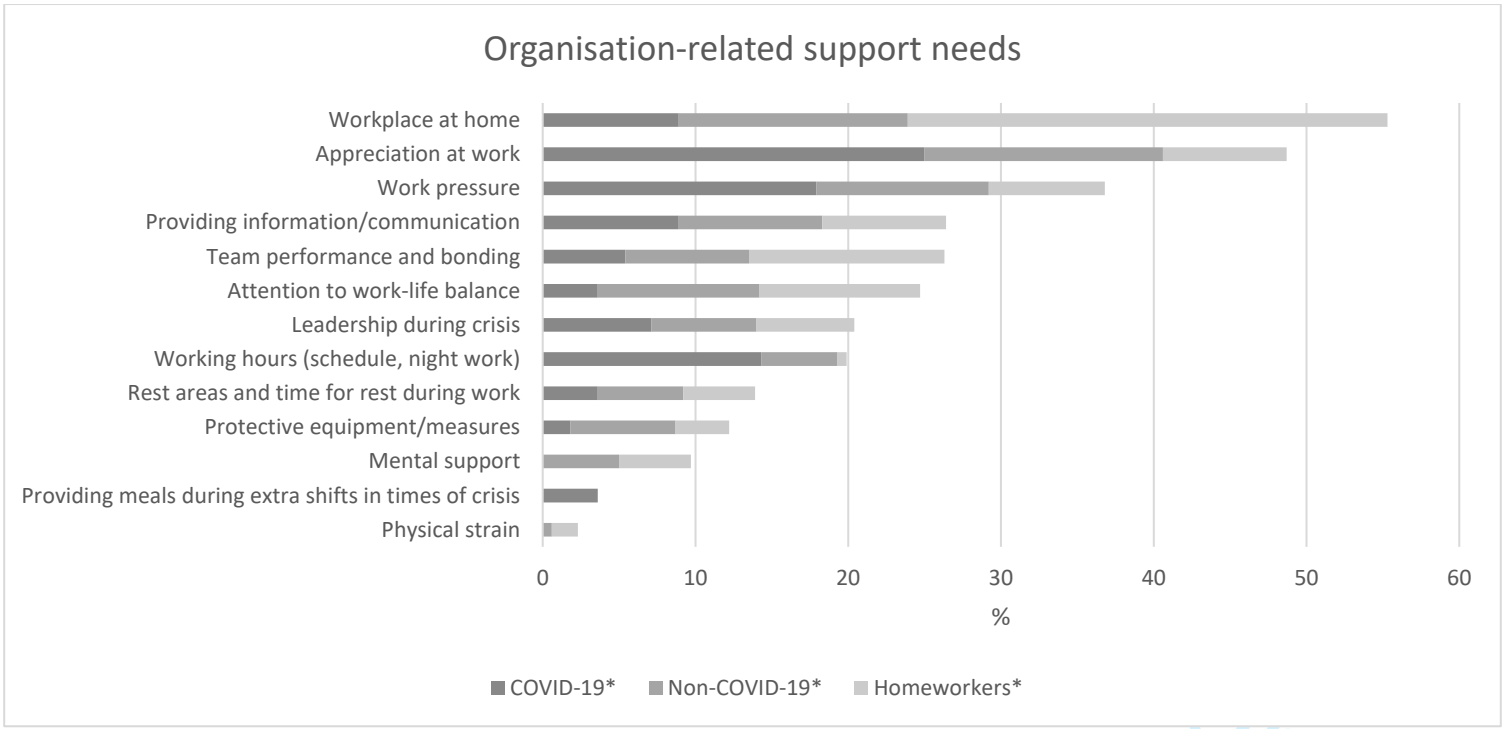
338x190mm (96 x 96 DPI)

Figure 2. Individual-related support needs



* *COVID-19*: professionals working in COVID-19 departments who in addition could also be working in non-COVID-19 departments and/or from home
Non-COVID-19: professionals working in non-COVID-19 departments who in addition could also be working from home
Homeworkers: people who only work from home

Figure 3. Organisation-related support needs



* *COVID-19:* professionals working in COVID-19 departments who in addition could also be working in non-COVID-19 departments and/or from home
Non-COVID-19: professionals working in non-COVID-19 departments who in addition could also be working from home
Homeworkers: people who only work from home

S1 Appendix I. Topic list focus groups

Opening and introduction

Welcome.

Introduction and explanation of the purpose of the meeting and focus group rules.

Informed consent.

Introductory question

What usually works for you to maintain your resilience and vitality at work? Is this different now, in the COVID-19 time period? What makes it different now? And in what sense is it different?

Transition question

The research question contains an assumption “maintaining”. That implies that it is still there. If you look at yourself, how do you see it, is it about maintaining resilience and vitality, or is it actually about rebuilding resilience and vitality after the first COVID-19wave?

Key questions

Key questions cover 2 categories: 1. Factors of influence and 2. Interventions aimed at those factors

1.1 Open
Which factors contribute to maintaining your resilience and vitality at work, during the second COVID-19 wave?

Brainstorm and inventory of factors on whiteboard.

Cluster if applicable. These are various factors, you can roughly divide them into (for example, depending on outcomes): appreciation (whose? how?), resources (staff and products), own balance (work, home, relaxation), own feeling about the situation: acceptance (vs pressure and tension), professional ethos / finding meaning etc.

1.2 Further exploring
What makes these factors contribute to your resilience and vitality? How does that work?

Then specifically, for each factor mentioned: how does it work, what makes that….. contribute to the maintenance of resilience and vitality? What are the underlying reasons (motives) for this?

2.1 *Open*
Using this list (factors of influence), what would be interventions, or policies, that are appropriate to your needs (in terms of maintaining resilience and vitality)?

Make an inventory of interventions on whiteboard.

2.2 *Further exploring*
How does it work that, what makes that….. would be a suitable intervention when it comes to maintaining resilience and vitality? How does that work? Would you be motivated to participate in such an intervention? What is/are your reasons/motives for this? How is that?

Note: in case the proposed interventions focus on one and the same factor, mention this and refer to the other factors mentioned earlier as well.

Concluding questions and closing remarks

We are going to wrap up. Of all the issues discussed today, which one is the most important to you? Or: if you were to give your policy advice (on this subject) to the Board of Directors in a few sentences, what would you say?

Thank you for your contributions.

BMJ Open

Vitality, resilience and the need for support among hospital employees during the COVID-19 pandemic: study protocol of a mixed-methods study

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ABSTRACT

Introduction The COVID-19 pandemic has had a significant impact on the physical and mental functioning of healthcare professionals, especially those working on the 'frontline', and other hospital workers. At the onset of the crisis, various interventions were introduced to promote resilience and offer mental support to these professionals. However, it is unknown whether the interventions will meet the needs of professionals as the COVID-19 pandemic continues.

The goal of this exploratory study is to gain insight in factors that protect the vitality and resilience of Dutch hospital employees during the so-called 'second wave' of the COVID-19 pandemic. This paper describes the study protocol.

Methods and analysis This exploratory study applies a mixed-methods design, using both quantitative and qualitative methods of data collection and analysis. The first part of the study (substudy I) consists of surveys among doctors and nurses in COVID-19 departments and non-COVID-19 departments, and other professionals in the hospital (ie, managers and homeworkers) in 2020 and 2021. The second part of the study (substudy II) consists of focus groups and interviews among professionals of the intensive care unit, COVID-19 departments and infection prevention units.

Ethics and dissemination The research protocol for this study has been approved by the Medical Ethics Committee (MEC-2020-0705). The outcomes of this study will be used to develop and implement interventions to support hospital employees maintaining their vitality and resilience during and after the COVID-19 pandemic. Employees with vitality experience less work-related stress and make a positive contribution to healthcare quality.

Strengths and limitations of this study

- A mixed-methods design will be applied which strengthens the insights on vitality, resilience and the need for support among hospital employees.
- Insight in vitality, resilience and need for support of frontline workers from different departments will be investigated, as well as managers and homeworkers who will be compared in contrast to the majority of studies so far, which focused mainly on the needs of healthcare professionals such as nurses and doctors.
- Real-life data gathering started during the beginning of second COVID-19 wave, ongoing to autumn 2021.
- The COVID-19 pandemic is the motivation for this study, but may also limit the response rates or generalisability of this study, given its unpredictable course.

INTRODUCTION

Worldwide, it has been reported that the COVID-19 pandemic had a significant impact on the physical and mental functioning of healthcare professionals, especially for those working on the 'frontline' (eg, intensive care units (ICUs), COVID-19 departments and infection prevention units).[1–4] Indeed, also in the Netherlands, the COVID-19 pandemic had an impact on healthcare workers. This is critical, as it has been reported that some Dutch medical professionals were already overburdened before the pandemic.[5 6]

The need for high-intensity medical treatment of patients rapidly increased during the COVID-19 pandemic, during which the work circumstances became uncertain and stressful.[7] These work circumstances included the continuous use of personal protective equipment, adapted responsibilities and tasks, moral dilemmas and the risk of contamination for the healthcare professionals themselves.[8] Interpersonal contact with patients' family members, one of the core features of the professional practice of nurses, was considerably reduced due to visiting limitations in most hospitals.[9 10] In addition, the work environment also changed for ICU nurses as their teams changed due to the practical help from (former) colleagues

and other healthcare professionals. This sudden shift in activities and responsibilities required ICU nurses to have additional competences maintaining high-quality healthcare. Buddies, or support staff from other departments in the hospital, were sometimes confronted with distressing or even shocking events during the first hectic weeks of the pandemic. Professionals of the infection prevention unit had to deal with an enormous workload due to the accumulation of new tasks and changing work processes, as well as the social turbulence resulting from the implemented quarantine measures. In the case of a health crisis such as the COVID-19 pandemic, the health and vitality of the frontline professionals became even more critical. Because a higher workload and stress could have a higher appeal on the physical and mental resources of the professionals. However, the COVID-19 pandemic not only had impact on the clinicians of the hospital, but the work environment also changed for non-clinical professionals who suddenly had to work and communicate from home. In addition to this, homeworkers might lack a sense of purpose, solidarity and valuable contribution to the crisis situation.[11] Last, the COVID-19 pandemic required great effort from managers.[12] More than ever, they had to deal with logistic and administrative processes in the upscaling of high-intensity care, improving work alliances and the integration of staff in newly formed teams, and in managing the continuous flow of changing information.

Health, vitality and resilience

In previous virus outbreaks, such as the outbreaks of Severe Acute Respiratory Syndrome (SARS), Ebola and Middle East Respiratory syndrome (MERS), it became clear that increased stress levels at work in healthcare professionals were associated with fear of contamination; shortages of materials; poor communication between healthcare professionals; unclear work instructions and information; deficient or non-functioning equipment; and inadequate planning among healthcare professionals.[13–16] Experiences from China during the COVID-19 pandemic showed similar results.[17–19] In a European study on work-related stress reactions among ICU healthcare professionals, half (50.4%) of the respondents showed symptoms of anxiety after the first wave of COVID-19.[1] Early phase evidence on COVID-19 suggested that healthcare professionals experienced mood and sleep disturbances during the outbreaks, stressing the need to establish ways to minimise mental health risks and support interventions aiming at pandemic conditions.[3] In the short-term, this work-related stress can cause fatigue, sleep disorders, mistakes and moral distress.[20] Long-term effects of high work pressure include burnout, depression and post-traumatic stress, resulting in dropout due to illness and abandonment of paid employment.[21 22] A recent Dutch study among intensivists reported a moderate risk for burnout (14.8%).[23] Furthermore, recovery time—regaining strength after an intensive period at work—has been associated with physical and mental well-being,[24] as a long recovery time is an early indicator of work-related stress and exhaustion.[25] In contrast to high workload, stress and less recovery time, vitality, resilience and job satisfaction were described as characteristics of professionals that counterbalance work-related stress.[26 27] These characteristics could strengthen professionals' mental and physical well-being and their retention for work.[28–30] Therefore, professionals with a high level of vitality and resilience seemed more resistant to work pressure.

Interventions among healthcare professionals during the COVID-19 pandemic

A wide variety of studies have examined interventions to reduce the work-related stress of healthcare professionals during the COVID-19 pandemic. Providing personal protective equipment is the top priority, followed by fulfilling the psychological needs of professionals.[31] To support mental health and promote the vitality of healthcare professionals, various interventions, including buddy systems, peer support, coaching and easily accessible psychological help, were proposed during the first months of COVID-19 wave.[7 32–36] Other individual interventions, such as telemedicine activities, e-package and self-help books, appeared promising.[37–40] For example, a hospital in China offered online courses to help medical professionals to deal with psychological problems.[41] Many interventions have taken an individual approach, but system-level changes in healthcare organisations seemed to have a wider reach than individual support.[42] A notable omission in the literature is that protective factors were given limited attention: the focus is on the stressors. Many possible interventions were likely to support professionals in times of a pandemic, however, it is not clear which intervention matches the needs of the professional most closely. Therefore, a study was set-up to investigate which supportive interventions, system changes and other supportive factors could meet individual needs during and in the aftermath of the COVID-19 pandemic in a large academic hospital in the Netherlands.

Objectives

The overall goal of the explorative study is to gain insight into the risk and protective factors as well as the needs and barriers in the working environment related to the promotion of the vitality and resilience of employees. Our objective is to assess levels of vitality and resilience, and the need for support or resources among professionals with a focus on professionals working in ICUs, COVID-19 departments, homeworkers and infection prevention units. Furthermore, to gain more insight into the relationship of vitality and resilience with factors such as self-perceived health, stress, burnout, post-traumatic stress and need for recovery. The aim of the current paper is to describe the protocol of this explanatory mixed-methods study.

METHODS AND ANALYSIS

Study design

A mixed-methods design, using both quantitative (substudy I) and qualitative methods (substudy II), is

applied. Substudy I is a cross-sectional online survey administered first in October 2020, when the second wave of the COVID-19 pandemic was upcoming and ongoing, followed with measurements in March and September 2021. Substudy II includes focus group interviews among nurses, doctors and professionals regarding the ICU, COVID-19 departments and the infection prevention unit during the end of 2020.

Setting

The study setting is a large academic hospital in the Netherlands.

Study population

Substudy I

The population consists of a random sample drawn based on voluntary participation of four target groups: professionals working at the COVID-19 department, non-COVID-19 departments, managers and homeworkers. A convenience sample has been used to monitor the health of the hospital workers, as was also done in comparable studies performed during the COVID-19 pandemic.[43 44] We estimated the sample size of the consecutive quantitative measurements as 25% of the healthcare workers in the four target groups. Several organisational strategies will be followed to stimulate participation and reach the threshold of the aimed response rates.

Substudy II

The population for the focus groups are the frontline workers. Maximum variation sampling is used, with respect to the type of frontline departments (ICU, COVID-19 departments, infection prevention unit) and occupational groups (physicians, nurses and infection prevention experts), resulting in six focus groups.

The inclusion criteria for the entire study are (1) a minimum age of 18 years and (2) sufficient Dutch language proficiency to complete the questionnaires or to discuss the relevant topic.

Patient and public involvement

No patient involved.

Study procedures

Substudy I: Oonline survey

Hospital employees are informed about the study in several ways. The communication strategy is tailored to each target group and supported by the communication department of the organisation. A link to the online survey is published on the intranet of the organisation, printed QR-codes containing a link to the survey are available at the coffee corners and canteens, announcements are made in the weekly COVID-19 livestream and by team management via personal email. Participation is voluntary and can be performed during working hours.

The online questionnaire starts with information about the study, privacy statements and an informed consent form for participation. After providing consent, participants are asked to fill out the entire questionnaire, which consists of two parts. The first part is generic for all employees and takes approximately 6 min to complete; it includes questions on demographic information and the main outcomes. The second part consists of additional modules on working conditions and health and takes approximately 7 min. Nurses and homeworkers receive an additional module tailored to their specific work environment.

Substudy II: focus groups

In total, six focus groups with 6–10 participants that take approximately 60 min are conducted. ICU doctors, ICU nurses, microbiologists, hospital hygienists, COVID-19 unit nurses and COVID-19 unit doctors (lung specialists and specialists internal medicine) are individually invited to participate in one of the focus groups through consultation with the team managers. These meetings are preferably in-person (to observe non-verbal attitude and facial expressions), but due to the COVID-19 measures and social distancing, it may not be possible for participants to be physically present. In those cases, the focus groups are carried out via video calling technology.

Prior to the meetings, a topic list is created by the research group based on the literature and internal reports on the experiences of professionals. This topic list is used to guide and structure the meeting. The aim of the focus group is to study protective factors that contribute to vitality and resilience during the COVID-19 pandemic. Furthermore, possible interventions to increase vitality and resilience are explored and elaborated on. Written informed consent is given prior to the meeting, and two experienced researchers guide the meetings. The focus group interviews are recorded and transcribed verbatim.

Measurements

This paragraph lists all measurement instruments included in the questionnaire. The first part consists of measuring instruments addressing demographics, primary outcomes (ie, vitality, resilience and needs assessment) and several secondary outcomes (ie, self-perceived health, stress, burnout, post-traumatic stress and need for recovery). The second part consists of separate modules for homeworkers and nurses with regard to work ability, working conditions, job satisfaction, work–private balance, exposure to COVID-19 at work, preventive measures for COVID-19 and career perspectives.

Demographics

Gender, age, educational level, job titles, work location and professionals' experience (in years) are assessed. Educational level is divided into three levels: low, medium and high educational level. In total, the list of job titles includes 23 positions within the academic hospital (eg, nurse, Information Technology (IT) specialist employee, pharmacist, educator, researcher).

Main outcome measures

Vitality

Vitality is measured with four items from the original 36-item Short Form Health Survey.[45] The total summed score of four items that refer to the past 4 weeks: 'Did you feel full of liveliness?', 'Did you have a lot of energy?', 'Did you feel worn out?' and 'Did you feel tired?'. The answers are rated on a six-point scale from 1 (=constantly) to 6 (=never).[46] Higher scores indicating a better subjective vitality.

Resilience

Resilience (the ability to cope with stress, setbacks or difficulties at work) is measured with six items from the Psychological Capital Questionnaire.[47] The items contain statements such as: 'When I have a setback at work, I have a hard time getting back on track and moving on', 'If necessary, I can work well without the help of others' and 'I can handle difficult moments at work'. The six items are scored from 1 (=strong disagreement) to 6 (=strong agreement). Higher values indicate a higher level of resilience.

Needs assessment

Needs are measured with a self-designed scale with four items. Examples of questions are: 'In which area would you like to be supported?' and 'What would this support look like?' and 'What should be offered or developed?'. A predefined list includes 10 individual-related and 14 organisational-related answer options, for example, support for working from home, time management and work–private balance.

Other outcome measures

Self-perceived health

Self-rated health is assessed with one question: 'In general, how would you say your health is?' Answer options from 1 (=excellent) to 5 (=poor).

Stress

Stress is measured with a numeric rating scale. The stress score, ranging from 0 (=no stress at all) to 100 (=the worst stress imaginable). This scale is used to retrospectively objectify stress before, during and after the first COVID-19 outbreaks. The three item question was 'How did you experience the stress before/during/after the COVID-19 crisis on a scale from 0 to 10?'

Burnout

Burnout is measured using five items, that are based on an adapted version of the Utrecht Burnout Scale.[48] The items refer to the current situation such as 'I feel emotionally drained from my job' and 'I feel completely exhausted from my work'. The answer options from 1 (=never) to 7 (=daily).

Post-traumatic stress

Post-traumatic stress is assessed with the post-traumatic stress disorder (PTSD) Checklist for the Diagnostic and Statistical Manual of Mental Disorders (DSM- version V) (PCL-5)—COVID-19 version with 20 items.[49] This scale consists of 20 items, measuring PTSD symptoms, with scoring options from 0 (=not all) to 4 (=extremely) and was adapted to the COVID-19 situation. A score of 33 or higher is perceived indicative for PTSD.

Need for recovery

Work fatigue and the risk of psychological symptoms are measured using the Dutch questionnaire on the Experience and Evaluation of Work (Dutch abbreviation: VBBA).[50 51] The need for recovery scale consists of 11 dichotomous items (yes/no), representing short-term effects of a working day.[24 52 53] The score of the need for recovery scale ranges from 0 to 100 and is calculated as the sum of points (1 = yes, 0 = no) divided by the number of questions answered, multiplied by 100. Higher scores indicate a higher need for recovery, which is unfavourable.

Work ability

Work ability is measured with the Work Ability Index (WAI).[54] This widely used index measures self-assessed work ability and consists of seven items. Because the subitems of the WAI can also be used as a simple indicator for work ability,[55] three of the seven items are used: current work ability (one item), and work ability in relation to physical and mental job demands (two items). A total WAI score (range: 2–20) is obtained by adding the weight scores of these individual items.[56]

Working conditions

Aspects of work load in the current study are: job autonomy, emotional job demands, social support and physical working conditions.

Job autonomy is measured with six items on a three point scale (no; yes, sometimes; yes, regularly). Five items, that is, those about making decisions, having to find solutions and being able to take time off, are based on the Job Content Questionnaire.[57 58] One item on autonomy related to working time based on the Netherlands Working Conditions Survey, is also included in the questionnaire.[59]

Emotional job demands are evaluated with four items. Three items are derived from the Copenhagen Psychosocial Questionnaire and assess whether the work leads to emotionally difficult situations, the emotional demands of the job and emotional involvement in work. An additional item is 'Is your job more emotionally demanding because of COVID-19?'. All items are measured on a four-point scale (never to always).[60]

Social support is defined as whether colleagues and supervisors are willing to help and listen to work-related problems and is assessed using four items from COPSOQ.[60] Social support is measured on four-point Likert scales from 1 (=almost never) to 5 (=always).

Physical work loads are measured with one self-designed question and assess whether a worker received more or less physically demanding work due to COVID-19

measures. This scale has three answer options (no; yes, sometimes; yes, regularly).

Job satisfaction

Job satisfaction is measured with one item: 'Altogether, how satisfied are you with your work?' The answer options range from 1 (very dissatisfied) to 5 (very satisfied).

Work–private life balance

Work–private life balance is measured with two questions on the mutual interference between work and home life. The questions are adopted from the Netherlands Working Conditions Survey,[59] but were originally constructed by Fox and Dwyer (1999).[61] Both questions have four answer options ranging from 1 (=no, never) to 4 (=very often).

Exposure to COVID-19 at work

Professionals are asked to what extent they might have been exposed to COVID-19 at the worksite. These questions are derived from the Netherlands Working Conditions Survey COVID-19,[62] based on questionnaires developed within the OMEGA network.[63] Participants are asked if they work with patients, the average number of patients they work with during a typical working day in the last week, and if these patients are suspected to have or had been diagnosed with COVID-19. Additionally, participants are asked if and with how many workers they work on a regular basis with colleagues, and if they share tools or surfaces with their colleagues.

Preventive measures for COVID-19

The five questions on preventive measures with regard to COVID-19 are derived from the Netherlands Working Conditions Survey COVID-19.[62] One general question assesses the general measures taken at the department level with regard to the COVID-19 pandemic, with answer options such as homeworking, adjustment of working hours, general preventive measures in the workplace, mandatory inclusion or withdrawal of leave. The specific questions on preventive measures include the possibility of keeping a 1.5 m distance between colleagues and/or patients, the availability of personal protective equipment, the usage of personal protective equipment and the application of general hygiene measures. The responses to these five questions are never, sometimes, often and always. This module will not be applied to homeworkers.

Career perspective

Three items on career perspective are derived from the Netherlands Working Conditions Survey COVID-19[62] and adjusted to fit the study population working in the hospital. These items include the motivation to work in the healthcare sector in the future (responses: less, equal and more), the intention to change jobs within the healthcare sector and the intention to change jobs outside the healthcare sector with responses ranging from 1 (=certainly not) to 5 (=certainly yes).

Outcome measures for pre-defined groups or professions

Nurse questionnaire

The Practice Environment Scale of the Nursing Work Index is the most widely used measure to gauge the state of nursing practice environments.[64 65] It is the only measure recommended by several organisations promoting quality healthcare. The 15-item questionnaire uses responses ranging from 1 (=strongly disagree) to 4 (=totally agree). This module will be applied to nurses only.

Homeworkers

A total of eight items are specifically tailored to homeworkers. Two items refer to the number of hours in a week people work from home and how many hours a day they work on a screen (eg, laptop and tablet). One item is focused on the availability of ergonomic work equipment at home (a desk or table with a comfortable working height, a chair that can be adjusted to one's body measurements, a separate display and a separate computer mouse). The need for other furniture is assessed with one item 'Do you need additional materials for a good home workplace?'. Moreover, participants are asked if they take (short) breaks on a working day, except for a lunch break?'. This question includes the following answer options: 1 (=yes, regularly), 2 (=yes, sometimes) and 3 (=no). The last three items are about concentration while at home and include the following statements: 'Do you have trouble concentrating while working?', 'Do you struggle to keep your attention while you work?' and 'Do you have difficulty with the reduced social contact with colleagues?' Answer options range from 1 (=never) to 4 (=always).

Data handling and statistical analyses

Sub study I

Survey data are anonymously collected using Limesurvey (V.2.06 lts Build 160524) and exported to a secure SPSS database (IBM SPSS Statistics for Windows, V.25.0. Armonk, New York: IBM Corp) for analysis. All principal investigators have access to the final study dataset. Data will be stored for 15 years.

First, the data are cleaned and checked for missing data. The descriptive statistics are presented as numbers and percentages for dichotomous variables and mean and SD for continuous variables. Data for different subgroups (professionals in COVID-19 departments, non-COVID-19 departments, managers and homeworkers) are analysed with the Mann-Whitney test or t-tests. Linear and logistics regression analyses are preformed to investigate the associations between risk factors and the main outcomes (vitality and resilience). Statistical significance will be defined as $p<0.05$.

Sub study II

Focus groups data will be analysed by means of thematic content analysis.[66] This method organises and describes the dataset in rich detail and investigates patterns of response or meaning within the dataset. We take an

inductive approach to identify possible themes. Once a satisfactory thematic map is established, the themes are examined to identify the 'essence' of what each individual theme is about and to understand how they are interrelated in relation to our research question. To achieve this, the following steps will be taken.

Focus group interview data are audiotaped and transcribed verbatim.[66] Two researchers will read the transcripts in detail. Each of them starts with developing a structured analysis framework that consists of preliminary codes and themes. They make use of mind maps and tables to organise the data. After that, they compare their frameworks to reach consensus. Next, one researcher codes the transcripts line by line according to this framework in the software programme NVivo V.12. The coder uses memos for comments during coding. When coding is finished and the code 'other' is used, the two researchers discuss these codes and rename them into a new or existing code name best reflecting the contents of the otherwise uncategorised text fragment. During and after coding, the two researchers review and check the themes for internal homogeneity and external heterogeneity. Finally, the two researchers analyse the cohesion and inter-relations between themes to come to a coherent account and accompanying narrative of the data. The principal investigators have access to these data, which will be stored for 15 years.

ETHICS AND DISSEMINATION

The study is approved by the Medical Ethics Committee of the Erasmus MC (MEC-2020-0705). It will be conducted according to the principles of the Declaration of Helsinki (64th WMA General Assembly, Fortaleza, Brazil, October 2013) and in accordance with the Medical Research Involving Human Subjects Act. The study complies with the Netherlands Code of Conduct for Scientific Practice from the Association of Universities in the Netherlands. Protocol modifications will be communicated and to the Medical Ethics Committee by protocol amendment. Participants will be informed about the study both orally and by letter. Consent for participation will be given by written informed consent. Participants can leave the study at any time for any reason if they wish to do so without any consequences. The withdrawal will be registered for informative purpose.

DISCUSSION

The consequences of the COVID-19 crisis on the mental health and working conditions of healthcare professionals have been recognised worldwide.[67] Hospital employees with vitality experience less work-related stress and can therefore handle more work in the new and stressful circumstance. In other words, maintaining professionals' vitality and resilience will contribution to healthcare quality. By using a mixed-methods approach, we aim to gain an overview of vitality, resilience and health (eg, stress and burnout) among healthcare professionals, as well as the risk factors associated with these outcomes. The COVID-19 pandemic has put an extra focus on the impact of work-related stress and how to deal with its causes and consequences. Even though the pandemic entails a specific surge of specific patients, and as such may hamper generalisability, we believe that the outcomes of this study will add to the body of knowledge on how best to deal with the work-related stress experienced by healthcare workers worldwide.

This is an urgent and rushed study because we wanted to use the results against the same health crisis that we are investigating. Based on this study, directions for future interventions during the COVID-19 pandemic and thereafter could provide raised levels of vitality and resilience of professionals in the hospital, and therewith support their employability in the long run.

Strengths and limitations

The first strength is the mixed-methods design, consisting of qualitative and quantitative methods which provide a more in-depth insight in the need for support in the exploratory study and therewith details the information to develop interventions. Second, we compare different departments and distinguish healthcare workers, managers, and homeworkers. The majority of studies so far focused exclusively on the needs of healthcare professionals without considering other hospital employees such as supportive staff, researchers and managers.

The COVID-19 pandemic was the motivation for this research, but may also have limited the procedure of this study, given its unpredictable course. During the writing of this protocol paper, the second wave of COVID-19 had already started in the Netherlands. Therefore, a lower response rate is not unexpected from the frontline healthcare workers. The second limitation is the cross-sectional design of the study, which makes it impossible to draw causal conclusions from this report and to investigate the lont-term effects.

Data dissemination

Public access to the study protocol, study details, participant-level dataset and statistical code can be acquired from the corresponding author. The results will be disseminated to healthcare professionals, health services authorities and the public via presentations at national and international meetings and published in peer-reviewed journals. A lay summary of the results will be written and shared with all professionals of the organisation.

Study status

The study is currently ongoing with data recruitment.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting or dissemination plans of this research.

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Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

	Page/line no(s).
Title and abstract	
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1/1-2
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	2-3/27-54
Introduction	
Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	4/90-95
Purpose or research question - Purpose of the study and specific objectives or questions	5/96-97
Methods	
Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	6/131-144
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	5/118-120
Context - Setting/site and salient contextual factors; rationale**	5/101-107
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	5/113-117
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	5/107
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	6/121-129

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	S1 Appendix
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Table 1
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	6/130-144
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	6/133-144
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	6/133-144

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	8-13/176-301
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	9-12/185-262

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	14-16/332-382
Limitations - Trustworthiness and limitations of findings	16/382-393

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	17-18/402-407
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	17-18/402-405

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

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BMJ Open

The need for support among healthcare professionals during the COVID-19 pandemic: a qualitative study at an academic hospital in the Netherlands

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Secondary Subject Heading:	Qualitative research, Health services research
Keywords:	COVID-19, MENTAL HEALTH, QUALITATIVE RESEARCH

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The need for support among healthcare professionals during the COVID-19 pandemic: a qualitative study at an academic hospital in the Netherlands

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Short title:

Need for support in healthcare professionals during COVID-19.

Abstract

Objectives

The aim of the current study is to gain insight in the factors that benefit vitality and resilience of healthcare workers during the COVID-19 pandemic, to develop and direct specific support strategies.

Design, setting, and participants

This study applies a qualitative design, consisting of six focus-groups and five interviews among 38 frontline healthcare workers in a large Dutch academic hospital. Included were professionals of the intensive care unit, COVID-19 departments, infection prevention units and facility management services. The study was conducted in October and November 2020, during the second wave of the COVID-19 pandemic.

Data analysis

Thematic analysis was applied to focus group and interview data to gain insight in the factors that contribute to maintaining vitality and resilience, and to assess specific support needs.

Results

Data-analysis of the focus groups and individual interviews resulted in a thematic map of the factors that contribute to maintaining resilience and vitality. The map stretches over two axes: one ranging from a healthy basis to adequate professional functioning and the other from individual to organisation, resulting in four quadrants: recharge and recover (healthy basis, individual), safety and connectedness at work (healthy basis, organisational), collaboration (professional functioning, organisational) and professional identity (professional functioning, individual).

Conclusion

Areas for organisational support strategies to increase vitality and resilience among healthcare professionals are: consistent communication, realistic job performance expectations, monitor and improve mental resilience, showing appreciation and act upon practical support requests.

Keywords

COVID-19, Mental Health, Qualitative Research

Article summary

Strengths and limitations of this study

- This study goes beyond merely assessing stress and mental health complaints of healthcare professionals during the COVID-19 pandemic.
- A qualitative design was applied to study the specific support needs of healthcare professionals.
- Study insights are summarized in two concise thematic maps, which suggest feasible interventions to meet healthcare professionals' support needs.
- However, the effectiveness of the proposed interventions has not been tested yet.
- The study protocol intended a mixed-method design, however, the survey response rate was not sufficient to draw valid conclusions, therefore these results were omitted from reporting.

Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic had a significant impact on the physical and mental functioning of healthcare professionals[1-6]. The need for high-intensity medical care rapidly increased during the COVID-19 pandemic, resulting in stressful work circumstances[7]. First, at the departments in direct contact with COVID-19 patients, professionals were confronted with the intensity of continuously wearing personal protective equipment, changes in responsibilities and tasks, moral dilemmas, and the risk of infection for the healthcare professionals themselves and consequently their families[8-16]. Interpersonal contact with patients' family members, one of the core features of the professional practice of nurses, was dramatically reduced due to visiting limitations in most hospitals[17, 18]. This sudden shift in activities and responsibilities required additional competences to maintain high-quality healthcare. Second, professionals at non-COVID-19 departments were confronted with a sudden change of or reduction in tasks, as all focus was on the COVID-19 departments. This resulted in delay of treatment of non-COVID-19 healthcare problems and scheduled appointments including increased waiting times[19-21]. Third, the COVID-19 pandemic not only impacted the healthcare workers within hospitals, but also hospital workers who suddenly had to work from home. In addition to the temporary loss of the work environment and direct contact with colleagues, homeworkers might lack a sense of purpose, solidarity and valuable contribution to the crisis situation[22].

In the short-term, work-related stressors can cause fatigue, sleep disorders, mistakes and moral distress[23]. Long-term effects of high work pressure include burnout, depression and post-traumatic stress disorder, which may result in dropout due to sick leave or abandonment of paid employment[24-26]. These adverse outcomes can be counterbalanced by vitality, resilience and job satisfaction of professionals[27, 28]. Strengthening of these aspects may positively influence healthcare professionals' retention for work, which may be even more necessary in times of crisis[29-

31]. Therefore, the aim of the current study is to gain insight in the factors that benefit vitality and resilience, to develop and direct support strategies that meet healthcare professionals' needs.

Methods

Study design

A qualitative design was applied. The study consisted of focus groups and individual interviews, carried out in the Erasmus University Medical Center, a large academic hospital in the Netherlands with 16,485 employees and 1,125 beds, located in the second largest city of the Netherlands and one of the leading national hospitals in the COVID-19 related care. There were 68 ICU beds, of which half were taken by COVID-19 patients, and two clinics with together 42 beds, with in total 34 COVID-19 patients admitted at the time the study was conducted (reference date November 2, 2020). The study protocol was previously published[32]. The study was originally set up as a mixed-methods study. It was foreseen that a sufficient number of hospital workers would respond to in-company announcements to fill out an online survey. In practice, the number of respondents was lower than expected (<5% of the employees), and no 'random' selection could be made in such a way that results would be representative. Therefore, we only report the results of the qualitative component of the planned study. The study was conducted in October and November 2020, during the second wave of the COVID-19 pandemic. The study was supported by the Hospital Board of Directors and approved by the Erasmus MC Medical Ethics Committee (MEC-2020-0705).

Patient and Public Involvement

Patients and the public were not involved in the design and conduct of this study.

Participants

Intended groups for the focus groups were: professionals from the intensive care unit (ICU), the COVID-19 department, the infection prevention unit and workers of the facility management services. Participants were selected and invited by the research team in collaboration with the team-

or division managers. Intended group size was six to ten participants. Participation was voluntary and all participants provided written informed consent and filled out a short questionnaire on demographic variables. Focus groups were led by LK, with the support of MM. Both are female senior investigators with a background in psychology. Both are clinicians as well, one in the field of psychiatry (LK) and the other in the field of ICU nursing (MM).

Measures

Based on the literature, a topic list was created to guide and structure the focus group meetings (S1 Appendix). The two main questions were: 1. “Which factors contribute to maintaining or regaining vitality and resilience, during the second COVID-19 wave?” 2. “Based on the factors just mentioned, what would be interventions, or policies, that are appropriate to your needs (in terms of maintaining resilience and vitality)?”. So the second question build upon the answers given to the first question. For each of the two main questions, the answers were further explored to gain understanding of why / what caused that the factors or interventions mentioned were so important for maintain vitality and resilience. Prior to each meeting, participants provided written informed consent and filled out a short questionnaire on demographic variables.

Data analysis

Focus groups and interview data were analysed by means of thematic analysis[33]. This method allows for a detailed and rich description and organisation of the data and investigation of patterns of response or meaning within the dataset. Our analysis takes an essentialist, semantic approach, and combined inductive and deductive analysis. To start with, the focus groups and individual interview data were audiotaped and transcribed verbatim by an external professional organisation for interview transcription in healthcare. Next, two researchers (MV and LK) read the transcripts in detail and performed preliminary manual coding of the transcripts. Each one of them individually developed a list of preliminary (sub)themes. They made use of mind maps (MV) and tables (LK) to organise the data. After that, they compared and discussed both their lists until agreement on one single analysis framework. Only after that, one researcher (MV) coded all transcripts line by line,

according to the coding framework in NVivo V.12 software. Memos for comments were used during coding. In case the code 'other' was used for a specific text fragment, these fragments were discussed by both researchers and assigned to a new or existing subtheme best reflecting the contents of the otherwise uncategorised text fragment. During and after coding, the two researchers met regularly to review and check the (sub)themes for internal homogeneity and external heterogeneity. The two researchers examined each (sub)theme for its interrelation with other (sub)themes. Based on this analysis, overarching themes were defined to come to a coherent account and accompanying narrative of the data to answer each of the two research questions.

Results

Demographics

Six focus groups were held with intensivists, infection prevention experts, assistant infection prevention experts, nurses of COVID-19 wards, physicians COVID-19 departments (pulmonologists and internist / infectiologists) and workers from the facility management services. It proved difficult to invite sufficient numbers of healthcare workers at the same time to meet the intended group sizes, due to the high workload these professionals faced during the second COVID-19 wave. We therefore reduced the group size to four to eight participants and included an extra focus group (facility management services). Because of the high workload and time constraints, the scheduled focus group interview with ICU nurses was replaced by three individual interviews. Due to the limited number of medical microbiologists, the focus group has been replaced by two individual interviews. All interviews were conducted by LK. A total of 38 professionals participated in the focus groups and interviews (see table 1).

Table 1. Demographic data participant focus groups (*N*=38).

	N
Gender	
Male	11
Female	27
Age (in years)	
<25	1
26-35	10
36-45	11
46-55	6
56>	10
Function	
Physician	13
Nurse	7
Expert infection prevention assistant	8
Infection prevention	4
Facility service worker	6

Factors contributing to the vitality and resilience of healthcare workers during COVID-19

Data-analysis resulted in four main and fourteen subthemes. The examination of each subtheme for its contribution to (build or maintain) vitality and resilience, and the analysis of the cohesion and inter-relations between themes according to this rationale, resulted to in a thematic map (figure 1). The map has two axes: one ranging from a healthy basis to adequate professional functioning and the other from individual to organisation, resulting in four quadrants: recharge and recover (healthy basis, individual), safety and connectedness at work (healthy basis, organisational), collaboration (professional functioning, organisational) and professional identity (professional functioning, individual). The themes and subthemes are described in detail below.

Recharge & recover (healthy basis, individual factors)

This theme refers to the possibility to recharge and recover from working, as this was perceived of crucial importance to continue working in the current situation but also to ensure employability in the future. In this sense, this theme also is about the sustainability of workers and their retention for work. Subthemes are "time-off" and "stability at home".

Time-off. This subtheme refers to time-off from work, but also to the expressed wish to take a break from COVID-19 in general. Time-off could be spent in various ways, named were sports, hobbies, time with family and time to rest. In some instances, increased time needed for recovery was reported:

"after three weeks of holiday, I thought: I can take it completely 200%! But the curve spiralled down much faster than the first time, also because there are just too many other things at play that need attention…. people who are ill or take care of others, but colleagues as well. Of whom you think, yes, you know, when are they going to collapse?"

Stability at home. A stable home situation was considered of extra importance during the hectic of the pandemic. It was important as a source of joy and support, but sometimes as an extra stressor when it comes to combining a hectic work situation with children at home school and informal care tasks.

"…in the end you want your child to be doing all right. And that just gives you peace of mind. And I can work just fine if I know that my daughter is taken care off."

Safety & connectedness at work (healthy basis, organisational factors)

This theme refers to the importance of feeling safe at work, whether it is with regard to one's own health and sufficient protection material (subtheme "safety"), or with regard to knowing what to do expect at work, as the absence of this can cause feelings of insecurity (subtheme "clarity"). The subtheme "adherence to working hours" may seem a bit of an outsider here, but this subtheme is included because limiting working over hours was perceived as a protective factor/safeguard against

exhaustion. This theme also refers to the importance of a sense of belonging and feeling at ease with direct colleagues, as is covered by the subtheme "supportive team spirit".

Safety. This subtheme covers several areas and included good and sufficient protective personal equipment, supervision of compliance with the COVID-19 rules by hospital staff and by visitors, stability of the work environment and the protection of older/vulnerable staff. For instance, the quote below is from a professional who felt unsafe at times because of a vulnerable health:

"So that is already a pressure on me personally, that I belong to a high-risk population".

Clarity. Clarity was needed first and for all with regard to knowing which care will and will not continue, and per when. Furthermore, respondents marked clarity with regard to the division of tasks within the team, and regarding the COVID-19- rules on the work floor as important:

"I would like to see more clarity indeed. That you do the tasks that you are actually there for, so to say"

Supportive team spirit. This subtheme refers to a healthy basis of individual workers within the team, and entails the importance of safety and trust within a team. It also includes a sense of belonging and connection with team members, for instance via humour:

"Sometimes almost morbid humour, but that is what you need to process things."

Adherence to working hours. Topics within this subtheme were: taking breaks, setting limits to overtime and the having the possibility to take days off/vacation. These help to prevent getting over-involved in work and to keep sufficient personal distance to work. The quote below illustrates the difference between occasional and structural working late:

"Yesterday I wasn't home until eight o'clock and at nine o'clock I was already behind the computer until eleven o'clock. Yes, and this morning I was here again at 7:30 am. That's nice for once, but it just keeps going."

Collaboration (professional functioning, organisational factors)

This theme is about aspects of work related to working together in a large hospital. Subthemes often include quotes about perceived or hoped for communication and behaviour by the "the higher management layers", for instance about which and how expectations on work (performance) are being communicated. Subthemes within this theme are "solidarity", "appreciation and respect", "practical support", "realistic job demands" and, "sufficient amount of staff".

Solidarity. This subtheme refers to solidarity within the team, between departments within the hospital and between hospital regions in the Netherlands.

"I think the best thing we can learn from the first wave and what we should try to take into the second wave is solidarity. It's gone now. And I think that says it all."

Appreciation and respect. This subtheme was defined in terms of personal attention, showing appreciation, being trusted, realism, respect, sincere and adequate responding to answers when asked "what do you need?", and bonus/salary. The following quote combines several of these elements:

"*Appreciation starts to feel like a trick the moment you don't support it with…. If you don't act like it."*

Practical support. Generic topics were: food in the department (soup, fruit), grocery shopping service, good parking opportunities, support for childcare and timely replenishment of materials at departments. Department-specific topics were: well-equipped ICU overnight rooms, better aprons in the ICU, work telephones with e-mail function, and good quality material for internal transport. The quote below provides an example of generic type of practical support:

"I think what they [the hospital board] did with the delivery service of those groceries, that was a very good move to relieve your private life."

Realistic job demands. This subtheme was the positive counterpart of a "high workload", as this quote below illustrates:

"But what seriously threatens vitality and resilience, I think, is the fact that now you are also expected to keep the plates spinning. And if you think logically, you just can not. "

Sufficient amount of staff. This was a recurrent topic throughout all layers of the organisation; from

structural secretarial support to medical specialists. An example is the following quote:

"You want to be able to do your job well. And if the shortness of staff forces you to deliver poor quality work, that's just not in your nature"

Professional identity (professional functioning, individual factors)

This theme refers to the more individualistic work-related aspects that contribute to staying vital at work. Subthemes refer to the possibility to grow in one's work (subtheme "professional development"), various aspects of professional autonomy (subtheme "autonomy"), and personal beliefs on and values in how one's work-related tasks should be carried out (subtheme "work ethos").

Professional development. This subtheme refers to the opportunity to continue academic tasks and career development next to providing patient care during COVID-19, and access to professional training and education, as the quote below shows:

"You now face situations that you would probably not have faced normally during your career as resident, so you may also learn things from that."

Autonomy. Autonomy in job performance, for example about the timing of breaks and working from home was considered important to persevere harsh working circumstances. This subtheme also referred to respect for the autonomy from specific occupational groups. The quote below illustrates the importance of autonomy, and was said in the context were workers were repeatedly reminded not to use too many face masks because of scarcity:

" It feels like you're being reprimanded, like a little kid. As if you can't bear the responsibility yourself. It's really not that I walk with a mask for fun…"

Work ethos. This subtheme refers to delivering quality, achieving success, being able to contribute, pleasure in work, curiosity, facing challenges, being meaningful. People find satisfaction and self-esteem in the fact that they can do their work in a high-quality way. If this is not possible, for whatever reason, this has a negative impact on resilience and vitality, as this quote shows:

"Look, as of my profession, I have seen many patients dying and that is what it is, provided you have

done everything you can do. But if you get the feeling that you have fallen short and that perhaps in another era, that patient would have survived, that is a feeling you may have for a while, but you should not have for too long…"

Organisational interventions that could contribute to vitality and resilience

Analysis of the focus group and interview data on which interventions would benefit the vitality and resilience of healthcare workers resulted in three main themes, all referring to areas for organisational support strategies to increase vitality and resilience among professionals: communication and expectations related to COVID-19; monitor and improve the mental resilience of workers; and appreciation: sincerity and practical support. The thematic map is presented in figure 2, and the main themes with their subthemes are addressed the text below.

Communication and expectations related to COVID-19

During this second COVID-19 wave, there was a clear informational need among respondents, for instance with regard to the downscaling of regular care and upscaling of COVID-19 care. Furthermore, consistency in communication was felt to be important: getting different messages is confusing and may even lead to a decreased support for organisational policy. In addition to making decisions and communicating these, respondents felt it was important for the higher management to have realistic expectations. It was perceived unrealistic to continue all care at the same pace during the persisting pandemic. Long-term investment in COVID-19 care was suggested as an option to combat ad hoc organisation of this type of care. This was thought to potentially benefit the continuity of personnel, quality and professional development opportunities.

Monitor and improve mental resilience

First, we found that professionals derive support and strength from contact with their colleagues. Second, although the availability of mental support teams were positively valued, few made use of

them. At the same time respondents indicated that such help would be beneficial for others. Triage in offering mental support is required: easy accessible and at team level when possible, but with the option for rapidly scaling up to individual professional help when needed. Further, it was noted that the fulfilment of basic human needs, such as safety and rest, also contributes to professionals' mental resilience. Professionals who are feeling unsafe or depleted from energy do not have their full capacity to perform on work related tasks that require focus, decision making capacities and emotional stability.

Appreciation: sincerity and practical support

Feeling appreciated and supported by management and/or co-workers was described as important for maintaining vitality. When it comes to expressing appreciation, it was felt important that this was done in a sincere and person-directed manner. Respondents were adverse to compliments just for the sake of compliments, and in those situations compliments sorted adverse effect. In addition, our results showed that the need for appreciation existed through all organisational layers, so not only along top-down lines but also vice versa and horizontally. Further, it was mentioned that when managers informed on what they could do to help, they should also be reliable in the follow-up to the responses given. In this sense practical support, be it upon specific requests or in general was also experienced as an expression of appreciation. A specific type of practical support mentioned was support in terms of attracting new personnel to alleviate work pressure.

Discussion

Data-analysis resulted in a thematic map of the factors that contribute to maintaining resilience and vitality in healthcare professionals during the COVID-19 pandemic. This map was derived by inductive analysis of our focus groups and interviews data. However, reflecting upon our map, one may note resemblance with existing theories in organisational and clinical psychology[34, 35]. In this respect, it may be helpful to examine our findings in conjunction with the Job Demands-Resources model of

burnout[35]. This model discerns job demands and job resources. Job demands refer to "those physical, social, or organisational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs". As described in the introduction, working during the COVID-19 pandemic comes with a number stressors[7-15, 17, 18], that add to the already existing job demands. High job demands are related to exhaustion[35], a core symptom of burnout. Indeed, our findings as well as those of other studies and guidelines underline the importance of getting enough rest and having the opportunity to recharge[36-38]. Job resources present the other side of the coin and refer to "those physical, psychological, social, or organisational aspects of the job that are functional in achieving work goals; reduce job demands at the associated physiological and psychological costs; and stimulate personal growth and development". In this way, one could say that our findings as presented in figure 1 represent the resources that were considered important by the participants. Interestingly, our findings here are largely covered by the five domains of basic human needs as discerned in schema- focused therapy[34], a widely -used type of psychotherapy. These domains are: attachment and security; autonomy; competence and identity; freedom to express important needs and feelings; spontaneity and play, and realistic boundaries and self-control. Sufficient resources are needed to cope with environmental demands and meet personal professional standards in job performance. If this is not the case, an individual may respond with reduced motivation and finally job withdrawal as a means to protect oneself against future frustration and (perceived) failure[35]. This underlines the importance for organisations to invest in retaining the resources of and for their healthcare workers. Our findings offer insight in the most important resources in this respect (figure 1) and the areas for organisational interventions (figure 2).

Results from the focus groups and interviews showed that both practical and team support were valued highly in the support needs of healthcare professionals during COVID-19. With regard to support from the managers, it was emphasised that this support should be sincere and that both listening to and acting upon expressed needs were important. These findings are in line with findings from other recent studies[39-42]. Of particular interest here is the study by Bennett et al. (2020),

where data of healthcare workers experience was collected through an anonymous website[42]. Results of this study showed that lack of support by the senior management severely impacted upon professionals' well-being and motivation. Similarly, the study by Dopelt et al. (2021), found that a lack of recognition and appreciation led to frustration and disappointment in healthcare workers[16]. Next to support by managers, team support and bonding turned out to be important. For this purpose, people usually reverted to natural, pre-existing bonds of trust. The power of positive team spirit and bonding should not be under-estimated: it is known from literature on major disasters that the connection between members from the same group (i.e., the community), harbors strong protective and healing potential[26, 39, 43]. Further, a study by Muller et al. (2020) found that healthcare workers reported low interest in professional help and greater reliance on social support and contact; and that social support correlated with less mental health problems during the COVID-19 pandemic [44]. These findings underline the need for interventions aiming at facilitating support at the workplace, especially as these may help to identify those workers who are in need for more intensive treatment[45].

A strength of this study lies in the succeeding of that many live focus group interviews in a short time span, wherein busy participants were both allowed and took the time to participate in his study. The fact that one of the senior investigators (MM) involved in the focus group interviews is experienced as ICU nurse is both a strength and a limitation. The strength lies in increased sensitivity to issues at stake at an ICU-ward. A limitation however may be potential difficulty to take an outsider position. Therefore, interviews with ICU nurses where held by LK solely. Another limitation of this study is the selection of focus groups, which included frontline healthcare workers only. Overall outcomes would be more generalizable if we also had included groups of homeworkers and professionals from non-COVID departments. Another limitation of this study concerns the low response rate on the survey. Consequently, no 'random' selection could be made for the quantitative study, and reporting these results would evoke questions about the representativeness of the results. We therefore could not report this study as a mixed-methods study, as was originally intended.

Furthermore, these results are obtained at a large academic hospital in Western Europe, and results therefore cannot be generalized, as perceptions and values of professionals may differ according to culture and context.

Conclusion

This study provides insight in the specific support needs of healthcare workers during the COVID-19 pandemic. Our results point towards the importance of clear and consistent communication, realistic job performance expectations, the monitoring and improvement of mental resilience, showing sincere appreciation and acting upon practical support requests. Consequently, organisational interventions to monitor and promote vitality and resilience among healthcare professionals during the COVID-19 pandemic should focus on these particular topics.

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Competing interest

The authors declare no conflicts of interest.

Author contributions

LK: study design, data collection, data analysis, writing of the paper

MV: data collection, data analysis, writing of the paper

KOH: review of the paper

TKP: review of the paper

AP: review of the paper

WH: study design, review of the paper

JB: study design, review of the paper

MM: study design and protocol, data collection, review of the paper

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Word count: 4224

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Figure legends

Figure 1. Thematic map of factors contributing to vitality and resilience

Figure 2. Thematic map of organisational interventions that could contribute to vitality and resilience

Supporting information

S1 Appendix. Topic list focus groups

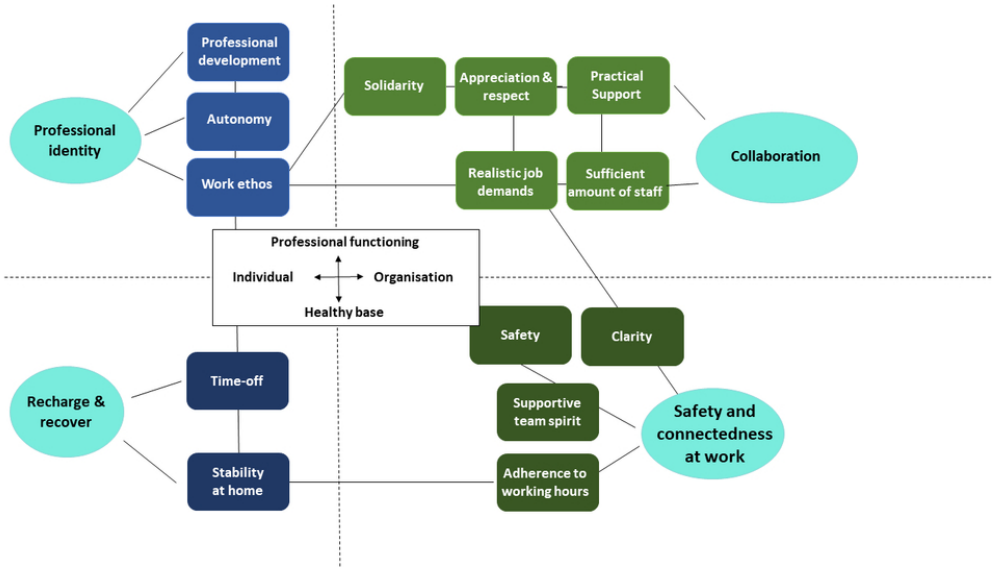

Figure 1. Thematic map of factors contributing to vitality and resilience

81x45mm (300 x 300 DPI)

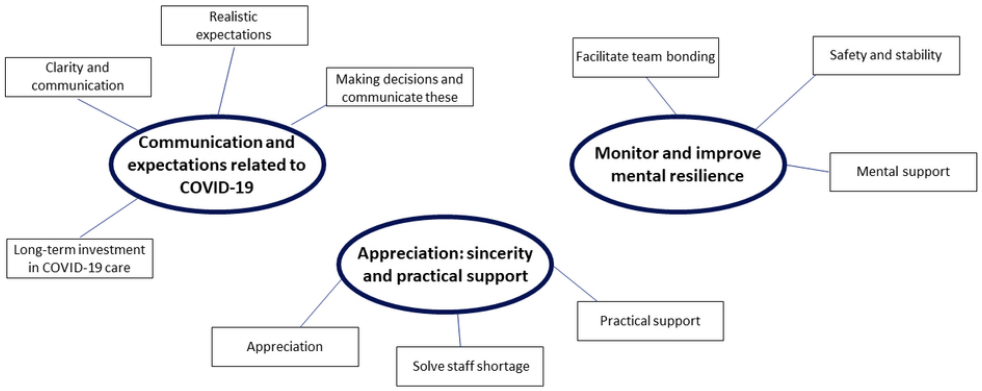

Figure 2. Thematic map of organisational interventions that could contribute to vitality and resilience

81x45mm (300 x 300 DPI)

S1 Appendix I. Topic list focus groups

Opening and introduction

Welcome.

Introduction and explanation of the purpose of the meeting and focus group rules.

Informed consent.

Introductory question

What usually works for you to maintain your resilience and vitality at work? Is this different now, in the COVID-19 time period? What makes it different now? And in what sense is it different?

Transition question

The research question contains an assumption “maintaining”. That implies that it is still there. If you look at yourself, how do you see it, is it about maintaining resilience and vitality, or is it actually about rebuilding resilience and vitality after the first COVID-19wave?

Key questions

Key questions cover 2 categories: 1. Factors of influence and 2. Interventions aimed at those factors

1.1 Open
Which factors contribute to maintaining your resilience and vitality at work, during the second COVID-19 wave?

Brainstorm and inventory of factors on whiteboard.

Cluster if applicable. These are various factors, you can roughly divide them into (for example, depending on outcomes): appreciation (whose? how?), resources (staff and products), own balance (work, home, relaxation), own feeling about the situation: acceptance (vs pressure and tension), professional ethos / finding meaning etc.

1.2 Further exploring
What makes these factors contribute to your resilience and vitality? How does that work?

Then specifically, for each factor mentioned: how does it work, what makes that….. contribute to the maintenance of resilience and vitality? What are the underlying reasons (motives) for this?

2.1 *Open*
Using this list (factors of influence), what would be interventions, or policies, that are appropriate to your needs (in terms of maintaining resilience and vitality)?

Make an inventory of interventions on whiteboard.

2.2 *Further exploring*
How does it work that, what makes that….. would be a suitable intervention when it comes to maintaining resilience and vitality? How does that work? Would you be motivated to participate in such an intervention? What is/are your reasons/motives for this? How is that?

Note: in case the proposed interventions focus on one and the same factor, mention this and refer to the other factors mentioned earlier as well.

Concluding questions and closing remarks

We are going to wrap up. Of all the issues discussed today, which one is the most important to you? Or: if you were to give your policy advice (on this subject) to the Board of Directors in a few sentences, what would you say?

Thank you for your contributions.

Standards for Reporting Qualitative Research (SRQR)*

http://www.equator-network.org/reporting-guidelines/srqr/

	Page/line no(s).
Title and abstract	
Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended	1/1-2
Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions	2/27-49
Introduction	
Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement	4-5/65-89
Purpose or research question - Purpose of the study and specific objectives or questions	5/89-90
Methods	
Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**	6/130-133
Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability	6/116-118
Context - Setting/site and salient contextual factors; rationale**	5/94-99
Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**	5/-6111-116
Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues	5/106-107
Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**	6-7/119-147

Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	S1 Appendix
Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	Table 1
Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	6/133-135
Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	6-7/133-147
Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	6-7/133-147

Results/findings

Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	7-14/150-317
Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	8-14/164-317

Discussion

Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	14-17/320-379
Limitations - Trustworthiness and limitations of findings	16-17/369-379

Other

Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	17/394
Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	17/390-392

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:

O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388