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How do hospital physicians experience the interactions between professional fulfillment, organization and quality of care? A qualitative study

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Abstract

Objectives: Physicians increasingly experience high levels of burnout and loss of engagement. To address this there is a need to better understand how physicians' professional fulfillment is related to organizational factors and quality of patient care. This study explores how physicians experience the interaction among professional fulfillment/satisfaction, organizational factors and quality of patient care.

Design: Interactive research strategy with semi-structured individual physician interviews. Interviews were transcribed verbatim and analyzed by a transdisciplinary research group. Findings were presented back to the group of physicians. This feedback explicitly addressed the local workplace and provided a shared understanding. This in turn enabled a joint focus on meaningful change.

Setting: Mid-sized emergency hospital in Norway

Participants: A purposeful heterogeneity sampling was used, with gender and seniority as selection criteria. Seven physicians were interviewed. Three senior physicians (two female, one male) and four in training (three male, one female).

Results: This study finds that physicians' individual plasticity, meeting the professional ideal to put patient needs before own needs, is overstretched. A workplace emphasis on production numbers and budget concerns led to an experience of estrangement among physicians. No longer feeling aligned with work-place values, in addition to limited management recognition for good-quality patient work, led the physicians to become disoriented in relation to their professional identity. Physicians reported a shift from serving as trustworthy, autonomous resources to become production workers; they also expressed frustration with limited opportunities to be involved in local development work.

Conclusion: Physicians traditional way of handling time and task collisions by stretching themselves is no longer functional without compromising both professional fulfillment/satisfaction and quality of patient care. Physicians' engagement in organizational development work is now foundational to

secure both quality of patient care and physicians' professional fulfillment/satisfaction. The used interactive research model provides a vehicle to support such development.

Strength and limitations of this study

The chosen method, interactive research is a way to increase research relevance and contribute to actual improvements: an indication of the relevance is that although the interviews were planned for 60 minutes, many physicians willingly spent extra time (the average interview was 74 min)

This study has a potential limitation in that the empirical material was based on interviews with seven physicians, however, given our priority to capture in-depth, nuanced aspects, individual interviews were given priority over the higher number resulting from group interviews.

It is a strength having an interdisciplinary research group conduct the analytical work allowing each interview to provide a rich, nuanced source of the empirical.

Another strength is that the qualitative research process facilitated close attention to the individual physician experience, while simultaneously analytically striving to find an empirically grounded collective physicians' voice.

This study focused one clinical setting but based on previous research showing communality among physicians across different contexts in the western world we suggest many health care settings could benefit from the findings in this study.

Introduction

High-quality health care depends not only on high-tech equipment, sufficient resources and reliable evidence, but on health professionals who are satisfied and engaged with their work. Researchers have recently argued for expanding the traditional health care improvement goals. In addition to enhancing patient treatment, securing the population's health and reducing the per capita cost of health care [1], they argue for promoting professional fulfillment/satisfaction [2 3]. Bodenheimer and Sinsky expressed this succinctly as, "care of the patient requires care of the provider" [4].

A group of 32 experts in the study of burnout among health professionals gathered in the fall of 2016 to find ways to alleviate burnout. The group suggested that, to better care for providers, a better understanding of the links among professional fulfillment/satisfaction, quality of care and organizational factors is needed. The group argued that the research community does not have sufficient understanding about the relationships among individual factors, organizational factors and quality of care, concluding with an urgent request for more studies in this field [5]. There seems to be a call for research to provide more practice-informed and actionable knowledge to facilitate research-based interventions in developing the local workplace[6].

Several studies have explored these links as bidirectional relationships. The relationship between professional satisfaction and quality of care has been studied, both as reported by physicians themselves [7-9] and as studies measuring the associations between satisfaction and more objective measures of quality, such as regulation of blood sugar levels in diabetes patients or number of patient complaints [10 11]. Likewise, different organizational factors have been found to influence professional behavior [12 13], motivation and

engagement [14 15] and management has been found to impact physician satisfaction [16-18]. Health care reorganizations seem to contribute to physician stress and feelings of alienation [19]. While externally driven changes that happen *to* physicians increase stress, physicians´ active involvement *in* change contributes to professional fulfillment/satisfaction [20-22].

Thus, clarifying the relationships among organizational factors, professional fulfillment/satisfaction and quality of care will support commensurate interventions toward improving physicians' well-being and thus the quality of patient care [23]. Given physicians´ central positions in health care, their understanding of, and experiences with, these interactions are important.

In this study, the interactions among professional fulfillment/satisfaction, organizational factors and quality of care are treated as a complex phenomenon, with a distinction placed on the differences between simple, complicated and complex [24]. Simple and complicated belong to a domain wherein detailed planning results in predictable outcomes. In contrast, complex belongs to a domain wherein detailed planning does not necessarily lead to predictable outcomes; paradoxical or surprising outcomes can also be expected. Outcomes in the complex domain are considered to be predictably unpredictable [25]. Human interactions are part of the complex domain. As such, much of health care, in which the essence is encounters between patients and caregivers, is complex by definition [26 27].

Aim

The study aim was to explore how physicians experience the interactions among professional fulfillment/satisfaction, organizational factors and quality of patient care.

Method

Design

Complexity science has attracted researchers trying to make sense of the everyday intricacies of health care [27-30]. Complexity science introduced the science of uncertainty [31], which specifically considers the dynamic and unpredictable nature of human interaction [24] [25]. Thus, this field considers the complex relationships among areas, i.e. the impact, or lack thereof, of non-deterministic changes in one dimension on another area or areas. This conceptually differs from models based upon reductionist and mechanistic theories wherein planning, control, certainty and predictability are assigned centrality [32 33].

Patient and Public Involvement

Clinically active physicians working at a hospital were the study subject. These physicians' important and active involvement in the study is discussed further below.

Research Strategy and Physicians' Participation

Previous studies have established that organizational changes in health care are difficult to achieve without physicians' active involvement; thus, we chose an interactive research strategy. Since the relationships we address in this study are complex, we need to understand them in the local context. Gaining the engagement of physicians has proven difficult in the past, so we elicited local physicians' perspectives on the relationships under evaluation. In other words, we used interviews to gather empirical material. By interviewing a group of physicians working in a specific clinical setting, and disseminating the results from their interviews back to them, we strove to increase their awareness of the need for change and these physicians willingness to engage in a local change process.

Our interactive method involved a back-and-forth strategy between the researchers and practitioners. The intention was to collect, analyze and reanalyze data as a collaboration between the researchers and the physicians. The strategy was to identify relevant research questions, promote learning among both the practitioners and researchers and facilitate local ownership of changes initiated by the collaborative process [34 35]. This method required repeated interaction between researchers and physician participants. The researchers summarized the early findings from the interviews and presented these to the group. This feedback explicitly addressed aspects brought forward in the local workplace and provided a new understanding, which potentially triggered a drive to initiate local changes. Following a change initiative, the researchers can, at a later stage, explore the physicians´ evolved understanding based upon the newly developed situation. This paper specifically focuses on the first cycle of this spiraling and continuous development process.

Interviews

The interview is a way to gather rich information, in an effort to see the world as it is seen by the interviewees and to strive to develop meaning from their personal experiences [36]. A semi-structured interview guide with open-ended-questions was constructed to facilitate consistency between interviews [37]. Simultaneously, open-ended questions allowed the interviewer to delve further into topics that arose during the interview process. The interview guide is in Appendix 1.

Each physician received a written summary of the study before the interview, including a conceptual model of the studied relationships/links (Figure 1).

[Figure 1 here]

Figure 1. Conceptual model used in the interview situation

Setting

The physicians worked at a mid-sized emergency hospital in Norway providing medical, surgical and psychiatric care and with approximately 1,400 employees who serve a population of about 135,000 inhabitants. This is also a teaching hospital for physicians and nurses.

Following a presentation about the study to the hospital management, the researchers received approval to approach department managers. The study's aim and interactive study concept were presented to the group of physicians and department head. Following an internal discussion, the surgical department agreed to participate. The department expressed appreciation of the cooperative aspects of the study and the explicit intent to listen to physicians' voices about their local situation. This surgical department provides specialist care in general surgery as well as orthopedic surgery.

Participants

To ensure a diverse set of physicians' voices, purposeful heterogeneity sampling was used [37], with gender and seniority as selection criteria. Seven physicians and their department head were interviewed. Three of the interviewees were senior physicians (two female, one male) and four were in training (three male, one female); the department head was a senior, male physician.

Data Collection

Individual physician interviews were conducted in November and December 2016. Interviews took place in a conference facility in the hospital area and were digitally recorded. Each interview was scheduled to last 60 minutes, but with flexibility by the researchers in order to allow participants to use their time as needed to discuss the issues, resulting in an average of 74 minutes' duration. Notes were taken on each interview.

Two researchers with complementary experience were present at all but one interview, with one researcher leading while the other listened and took extensive notes, occasionally interacting to further probe interesting aspects relating to the study aim. Both researchers had solid experience with physician interviews. One interviewer has a PhD and a background as an occupational physician with training in group therapy and many years of experience counseling physicians both individually and in groups. The other interviewer has a PhD in medical sciences and has a professional background as department head at a university hospital, and experience in industrial engineering and management and training in group relations theory.

Analyses

To provide for a multifaceted interpretation of the rich empirical interview materials, the analytical process involved a team of four researchers. The two researchers administering the interviews were complemented by two additional researchers who added further diversity to the research group. One of these was a senior PhD-level researcher with experience in epidemiology and a professional background in surgical nursing; the other was a senior health care researcher with a PhD in sociology.

The analytical process followed the principles of qualitative analysis [38 39]. All interviews were transcribed verbatim and initially analyzed by the two interviewers. The

other two researchers listened to the audio recordings to experience the empirical material and made individual notes. All transcripts were available to all four researchers. During the analytic process, the interdisciplinary group of authors worked in parallel to enrich the empirical interpretations and reduce the risk of any author overpowering the empirical material or physicians' voices. This analytic process continued, with the two interviewers working extensively with the transcribed interviews to outline a written account of emerging themes substantiated by related quotes. This material was challenged, refined and complemented during face-to-face meetings by the interdisciplinary and trans-professional research group. Alternative interpretations were continuously sought through critical reflections. This process continued iteratively until alternative understandings and considerations were reconciled into a coherent result. Patton suggests that this type of iterative research group triangulation is a way to reach comprehensive, robust and well-developed findings from rich empirical material [37].

Ethics

This study complies with the World Medical Association's Declaration of Helsinki [40]. The risk of harm to the interviewed physicians was very low, and thus the project did not meet the criteria justifying a formal application to the ethics board, consistent with Norwegian law [41]. The study aim, the role of the researchers and the right to withdraw at any stage was explained before each interview. It was also explained that confidentiality would be handled by not using direct quotes that could be linked to an individual or their role and that if in doubt, the interviewee would be consulted. All interviewees signed informed written consent before their interview was begun.

Results

When invited to reflect on the interactions among professional fulfillment/satisfaction, organizational factors and quality of care, the interviewed physicians described various experiences with, and relationships among, the dimensions. Taken together, these individual experiences conveyed an empirically grounded understanding of the dynamic relationships. The results are structurally presented following the conceptual model in Figure 1.

Relationships between Professional Fulfillment/Satisfaction and Quality of Care

Physicians expressed that their professional fulfillment/satisfaction was fundamentally related to experiences with delivering high-quality care and patients being satisfied with that care.

> *Vital for job satisfaction is that we have an experience that things go well with our patients.*

There was also an emergent awareness that patients tend to recognize when a physician is stressed at work. The dynamic relationships relating to providing good care and experiencing professional fulfillment/satisfaction was expressed by the physicians as mutually reinforcing.

> *When there are double bookings, time and task collisions, etc., then one has to start working in a way I don't like. Stop looking at the patient, only look into the computer and be really fast. Focus on the one specific problem and not meet the person. I find this less satisfying and I think also patients notice when one is stressed.*

The importance of continuity between patients and physician was brought up as a central aspect of providing good care. The experience of patients being satisfied contributed to an appreciated sense of accomplishment.

> *What gives me satisfaction is when I greet my patients, operate on them and follow up afterwards, so the patient is satisfied. That is all I wish for.*

A consequence of patient care quality being such a strong driver of professional fulfillment/satisfaction was that patient error negatively impacted the individual experience of professional satisfaction.

> *A given downside about being a surgeon is complications, it sort of comes with the job. I had a severe surgical complication last week and that is casting its light over everything, it impacted me fundamentally for many days.*

Relationships between Professional Fulfillment/Satisfaction and Organizational Factors

Physicians expressed how conversations at department meetings had changed. Previously, these conversations were more about clinical care and now they mostly focused on the need to meet production targets and finding ways to handle budgetary constraints. The interviewed physicians expressed how quality was starting to be experienced as an empty phrase, crowded out by production numbers and economic data.

> *Quality is more and more becoming an empty term in relation to what the hospital values are. What we hear about is mostly economies and numbers.*

This production focus was experienced as having an implicit assumption that the care delivered was of good and stable quality and that more output of the same quality could be created by increasing speed. This static, mechanistic way of understanding quality of care concerned the physicians.

> *Everyone expects that treatments are first class. We only measure waiting times and epicrisis times and similar unimportant things. Everybody expects treatments to be the same and quality to be the same, no matter what. That is not true!*

For patient care quality, the primary driver of physicians' work satisfaction, this new emphasis on production numbers and economies resulted in physicians not recognizing the workplace. Changes in workplace conversations, combined with an experience of limited recognition for good professional work, made some physicians grapple with who they were becoming in their role as physicians. They experienced a change from being trustworthy and autonomous resources to becoming production workers.

> *I don't feel that I come to work as a capable and autonomous resource anymore. I feel I come to work only to produce a certain number of procedures.*

The struggle against time was also at the forefront in these interviews. The physicians described feeling uncomfortable with an increasing number of days and situations involving time and task collisions and concerns that this situation could jeopardize quality of care.

There is a constant battle against time. We need time to make solid evaluations before and after operations. We are pushing the limits toward feeling uncomfortable. Definitely relating to quality of care.

The consequences of the time struggles were not obvious. However, the physicians experienced them as painful, with an impact on their fulfillment/satisfaction and health.

There is no obvious relationship, but from my point of view the organizational factors are pretty painful right now. Suddenly you have one of these time and task collisions and it increases work strain and stress, impacting physical and mental health. You know, when you are expected to be in three places at once, it sort of triggers your stress level.

For the physicians, there were frustrations with unforeseen variations in the daily operating schedule. This could result in long work hours for surgeons and negatively impact family life.

You do get a pause between operations that you can use to do a lot of different things. You can read, talk or drink coffee. But the cost of this unplanned pause is high when you have kids and a wife who you care for.

While physicians expressed unease about internal conversations focusing more on cost and production than quality, there was an awareness of the need for high productivity and cost control.

I am one of those physicians who consider that health care has an obligation to make sure we manage our resources and household with our tax-based money.

Relationships between Organizational Factors and Quality of Care

While the interviewed physicians appreciated swift and smooth operations, a new operating concept, with the explicit aim to increase output, troubled some. They expressed concerns about potential risks of patient complications since time limits were imposed to find anatomical landmarks and stop minor bleeding before proceeding to the next surgical step. With a dominating focus on quantity, there was an emergent worry whether individual quality standards were compromised.

> *Maybe the key dilemma is that you are pushed about quantity all the time. It leads you to start to feel, right after you go home from your on-call work, that you did not finish your task or finalize things the way you wanted to. You get pushed to increase quantity and it is impacting your own reference of good-quality work.*

There were also experiences of stress upon entering the operating room, a work place sanctuary where physicians previously experienced that time was allowed to "stand still".

> *Over the last years, operating programs have expanded. It is not seldom that we push really hard to get through the program. As we are realizing we are not making it, you feel how stress is building up also in the operating room.*

Physicians expressed that there was less time for organized patient follow-up, compromising individual physician's learning and self-correcting processes. The need for physicians to receive feedback about their own surgery and see the effects of their

treatment was stressed. This was not considered as important for the specific patient, but crucial for systemic learning and thus for future patients' quality of care.

> *We don't have time for follow-up; no, they fill up those lists at the outpatient department such a long time in advance. So, if we need to have a patient follow-up a week after the operation, it is not possible to schedule that.*

Several of the senior consultants had developed quality registers to gather data on dimensions of quality of care for different patient groups. These were used when colleagues, specialized in the same field, gathered to evaluate their work.

> *We have very good collegial collaboration where everybody is interested in the patient´s treatment outcomes. So, getting feedback, either positive or negative, is appreciated – because we are all in the same boat.*

The hospital collects many metrics to analyze quality. However, some physicians had limited knowledge about these hospital measurements and others expressed frustrations about spending time reporting numbers with limited feedback about the results.

> *We collect data relating to infection prevalence, we are part of a patient safety campaign, we do specific procedure paperwork, biweekly Global-Trigger-Tool screenings and much more. These things are decided from above. And the initial thought is typically good, but it triggers a lot of work for many people and I just don't know where these numbers end up. What does each initiative result in?*

Handling Dynamic and Complex Situations in Everyday Clinical Work

The interviewed physicians emphasized the importance of delivering good-quality patient care, even if it meant stretching themselves to overcome hindering organizational factors. This way of ensuring quality care was considered common practice among them. However, the interviewed physicians were beginning to consider whether this compensation for organizational shortcomings could have negative consequences for the quality of patient care.

> *One starts to wonder if this constant stretching of oneself can have negative consequences. Like more patients expressing worries after their operations.*

While too little time in relation to patient work was the greatest concern, physicians also expressed a constant struggle with work–home balance. The physicians related to a "contract of conscience" with their patients, driving them to stretch themselves and spend considerable time at work on top of normal hours. This was not a formal contract but rather related to their professional identity as a physician.

> *I have to be there until the operation is finished. I am really concerned whether I will be in time for kindergarten. It generates a lot of frustration, but I have an implicit contract with the patient and an implicit contract also to the hospital to make sure the operation is carried through.*

Time struggles and a never-ending potential to do more for each patient is part of an implicit assumption about working in health care. However, the interviewed physicians expressed how this had accelerated.

Everything has to happen at lightning speed. Things are never good enough, I feel. It is not that they say this explicitly, but I constantly feel a pressure to be effective. It feels as if we have to work more, producing the same quality but with fewer resources. This is an enormous change compared with some years ago.

Different individual initiatives to improve quality and facilitate every day work had been initiated. One physician described saving time and increasing quality and safety by making standard patient record templates for different operational procedures. Another physician worked to schedule ward rounds to make them visible, instead of being something that the physicians were supposed to squeeze in between other tasks.

We are measured on the number of operations we perform and on the number of patients we see in the outpatient clinic. But we are not measured on the time we spend on ward rounds. Talking with the doctor is a major part of what patients appreciate when measuring patient satisfaction. Now, ward rounds are scheduled.

At the same time, there was a sense of disappointment that the organization did not facilitate development work or recognize individual initiatives. Physicians suggested that the hierarchical way of managing hospitals needs to be reconsidered.

I think this is about hospital management still struggling to find a more modern form. I find that teamwork is something that private enterprises have focused on for a long time. But the old way of leading is still what goes on in hospitals. With traditional hierarchies and top-down decisions.

There were thoughts about the need for changing today's hierarchical culture toward a culture where employee involvement was considered the basis for clinical development. There were suggestions that during changes, such as introducing fast-tracking, getting more operations done, or changing resources, management needs to involve those concerned.

> *If you are working with changes in such a fine-tuned and complex environment as a hospital, one must involve those impacted by a change. You put small groups of surgeons and op-nurses together. Provide them some time to work on specific issues. Listen attentively to what they say about key pressure points and act accordingly. Not simply pushing decisions down at people! These are talented people who typically know best what to do with clinical issues.*

Strengths and Weaknesses

This paper presents the results of the first phase of a three-year interactive research project. Interactive research is considered a way to both work within relevant research areas and contribute to clinical improvements [35].Repeated collaboration between physicians and researchers aims to create relevant research, increase physicians' understanding of their own local work situation and, based on that outcome, to enable a development process of locally initiated changes.

This first phase in the interactive study included a scheduled session during which the researchers presented their initial findings to the group of physicians. These findings clearly resonated with the group of physicians, both those who participated in interviews and those who had heard how the researchers understood the local work situation. This is a

study strength that substantiates the findings and confirms the value of the interactive research strategy.

This study has a potential weakness in that the empirical material was based on interviews with only eight physicians. Group-based interviews could have allowed us to interview many more physicians; however, given our priority to capture in-depth, nuanced aspects of each physician's experiences, individual interviews were considered more suitable. Having an interdisciplinary research group conduct the analytical work allowed each interview to provide a rich, nuanced source of empirical information leading to substantiated results that contribute to the research field. A strength was that although these interviews were planned to last 60 minutes, the average interview lasted 74 minutes (each interview contributing about 20 single-spaced pages of empirical material). Many physicians willingly spent extra time on the interview, indicating that they found the study aim and interview meaningful.

Another strength is that the qualitative research process facilitated close attention to the individual physicians' experiences, while simultaneously analytically striving to finding an empirically grounded collective physicians' voice. A potential weakness of all interview-based studies concerns the likelihood that what the interviewed physicians described was actually related to their behaviors during clinical encounters with patients. By asking for practical, specific examples we tried to ensure a focus on everyday realities; previous research on this topic has concluded that what people present in interviews reflects their perceptions, though those perceptions also inform their actions [36 42].

While this study focused on a single clinical setting, we suggest that other health care settings that employ physicians can learn from these findings. We base this

generalizability on previous research showing communality among physicians across different contexts in the West [43], which Wenger calls one occupational community of practice [44].

Discussion

This study explores how physicians experience the interactions among professional fulfillment/satisfaction, organizational factors and quality of care.

Our study participants described how providing high-quality care to patients was the single most important dimension contributing to their professional fulfillment/satisfaction. The interplay between clinical work and organizational factors was often experienced as resulting in complex and challenging situations, such as being scheduled to operate while also having to run to the ward to check on patients or running late to pick up children from daycare because shift times between operations ran longer than planned. The interviewed physicians primarily handled this individually, by stretching themselves and working around organizational hindrances in order to provide good patient care.

Interestingly and somewhat discouragingly for the health care development enterprise is that the interviewed physicians expressed great frustration but little aspiration or practical opportunity to actively contribute to altering dysfunctional organizational factors. Instead, the prevailing strategy was that each individual physician came up with their unique “workarounds” and proceeded to address each day’s assigned work.

The conceptual triangle (Figure 1) will be used as a guiding structure in the following discussion of these findings.

Relationships between Professional Fulfillment/Satisfaction and Quality of Care

The interviewed physicians explicitly stated that being able to deliver good-quality patient care was fundamental to experiencing professional fulfillment/satisfaction. The experience that things go well with the patient was crucial for physicians' fulfillment/satisfaction. This has also been found in previous studies [45 46] and can also be understood in light of the long-standing development of the physician's identity from Hippocrates to more modern medicine (e.g., Osler [47]) consistently focusing on patient well-being. A 2018 review of clinicians' well-being by the National Academy of Medicine stated "At the center is patient well-being; without the patient, there is no clinician" [48].

The physician interviewees also considered a reciprocal relationship, wherein physicians' dissatisfaction can negatively impact quality of care. This mutual and dynamic relationship is consistent with research showing that nonfunctional work conditions and physicians with low fulfillment/satisfaction negatively impact the quality and safety of patient care [8 10 11]. While the professional identity of physicians has hinged on delivering good patient care quality, more recently, physician well-being has also been recognized as a potential indicator of quality care[3]. Jean Wallace et al. took this issue further to suggest that physician well-being might be a reasonable overall indicator of health care quality [49]. In the 2017 revision of the Declaration of Geneva, as adopted by the World Medical Association, a new addition addresses this: "I will attend to my own health, well-being and abilities in order to provide care of the highest standard".

Relationships between Professional Fulfillment/Satisfaction and Organizational Factors

Our study participants emphasized that organizational factors were mostly hindering their professional fulfillment/satisfaction. The interviewees reported that managers were more concerned with production numbers and economies, while patient outcomes were viewed

as less important to talk about. The emphasis on production focus and budget concerns led to an experience of estrangement. Physicians no longer felt aligned with workplace values; in addition, limited management recognition for good-quality patient work led to their sense of being disoriented in relation to their professional identity. Physicians expressed this as a role change, from being a trusted resource to being more like a "cog in a wheel."

Epstein echoed this finding; "Physicians, disillusioned by the productivity orientation of administrators and absence of affirmation for the values and relationships that sustain their sense of purpose, need enlightened leaders who recognize that medicine is a human endeavor and not an assembly line" [50].

Previous researchers have argued that physicians' professional engagement and fulfillment derives from doing tasks that contribute to the experience of developing and contributing [14]. Traditionally, physicians have been able to experience this when focusing on providing excellent care by meeting individual patient needs. Managers, on the other hand, need to cater to the overarching perspective, providing good care to as many patients as possible within the existing budget[51]. Bridging this perspective gap has proven difficult since it requires both managers with a developed mindset to better understand physicians, and physicians with a developed mindset to better understand managers [20].

A study comparing views about priority setting between physicians/nurses and managers found clear differences in how they talked about and understood prioritization [52]. Physicians and nurses often chose a nearness practice, wherein the individual patient was prioritized, while managers tried to ensure that as many patients as possible received, or would receive, good care. Prioritization was a cause of constant concern. Clinicians experienced a threat to autonomy and professional ideals. Managers empathized with

clinicians but perceived patient flow and budget balance as more important. Both groups wanted to “make a difference”, but paradoxically, neither found a way to reconcile their view with that of the other. Stacey and Mowles suggested that different perspectives make mutual understanding challenging. They further argued that how local conversations are experienced is very important, since that is the fuel for individual sense-making about what is recognized at the local workplace. Recognition of others’ way of seeing the world is considered the fuel for innovational process work to self-organize [53].

There is a definite need for more enlightened health care leaders to manage the complex endeavor of providing a guiding beacon toward meaningfulness and engagement, while simultaneously balancing a constrained budget. There is also a need for more enlightened physicians who actively engage with leaders to further evolve clinical practice, in relation to both the individual patient and future patients. Leaders need to remember that providing good patient care is facilitated by organizational arrangements that also care for the providers. It might be prudent to clarify that organizing functional work processes is a fundamental managerial responsibility.

While limited time with patients was a concern, work–home balance was also brought up as an issue that troubled the interviewed physicians. A “contract of conscience with the patient” was mentioned as something that drove physicians to spend considerable extra time at the hospital, with negative consequence on their presence at home. Swedish medical students and young physicians considered balancing work, family and leisure time more important than salary level or career [54]. This was similarly expressed by younger Norwegian physicians, who spoke about the necessity to see their work as “a job” in contrast to thinking about it as “a lifestyle” [55]. This view is consistent with “downshifting”, a

societal change defined by some researchers as an endorsement of the question, “In the last ten years, have you voluntarily made a long-term change in your lifestyle, other than planned retirement, which has resulted in you earning less money?”. More time with family was the most important reason for downshifting, followed by the desire to gain more control and personal fulfillment [56].

Relationships between Organizational Factors and Quality of Care

Faced with an accelerating struggle against time and many organizational frustrations, the interviewed physicians described stretching themselves to deliver quality care. The experience of having less time and more work resonates across many health care studies. Morrison and Smith described physician experiences with running faster but not getting anywhere and coined the term “hamster wheel health care” [57].

While there was an awareness among the study participants of increased workplace stress, stretching oneself was considered the only way to handle organizational shortcomings. It is notable that some physicians questioned whether this long-held tradition might actually have negative consequences for the quality of patient care. The organizational psychologist Edgar Schein used the term “basic assumptions” for those aspects of work that define what to pay attention to and what actions to take in various situations [58]. Another term, “taken-for-granted assumptions”, is used to emphasize how these are seldom reflected upon, since they are so deeply integrated in the professional identity. Schein concludes that, “These choices are only partially attributable to ‘personality’ or ‘temperament’; rather, they depend on our situational understandings that have been taught to us by our socialization experiences” [58].

It is interesting that these basic assumptions among the interviewed physicians became more open to scrutiny via the research interviews. It may be a tribute to the depth of the interview conversations but may also indicate that physicians have stretched themselves to a limit that is becoming unbearable. Previous research informs us that physicians seeking counseling for work-related burnout report the use of emotional coping strategies like self-blame and wishful thinking [59] as motivations in an endless stretching of oneself, to handle a situation [60]. The use of more comprehensive coping strategies will expose the need for work environment changes [60]. While individual stress management training has been the preferred coping strategy for physicians, research has shown that this needs to be seen as a responsibility shared by health care systems and individual physicians [23]. Individual resilience training is still valuable but needs to be complemented by an organization that facilitates engagement and well-being.

Leadership skills among physicians´ immediate supervisors and supportive considerate organizational structures are key dimensions to facilitate physicians' well-being [4 22] and engagement [61]. Arguments have been made for a linear relationship between the extent to which leaders are empathic, engaged, and involved with their employees, and the levels of burnout and satisfaction [17]. The physicians interviewed for this study described individual initiatives to improve clinical practice but experienced a lack of organizational structure that promoted individual initiatives to benefit all physicians at the department.

Physicians' Strategies to Handle the Dynamic Interactions Relating to Fulfillment/Satisfaction, Organization and Quality of Care

When the interviewed physicians reflected on the relationships relating to fulfillment/satisfaction, organization and quality, they brought up the dynamic aspect and

pointed to how reciprocity and mutuality seemed to exist among the different dimensions. The interdependence they described is a typical pattern in complex phenomena [53 62]. The study participants expressed frustrations regarding less functional organizational factors that hinder them, or at least did not facilitate their carrying out the work of providing good care. The prevailing strategy to handle these frequently recurring situations was that each physician invented their own workarounds to accomplish their clinical work. There was little expression of aspiration, or actual activity, toward physicians working to find more permanent solutions to organizational challenges.

This behavior of limited physician engagement in organizational development work has been described previously [61 63 64] and primarily relates to physicians having been trained as biomedical experts, based on the biomedical science of certainty. Berwick and Nolan argue that development work and improving clinical processes requires different skills than those considered traditional for a clinical physician [65]. Improvement work is based on the science of uncertainty where paradox and surprising outcomes are to be expected. It involves balancing relations and the different interests of multiple employee groups.

Thus, while physicians' engagement in development work has been reported to be a challenge, interviewees expressed frustration with not being involved by management, especially on issues where clinical experience would have been valuable for good decision-making. This is consistent with research showing that physicians with the same specialty and seniority and working in the same department had different ways of finding fulfillment at work. Some "we-centered" physicians considered that improving clinical processes contributed to a sense of professional fulfillment. Other, "I-centered", physicians only found engagement and professional joy from working with patients [66]. Thus, while different ways

of understanding one´s professional identity as a physician contribute to different work focus, another study found that a common denominator for engagement among physicians is related to whether a specific task contributed to an individually-defined experience of making progress/learning and being useful/contributing [14].

Some of the interviewed physicians reported developing their own practical solutions in order to speed up processes or to secure quality care, yet beyond promoting their individual approach at collegial lunch conversations or other informal settings, it was difficult to move from individual innovation to group benefits. Our study participants did not experience an open and supportive management culture; instead, there were accounts of a hierarchical top-down management structure. A longitudinal intervention study showed that focusing on five domains could change hierarchical hospital cultures: (1) Learning environment (i.e., a climate that promotes and rewards enquiry and experimentation); (2) Psychological safety (i.e., a shared belief that it is safe to take risks interpersonally and to speak up without punishment); (3) Senior management support (i.e., fostering a shared purpose and vision for change and empowering line leaders to enact that vision); (4) Commitment to the organization (i.e., employees' desire to stay, based on their identification with and attachment to the organization); and (5) Time allocated for improvement efforts (i.e., for planning, reflection and feedback) [67 68].

Recognition and continuity, along with task and role clarity, are organizational conditions that have been found to facilitate physicians' engagement with regard to improving clinical services and processes [69]. With a structure for work improvements in place, where time is scheduled and work tasks are defined, management can send signals that improvement is both prioritized and included within the local physician role.

Engaging physicians in development work challenges the core of many leadership practices [64]. However, taking physicians' engagement seriously also contributes important results. One study assessing a participatory change process in which physicians analyzed work-related problems created local solutions which were then implemented; as a result, physicians' working conditions and patients' perceived quality of care both showed positive changes [21]. Another study showed that physicians who were actively involved in the process of changing the local ward round experienced better-informed clinical decisions, had fewer follow-up questions from their patients and increased their own professional fulfillment [70].

The importance of managers and physicians working together to increase value to patients and citizens has always been a focus within health care. Recent research has emphasized that a deliberate, collaborative process at the local workplace is key to reducing physician burnout and promoting engagement [22 71]. The active involvement of physicians in driving meaningful change at the local workplace is central to physician professional fulfillment/satisfaction. Thus, there is unrealized potential in focusing on physician well-being and evolving the increasingly complex health system toward better patient care.

Conclusions

This exploration of physicians´ understanding of the interactions related to professional fulfillment/satisfaction, organizational factors and quality of patient care revealed that in order to maintain quality care, individual physicians stretch themselves to overcome organizational shortcomings. Such stretching is no longer a feasible strategy without compromising both professional fulfillment/satisfaction and quality of patient care.

The experiences among physicians who report that they are being stretched well beyond their comfort zones, in combination with frustration and/or resignation over few

possibilities to actively alter dysfunctional organizational factors, create unhealthy workplaces.

To secure both quality care and professional fulfillment/satisfaction for physicians, organizational factors must be put in place that facilitate physicians' engagement in improving the ease of working at the local workplace. To benefit from physicians engagement in handling complex clinical challenges, physicians should participate in defining which problems to prioritize in collaboration with management and other health professionals. While sounding surprisingly self-evident, it could be prudent to recall that this type of engagement in improvement work has neither been part of the traditional medical curricula nor of the professional identity as physicians.

The interactive research model presented herein provides a structured way for researchers to support this way of working. In this process, we elicited individual physicians' voices about their local workplace, analyzed them and combined individual voices into a coherent workplace voice. Presenting this aggregated expression of their situation to the group of physicians in the concerned department created a starting point for local improvement processes. As such, physicians were involved in the work of local improvement: suggesting, trying and evaluating improvements to clinical processes, co-created with local management.

We thus suggest that the traditional strategy by physicians of individually stretching themselves and focusing on the individual patient is no longer a viable single solution. This needs to be complemented by management strategies that facilitate individual physicians' engagement in the continuous work of improving clinical processes. Health care

management has a central role and is responsible for ensuring time and planned forums for physicians to further engage in contributing to meaningful changes.

Practice Implications

Collaborative studies show positive effects from collecting individual physicians´ experiences, analyzing the resulting interview material for commonalities and feeding it back in a consolidated and actionable form. This external and structured view helps physicians and managers identify important areas for local organizational change and facilitates the active involvement of physicians in the change process. The interactive research model used herein is consistent with this approach.

Contributorship

The lead author, hereby ensures that all four authors meet the conditions outlined in the ICMJE recommendations.

- Substantial contributions to the conception or design of the work, or the acquisition, analysis or interpretation of data.
- Drafting the work or revising it critically for important intellectual content.
- Final approval of the version published.
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. There is no one who fulfills the criteria that has been excluded as an author.

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Conflicts of Interest

No competing interests exist for any of the researchers involved in this article.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Data sharing Statement

Interview transcript are the empirical source. These are only for the assigned research group in order to honor the commitment with interviewed physicians.

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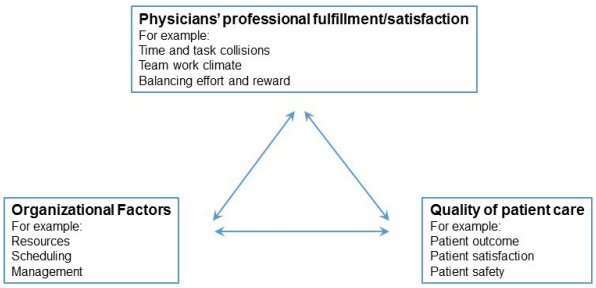

Figure 1. Conceptual model used in the interview situation

338x190mm (96 x 96 DPI)

Interview guide:

- Describe your role as physician here at the hospital
  - Position, seniority (consultant, resident, intern), specialty/sub-specialty, researcher
- Describe a day when you go home happy/satisfied/content with your workday
  - Describe another day when you go home and are not happy/satisfied/content
    - What are your thoughts about what it is that makes the difference?
- What are your experiences from the interactions between physician's professional fulfillment/satisfaction, organizational factors and quality of patient care?
  - Are there any challenges where you work today in relation to these interactions?
    - Examples from own individual experiences preferred
    - From you own experiences and reflections – what are perspectives that would benefit from being improved?
      - How does this relate to your own professional fulfillment/satisfaction?
      - How does this relate to quality of patient care?
      - Is it measured per today? How would you go about to measure this?
- Which of the targets and measurements that your department follow are you aware of?
  - Are any of these really important for you/ that you actively track and follow?
  - Are there other measurements you would appreciate to follow?
- Do you experience that the organization is supportive and facilitates for you to come up with suggestions for improvements?
  - When was the last time you had an idea/suggestion for improvement? (concrete example)
    - How did you go about to get support and initiate change based upon your idea/suggestion?
    - Has your idea/suggestion become reality?
  - From your own experience, what can be done, if anything, to further facilitate for new ideas to improve clinical practice?
- If you were the Head of the Department or Hospital Director are there things you would really want to pay additional attention to?
- Are there other questions you would have wanted us to ask, in relation to this research area?

Much appreciate your time and effort in participating!

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Standards for reporting Qualitative Research (SRQR *)

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S16	Synthesis and interpretation	6,7,8,9,10
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	Discussion	
S18	Integration with prior work, implications, transferability, and contribution(s) to the field	11, 12, 13, 14, 15, 16
S19	Limitations	10
	Other	
S20	Conflicts of interest	17
S21	Funding	17

* **Standards for Reporting Qualitative Research: A Synthesis of Recommendations.**
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How do hospital doctors experience the interactions between professional fulfillment, organization and quality of care? A qualitative study in an emergency hospital in Norway

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How do hospital doctors experience the interactions between professional fulfillment, organization and quality of care? A qualitative study in an emergency hospital in Norway

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Abstract

Objectives: Doctors increasingly experience high levels of burnout and loss of engagement. To address this there is a need to better understand how doctors' professional fulfillment is related to organizational factors and quality of patient care. This study explores how doctors experience the interaction among professional fulfillment, organizational factors and quality of patient care.

Design: An explorative and qualitative design with semi-structured individual interviews. Interviews were transcribed verbatim and analyzed by a transdisciplinary research group.

Setting: Mid-sized emergency hospital in Norway

Participants: A purposeful sampling was used. Gender and seniority were used as selection criteria. Seven doctors were interviewed. Three senior doctors (two female, one male) and four in training (three male, one female).

Results: We found that in order to provide quality care to the patients, individual doctors describe stretching themselves to overcome organizational shortcomings. Experiencing a workplace emphasis on production numbers and budget concerns led to feelings of estrangement among doctors. Doctors reported a shift from serving as trustworthy, autonomous professionals to becoming production workers, where professional identity was threatened. They felt less aligned with work-place values, in addition to experiencing limited management recognition for good-quality patient work. Management initiatives to include doctors in local development work was sparse. .

Conclusion: Doctors in clinical practice have first-hand information as to what and how things should be done in order to improve the quality of care. Collaboration between management and doctors should have high priority. In order to improve both quality of care and professional fulfillment doctors should be included in all local initiatives to further develop clinical care.

Strength and limitations of this study

This study has a potential limitation in that the empirical material was based on interviews with seven doctors, however, given our priority to capture in-depth, nuanced aspects, individual interviews were given priority over the higher number resulting from group interviews.

It is a strength having an interdisciplinary research group conduct the analytical work.

Another strength is that the qualitative research process facilitated close attention to the individual doctor experience, while simultaneously analytically striving to find an empirically grounded collective doctors' voice.

This study focused one clinical setting and transferability to other settings might be challenging. However based on previous research showing communality among doctors across different contexts in the western world we humbly suggest other settings could benefit from the findings in this study.

Introduction

High-quality health care depends not only on high-tech equipment, sufficient resources and reliable evidence, but also on health professionals who are engaged and find meaning with their work. Researchers have recently argued for expanding the traditional health care improvement goals. In addition to enhancing patient treatment, securing the population's health and reducing the per capita cost of health care [1], they argue for promoting professional fulfillment[2-4]. Bodenheimer and Sinsky expressed this succinctly as, "care of the patient requires care of the provider" [5].

In order to improve quality of care, while containing costs, and promoting professional fulfillment we seem to need additional knowledge. A review from 2013 found that 70% of interventions aiming to improve quality and reduce health care costs did not succeed in doing both[6]. Common strategies were hospital or department mergers and downsizing, without attaining increased quality[7] and leading to negative effects for work environment and increased stress, burnout and feelings of alienation among employees [8-10].

Several studies have explored links between professional fulfilment and different measures of quality of care (both as perceived by doctors themselves or more objectively measured in relation to treatment outcomes or patient complaints) [11-15]. Other studies have explored the relationships between different organizational factors and how they influence professional behavior, motivation, engagement and satisfaction[16-22]. Only a few studies have reported links between all three dimensions - organizational change, quality of care and professional fulfillment [23-25]. Although these studies indicate the importance of doctors´ active involvement in change processes research informs us that such engagement is limited[26-29]. We need to understand more about these relationships. This was echoed by a group of 32

experts in the study of burnout among health professionals who suggested that, to better care for providers, a better understanding of the links among professional fulfillment, quality of care and organizational factors is needed [30]. There seems to be a call for research to provide more practice-informed and actionable knowledge to facilitate research-based interventions in developing the local workplace[31].

In Norway, as in other countries, recent decades have seen a stronger emphasis on budget control and value for money. A number of reforms are implemented, all with the intention to improve quality, reduce waste, and lead to better priorities. The many reforms and increased focus on budget constraints seem to have led to some skepticism among doctors[32]. Norwegian doctors have expressed their worries about maintaining the quality of care through the many reforms and changes[33]

The Norwegian health care system is a single payer, universal coverage system, funded by the State. Hospital care is organized as regional trusts with independent boards. Yearly contracts are made with the Ministry of Health. Primary care is organized as private businesses and GPs are gatekeepers to specialist care.

Although doctors in Norway[34] (as in other Western countries[35]) have high scores on work satisfaction, there is a clear difference between specialties. Community doctors and general practitioners scored highest and doctors in surgical disciplines lowest[34] . Qualitative interviews of hospital doctors have found that surgeons, as one of three specialties, experience conflicts between adhering to their views of what a good doctor is/does and the consequences this has for the interaction with healthcare leaders, their colleagues and for the balance between work and home[36]. In 2008 more than 30% of senior and 18% of junior hospital doctors reported working under "unacceptably" high rates of stress fairly often or

often and over 75% of hospital doctors reported fairly or very high stress related to frequent reorganizations [37].

Thus, exploring how Norwegian doctors understand the relationships among organizational factors, professional fulfillment and quality of care will inform and support commensurate interventions toward improving doctors' well-being and thus the quality of patient care[38].

Aim

The study aims to explore how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care.

Methods

Design

An explorative and qualitative design was chosen in this study. Such a design is appropriate when there is limited knowledge about the focus for the study[39]. The study was conducted as the first part of a multi-year interactive research project working in close collaboration with clinicians at two hospitals in Norway and one in the USA. Interactive research promotes learning among both the practitioners and the researchers and strives to have local clinicians over time take responsibility for engaging in developing their own workplace [40]. Interactive research includes repeated interaction between researchers and participants. The larger research project is interviewing doctors from multiple sites and countries, however this article focus the first set of doctor interviews in this iterative process[41].

Setting

A mid-sized emergency hospital in Norway providing medical, surgical and psychiatric care with approximately 1,400 employees who serve a population of about 135,000. It is also a

teaching hospital for doctors and nurses. The hospital has during the last years rearranged the executive leaders and engaged in a hospital wide leadership development program to create alignment with how new societal requirements are integrated and to facilitate improvements to managerial processes and processes impacting quality of patient care.

Following a presentation about the study to the hospital management, the researchers received approval to approach department managers. The study's aim and interactive study concept were presented to the group of doctors and head of the department. Following an internal discussion, one clinical department agreed to participate. Both doctors and the leader of the surgical department expressed appreciation of the cooperative aspects of the study and the explicit intent to listen to doctors' voices about their local situation.

Participants

For the most effective use of limited resources we used a purposeful sampling, which is a widely used technique for identification and selection of information rich cases[39]. Gender and seniority was used as selection criteria's to provide maximum variation[42] in order to get a rich empirical material. The number of doctors was related to a request from the department to minimize time conflict with clinical work without compromising the quality of the study. Based on experience from the research field and from interviewing doctors in other hospital settings we agreed on a minimum number of seven doctors. This is about a third of all doctors at the department. Three interviewees were senior doctors (two female, one male) and four were in training (three male, one female); the department head was a senior, male doctor.

Data Collection

Interviewing is a way to gather rich information, in an effort to see the world as it is seen by the interviewees and to strive to develop meaning from their personal experiences [42]. A semi-structured interview guide with open-ended-questions was constructed to facilitate consistency between interviews [39]. Simultaneously, open-ended questions allowed the interviewer to delve further into topics that arose during the interview process. All interviews were done in the local language. (A translated interview guide is available in Appendix 1.)

In order to guide and focus the interviews a conceptual framework was developed based upon relevant literature [43]. Each doctor also received a written and oral summary of the study before the interview started and before signing the written consent.

[Figure 1 here]

Figure 1. Conceptual framework used in the interview situation

Individual doctor interviews were conducted in November and December 2016. Interviews took place in a conference facility in the hospital area and were digitally recorded. Each interview was scheduled to last 60 minutes. The researchers allowed participants to use more time in order to provide maximum information richness from the limited numbers of interviews. This resulted in an average interview time of 74 minutes.

In order to provide maximum information power from a small number of participants[44] we were two experienced researchers with complementary experience participating in every interview, but one. During the interview one researcher was leading while the other listened and took extensive notes, occasionally interacting to further probe interesting aspects relating to the study aim. Both researchers (PhD) had solid experience with physician

interviews and knew the research field well. One interviewer has a background as an occupational physician and many years of experience counseling doctors both individually and in groups. The other interviewer has a professional background as department head at a university hospital, educational background from industrial engineering and management and consultant level training in group relations theory.

Analysis

To provide for a multifaceted interpretation of the empirical material, the analytical process involved a team of four researchers with complimentary experiences. In addition to those two who conducted the interviews, a senior researcher (PhD) with experience in epidemiology and with professional background in surgical nursing took part, as well as a senior health care researcher with a PhD in sociology.

The analytical process started with a tentative analysis to capture the main content from the interviews. The two interviewers went through their notes and impressions from the actual interviews and started to create an overarching understanding. The PhD with a nursing background listened to all audio recordings and made notes with the targeted task to ask the material two key questions: What is the most pressing problem? What do they do to handle/solve this problem? The PhD in Sociology listened to most of the interviews and made notes about her first impression. The research group then met and compared initial notes. This first step provided an overall perspective that was presented back to the department to allow them to react to it. The material provided good resonance with the interviewees, the other doctors present in the meeting and the head of the department.

The more developed analytical process was guided by Miles and Huberman [45] and was done without specific analytical software. All interviews were transcribed verbatim in the local language. Based on the study aim, the interviews were read individually to capture words and sentences, meaning units, which showed similarities in terms of content. These meaning units were condensed and labeled with a descriptive code close to the textual meaning. Sometimes these codes were in English and sometimes they were in the local language. The research group met and each person presented their descriptive coding. Mostly there was congruence. When congruence was not experienced between the notes, face to face conversations were carried out to challenge each other's perspective. Sometimes these conversations went back to the original text to find a common ground and interpretation, before moving on. The researchers then worked to group the descriptive codes, and related meaning units, based on the ones having similar content. Each grouping received a tentative descriptive header. Once this was in place two alternative routes of further sorting and abstraction were followed in a comprehensive analysis of the content. One was to use the conceptual framework from the interview (Fig 1) and organize the different grouping in relation to if it concerned professional fulfillment, organizational factors or quality of patient care. This process created, at first, an experience of structure and cleanliness, but over time provided a blurred result, with a residual of empirical material that fitted in any or all of the three aspects. The other analytical route was to look for groups that could be combined with only slightly broadening or altering the content, as symbolized by an adjustment of the descriptive header. This iterative process eventually contributed to form five empirical themes that integrated all interview material into a comprehensive understanding. Quotations are used in the result to allow individual doctor voices to illustrate a central content. Doctors are given a random number for identification.

The interdisciplinary group of authors worked both individually and in group to enrich the empirical interpretations and reduce the risk of any author overpowering the empirical material of doctors' voices. During the analytical process we paid extra attention if we found data that did not fit with the other data, indicating there was some empirical nuances we were missing with our small sample of seven doctors. This did not happen. Regardless of gender or seniority there was a high degree of commonality between the different doctor voices relating to the aim. During the analysis it became clear that the seven information rich cases enabled a comprehensive understanding. It confirms, what Malterud[44] suggests, that a limited number of information rich interviews can contribute with new meaningful knowledge. During the analytical process alternative interpretations were continuously sought through critical reflections and ongoing conversations during face-to-face meetings. This process continued iteratively until alternative understandings and considerations were reconciled into a coherent result. Patton suggests that this type of research group triangulation is a way to reach comprehensive, robust and well-developed findings from a rich empirical material [39].

Ethics

This study followed the World Medical Association's Declaration of Helsinki [46]. The risk of harm to the interviewed doctors was very low, and thus the project did not meet the criteria justifying a formal application to the ethics board, consistent with Norwegian law [47].

Patient and Public Involvement

No patients were involved in this study

Results

Analyzing the interviewed doctors' experiences about the interactions between professional fulfillment, organizational factors and quality of care, resulted in an empirically grounded understanding with the following themes. (Quotes from doctors are used to provide the original voice. Each doctor is assigned a random letter for anonymity.)

Quality of care crowded out by production numbers and economic data

Many doctors talked about how conversations at department meetings had changed. Previously, they were more about quality of clinical care, while now they mostly focused on the need to meet production targets and finding ways to handle budgetary constraints. Interviewed doctors expressed how quality was starting to be experienced as an empty phrase, crowded out by production numbers and economic concerns.

> *Quality is more and more becoming an empty term in relation to what the hospital values are. What we hear about is mostly money issues and production numbers. (Doctor A)*

Changes in these workplace conversations, combined with an experience of limited recognition for good professional work, made some doctors express that they did not really "recognize the workplace". Some of them also expressed concerns about who they were becoming, in their role as doctors. One doctor experienced a change from being a trustworthy and autonomous professional, to becoming more of a production worker.

> *I don't feel that I come to work as a capable and autonomous resource anymore. I feel I come to work only to produce a certain number of procedures. (Doctor B)*

While the interviewed doctors all appreciated swift and smooth operations, a new operating concept, with the explicit aim to increase output, troubled some. They expressed concerns about potential risks of patient complications since the allotted time was too limited to find anatomical landmarks and stop minor bleeding before proceeding to the next surgical step. With a dominating focus on quantity, there was an emergent worry whether individual quality standards were compromised.

> *Maybe the key dilemma is that you are pushed for quantity all the time. It leads you to start to feel, right after you go home from your on-call work, that you did not finish your task or finalize things the way you wanted to. You get pushed to increase quantity and it is impacting your own reference of good-quality work. (Doctor C)*

While doctors expressed unease about conversations focusing more on cost and production than quality, there was also an awareness of the necessity of high productivity and cost control.

> *I am one of those doctors who consider that health care has an obligation to make sure we manage our resources and household with our tax-based money. (Doctor D)*

Stretching oneself to deliver quality of care despite organizational shortcomings

The participants emphasized the importance of delivering good quality care, even if it meant stretching themselves to overcome hindering organizational factors. This way of ensuring quality care was considered common practice. However, several doctors had begun to

wonder whether the individual work-arounds to handle organizational shortcomings could have negative consequences for the quality of patient care.

> *One starts to wonder if this constant stretching of oneself can have negative consequences. Like more patients expressing worries after their operations. (Doctor E)*

One of the more common organizational frustrations concerned unforeseen variations in the daily operating schedule. This could result in long work hours for the doctors and negatively impact family life. Another struggle with work–home balance concerned a so-called "contract of conscience". This was not a formal contract, but rather related to their professional identity as doctors. The "contract" was driving them to further stretch themselves and spend considerable time at work, on top of normal duties.

> *I have to be there until the operation is finished. I am really concerned whether I will be in time for kindergarten. It generates a lot of frustration, but I have an implicit contract with the patient and also to the hospital to make sure the operation is carried through. (Doctor E)*

The accelerating struggle against time impacting well-being and quality of care

The struggle against time was a main concern in the interviews and the participants experienced that it influenced their overall well-being.

> *Suddenly you have one of these time and task collisions and it increases work strain and stress, impacting physical and mental health. You know, when you are expected to be in three places at once, it sort of triggers your stress level. (Doctor C)*

The participants felt uncomfortable with an increasing number of time and task collisions and expressed concerns that this constant battle against time could jeopardize the quality of care.

> *There is a constant battle against time. We need time to make solid evaluations before and after operations. We are pushing the limits towards feeling uncomfortable. Definitely relating to quality of care. (Doctor A)*

There were also experiences of stress in the operating room, a work place sanctuary where surgeons previously experienced that time was allowed to "stand still".

> *Over the last years, operating programs have expanded. It is not seldom that we push really hard to get through the program. As we realize we are not making it, you feel how stress is building up also in the operating room. (Doctor A)*

Quality of care as the basis for professional fulfillment

The participants expressed that quality of care was foundational for their experience of professional fulfillment. Some of the doctors emphasized how the two were mutually reinforcing.

> *Vital for job satisfaction is that we have an experience that things go well with our patients. (Doctor A)*

The importance of continuity between the individual patient and the individual physician was also brought up as a central aspect of providing good care.

What gives me satisfaction is when I greet my patients, operate on them and follow up afterwards, so the patient is satisfied. That is all I wish for. (Doctor B)

Satisfied patients gave doctors a sense of accomplishment. A consequence was that patient error negatively impacted the individual doctor.

A downside of being a surgeon is complications, it sort of comes with the job. I had a severe surgical complication last week and this is darkening everything, it impacted me fundamentally for many days. (Doctor G)

Management not recognizing quality of care challenges and provide limited support for doctor initiatives

The interviewed doctors experienced how the managerial focus on increasing volumes conveyed an implicit assumption that more output, of the same quality, could be created by simply increasing the speed. This way of communicating about how to increase surgical volumes created a strong dissonance with the everyday challenges experienced in the clinic.

Everyone expects that treatments are first class. We only measure waiting times and epicrisis times and similar unimportant things. Everybody expects treatments to be the same and quality to be the same, no matter what. That is not true! (Doctor F)

A number of different individual initiatives to improve quality and facilitate every day work had been initiated. One doctor described saving time and increasing quality and safety by making standard patient record templates for different operational procedures. Another

doctor worked to schedule ward rounds to make them visible, instead of being something that the doctors were supposed to “squeeze in” between other scheduled tasks.

> *We are measured on the number of operations we perform and on the number of patients we see in the outpatient clinic. But we are not measured on the time we spend on ward rounds. Talking with the doctor is a major part of what patients appreciate when measuring patient satisfaction. Now, ward rounds are scheduled. (Doctor G)*

The participants expressed a sense of disappointment, and surprise, that the organization neither seemed to appreciate the individual initiatives, nor provide a structure to go from the individual benefit towards benefitting the group of doctors. While many of the doctors had limited or no suggestions about what management ought to do differently, some suggested that the traditional hierarchical way of managing needs to be modernized.

> *I think this is about hospital management still struggling to find a more modern form. I find that teamwork is something that private enterprises have focused on for a long time. But the old way of leading is still what goes on in hospitals. With traditional hierarchies and top-down decisions. (Doctor A)*

Several doctors experienced that management did not do enough to facilitate for doctors to participate in clinical development work. There were also some who clearly articulated the need for a major overhaul of the existing hospital culture, towards a situation where involvement from different employee groups was considered the norm.

If you are working with changes in such a fine-tuned and complex environment as a hospital, one must involve those impacted by a change. You put small groups of surgeons and op-nurses together. Provide them some time to work on specific issues. Listen attentively to what they say about key pressure points and act accordingly. Not simply pushing decisions down at people! (Doctor A)

Discussion

Quality of care is a key outcome for any healthcare enterprise. One might consider that statement as self-evident. In particular when working as a doctor in a hospital that is part of the societal infrastructure in Norway, a well-functioning and affluent Nordic country.

Nevertheless, our interviewed doctors conveyed that the essence of being a professionally fulfilled doctor, creating high quality care for patients, no longer receives sufficient recognition. Instead their experience is that leaders at different levels have their focus on handling more patients, referred to as "increasing production volumes", in order to address a situation with never ending budget constraints. In short, the doctors claim that conversations about quality of care, addressing the essence of what is considered meaningful to doctors, have been replaced with conversations about production volumes and budget numbers.

Before engaging further in discussing our results it might be prudent to remind ourselves that the amount of money available to spend on healthcare is limited. This restriction might

be even clearer in a tax-financed healthcare systems, like the Norwegian. There is thus a built in tension that requires a balancing of clinical needs with budgetary means.

Our interviewed doctors expressed how conversations about **quality of care were crowded out by conversations that focused production numbers and economic data**. This emphasis on production volumes and budget numbers led to an experience of estrangement. This finding confirms previous observations from other researchers grappling with decreasing job satisfaction and increasing rates of physician burnout. Some research suggest that changes in what society, patients and employers are expecting from a doctor is starting to create a job situation that is no longer what doctors expected[48], and suggests that clinical leaders have a crucial role in helping to establish a revised psychological agreement what it means to be a doctor. That is a major change process impacting the professional identity of being and becoming a doctor [10 49 50]. Gunderman asks if Doctors have Joined the Working Class, and frames the challenge as “the frequency with which physicians smile and express fulfillment and pride in their work”, [51]. Epstein and Privitera suggest in their text about doing something about burnout ; “Doctors, disillusioned by the productivity orientation of administrators and absence of affirmation for the values and relationships that sustain their sense of purpose, need enlightened leaders who recognize that medicine is a human endeavor and not an assembly line” [52].

The strive towards meaning has been expressed as an innate human quest[53]. Meaning at work has often been found in moments when work mattered more to others than to themselves, and when individuals experienced that work was bridging the gap between the personal realm and the work domain[54]. The dominating reasons for experiencing meaninglessness at work was "the tension between an organizational focus on the bottom

line and the individual's focus on the quality of professionalism of work" and managerial lack of recognition for hard work [54]. Thus, paradoxically, the interviewed doctors seem to experience organizational factors that are evidence-based to increase a sense of meaninglessness.

Faced with an accelerating struggle against time, the interviewed doctors described **stretching themselves to deliver quality care despite organizational shortcomings**. Morrison and Smith described physician experiences with running faster but not getting anywhere and coined the term "hamster wheel health care" [55]. The experience of having less time and more work resonates across many physician well-being and burnout studies [25 56-58]. However, what the participants in our study make evident is how a tradition among doctors to find individual workarounds in order to handle organizational issues, is no longer experienced as sustainable. Our participants inform us how they have started to consider how care quality, and their own wellbeing, could suffer from this way of working. The interviewed doctors indicate that their "plasticity" is over-stretched, and there is an implicit fear of things starting to fall apart. It is notable how some of the interviewed doctors questioned whether the tradition of "doing heroic individual deeds" to handle the situation at hand, could over time contribute to negative consequences on the quality of patient care.

While limited time with patients was the primal concern, work–home balance was also brought up as an issue that troubled many of the interviewed doctors. Swedish medical students and young doctors considered the balance between work, family and leisure time to be more important than salary level or career [59]. This was similar to younger Norwegian doctors, who spoke about the necessity to see their work as "a job" in contrast to thinking about it as "a lifestyle" [60]. This view resonates with "downshifting", a societal change

defined by some researchers as an endorsement of the question, “In the last ten years, have you voluntarily made a long-term change in your lifestyle, other than planned retirement, which has resulted in you earning less money?” More time with family was the most important reason for downshifting, followed by the desire to gain more control and personal fulfillment [61].

That ***quality of care is foundational for professional fulfillment*** has been found in many previous studies [57 62 63] and can be understood in light of the long-standing development of the physician’s identity from Hippocrates to more modern medicine (e.g., Osler [64]) consistently focusing on patient well-being. While the professional identity of doctors has long hinged on delivering good patient care quality, more recently, the lack of physician well-being has been recognized as a potential threat to quality care[3]. Research has indicated that doctors who are experiencing high stress and strain, can negatively impact the quality and safety of patient care [12 14 15]. Some research even suggests that physician well-being might be a usable overall indicator of overall health care quality [58]. In the 2017 revision of the Declaration of Geneva, as adopted by the World Medical Association, this new research is reflected in the following addition: “I will attend to my own health, well-being and abilities in order to provide care of the highest standard” [65].

Our study participants experienced a hierarchical management culture and management did ***not recognize quality of care challenges and provided limited support for doctor initiatives.***

The respondents expressed frustrations with the limited possibility to participate in the local development work. At the same time there were few accounts of aspiration, or actual activity, with doctors actively working to find more permanent solutions to organizational shortcomings. Berwick and Nolan argue that development work and improving clinical

processes requires different skills than those considered traditional for a clinical physician trained in the bio-medical sciences [27]. Although some interviewees in our study expressed frustration with not being involved by management on issues where clinical experience would have been valuable for good decision-making, doctors' engagement in development work has been reported to be a challenge [66-68]. Previous research about physician engagement found that physicians were found to be interested in developing processes and practices in an abstract, general sense[17]. Whether a physician actively engaged was found to depend on if previous similar activities had contributed or not towards the experience of individual professional fulfilment [18 26 29 66]. Research has emphasized that a deliberate, collaborative process at the local workplace is key to reducing physician burnout and promoting engagement [25 67]. One study worked with a participatory change process in which doctors analyzed work-related problems, created local solutions, which were then implemented. Doctors' working conditions and patients' perceived quality of care both showed positive changes[24]. Another study showed that doctors who were actively involved in the process of changing the local ward round experienced better-informed clinical decisions, had fewer follow-up questions from their patients and increased their own professional fulfillment[68].

Taking doctors' engagement seriously contributes with important results. There is an increasing body of knowledge about how local culture is recreated, or changed, in every and all of the conversations that are going on between the different people working together [69 70].

Strengths and Weaknesses of this study

This paper presents the results of the first phase of a three-year interactive research project[40]. This first phase included a feedback session during which the researchers presented their initial findings from analyzing the interviews back to the group of doctors. Both those who participated in interviews and those doctors who had not been interviewed, confirmed the researchers understanding of the local work situation. This is a study strength that substantiates the findings. It confirms, in line with Malterud [44], that a limited number of information rich interviews can contribute with new meaningful knowledge.

Having an interdisciplinary research group with complimentary educational, research and work related experiences analyzing the interviews contributed to a multifaceted and nuanced understanding of the empirical information.

In this study we examine doctors' perceptions about their work situation, without observing their actual behaviour. A potential weakness concerns if the interviewed doctors described their actual reality. Previous research has found that what people present in interviews reflect their perceptions, and these perceptions also inform their actions[42 71]. By asking for clinical examples we also strove to ensure close proximity to the local situation.

While this study focused on a single surgical setting, we suggest that other health care settings can learn from this study. We base this notion of transferability on Larsson, who argued all usage of a piece of research a dynamic act, which is completed if, and only if, someone else can make better sense of their situation with the help of descriptions from research[72]. We further base this on research showing communality among doctors across different contexts[73], by some researchers called one occupational community of practice [74].

Conclusions

Exploring how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care, we found that in order to provide quality care to the patients, individual doctors describe stretching themselves to overcome organizational shortcomings. However, to secure both quality of care and professional fulfillment for doctors, this strategy is no longer a viable single solution. It needs to be complemented by management strategies that facilitate individual doctors' engagement in the continuous work of improving clinical processes.

Doctors in clinical practice have first-hand information as to what and how things should be done in order to improve the quality of care. A major motivation for the doctors was to provide high quality care to their patients, thus, engagement in initiatives to improve clinical care can lead to more fulfilled doctors as well as better care. Collaboration between management and doctors should have high priority and doctors should be included in all local initiatives to reorganize and improve clinical care.

Practice Implications

While the conclusions may sound surprisingly self-evident, it could be prudent to recall that this type of engagement in improvement work has neither been part of the traditional medical curricula nor of the professional identity as doctors. Engaging doctors in development work also challenges the core of many leadership practices

However, health care management has a central role and is responsible for ensuring time and planned forums for doctors to further engage in contributing to meaningful change.

Future research

This study has provided knowledge about how doctors in Norway experience the interaction among professional fulfillment, organizational factors and quality of patient care. It points to a need to explore how the managerial side understands the interaction among professional fulfillment, organizational factors and quality of patient care, which is currently being done.

Interactive studies show positive effects from collecting doctors´ experiences, analyzing the resulting interview material for commonalities and feeding it back in a consolidated and actionable form. This external and structured view helps doctors and managers identify important areas for local organizational change and facilitates the active involvement of doctors in the change process. There is a need for additional knowledge about interactive research.

Contributorship

All four authors (FB, JR, BB, KIR) meet the conditions outlined in the ICMJE recommendations and have all contributed in all dimensions.

- Substantial contributions to the conception or design of the work, or the acquisition, analysis or interpretation of data.
- Drafting the work or revising it critically for important intellectual content.
- Final approval of the version published.

Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. There is no one who fulfills the criteria that has been excluded as an author.

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Conflicts of Interest

No competing interests exist for any of the researchers involved in this article.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Data sharing Statement

Interview transcript are the empirical source. These are only for the assigned research group in order to honor the commitment with interviewed doctors.

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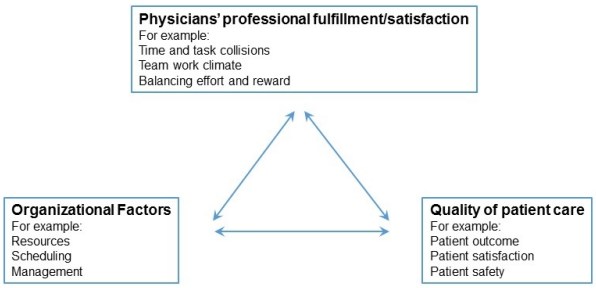

Figure 1. Conceptual model used in the interview situation

338x190mm (96 x 96 DPI)

Interview guide:

- Describe your role as physician here at the hospital
  - Position, seniority (consultant, resident, intern), specialty/sub-specialty, researcher
- Describe a day when you go home happy/satisfied/content with your workday
  - Describe another day when you go home and are not happy/satisfied/content
    - What are your thoughts about what it is that makes the difference?
- What are your experiences from the interactions between physician's professional fulfillment/satisfaction, organizational factors and quality of patient care?
  - Are there any challenges where you work today in relation to these interactions?
    - Examples from own individual experiences preferred
    - From you own experiences and reflections – what are perspectives that would benefit from being improved?
      - How does this relate to your own professional fulfillment/satisfaction?
      - How does this relate to quality of patient care?
      - Is it measured per today? How would you go about to measure this?
- Which of the targets and measurements that your department follow are you aware of?
  - Are any of these really important for you/ that you actively track and follow?
  - Are there other measurements you would appreciate to follow?
- Do you experience that the organization is supportive and facilitates for you to come up with suggestions for improvements?
  - When was the last time you had an idea/suggestion for improvement? (concrete example)
    - How did you go about to get support and initiate change based upon your idea/suggestion?
    - Has your idea/suggestion become reality?
  - From your own experience, what can be done, if anything, to further facilitate for new ideas to improve clinical practice?
- If you were the Head of the Department or Hospital Director are there things you would really want to pay additional attention to?
- Are there other questions you would have wanted us to ask, in relation to this research area?

Much appreciate your time and effort in participating!

LEFO
Institute for Studies of the Medical Profession

Standards for reporting Qualitative Research (SRQR *)

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S16	Synthesis and interpretation	6,7,8,9,10
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	Discussion	
S18	Integration with prior work, implications, transferability, and contribution(s) to the field	11, 12, 13, 14, 15, 16
S19	Limitations	10
	Other	
S20	Conflicts of interest	17
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* **Standards for Reporting Qualitative Research: A Synthesis of Recommendations.**
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How do doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care? A qualitative study in a Norwegian hospital

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How do doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care? A qualitative study in a Norwegian hospital

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Keywords: Physician, professional fulfillment, satisfaction, patient-quality, organization

5997 words

Objectives: Doctors increasingly experience high levels of burnout and loss of engagement. To address this there is a need to better understand doctors work situation. This study explores how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care.

Design: An exploratory qualitative study design with semi-structured individual interviews was chosen. Interviews were transcribed verbatim and analyzed by a transdisciplinary research group.

Setting: The study focused on a surgical department of a mid-sized hospital in Norway

Participants: Seven doctors were interviewed. A purposeful sampling was used with gender and seniority as selection criteria. Three senior doctors (two female, one male) and four in training (three male, one female) were interviewed.

Results: We found that in order to provide quality care to the patients, individual doctors describe "stretching themselves" i.e. handling the tensions between quantity and quality, to overcome organizational shortcomings. Experiencing a workplace emphasis on production numbers and budget concerns led to feelings of estrangement among the doctors. Participants reported a shift from serving as trustworthy, autonomous professionals to becoming production workers, where professional identity was threatened. They felt less aligned with work-place values, in addition to experiencing limited management recognition for quality of patient care. Management initiatives to include doctors in development of organizational policies, processes and systems were sparse.

Conclusion: The interviewed doctors described their struggle to balance the inherent tension among professional fulfillment, organizational factors and quality of patient care in their everyday work. They communicated how "stretching themselves", to overcome organizational shortcomings, is no longer a feasible strategy without compromising both professional fulfillment and quality of patient care. Managers need to ensure that doctors are involved when developing organizational policies, processes and systems. This is likely to be beneficial for both professional fulfillment and quality of patient care.

Strengths and limitations of this study

In this exploratory study, given our priority to capture in-depth, nuanced aspects, individual doctor interviews were given priority over the potentially higher number of participants that could have been included in group interviews. The interdisciplinary research group, conducting the analytical work, further provides a methodological basis to find a rich interpretation towards an empirically grounded doctors' voice.

This study has a potential limitation in that the empirical material was based on interviews with only seven doctors (this represented about 30% of the doctors working at the department). In order to capture input also from doctors not being interviewed a feedback session was included, where the researchers presented tentative findings to the larger group of doctors at the department. Both those who participated in interviews and several doctors who had not been interviewed, confirmed the researchers understanding of the local work situation. This substantiates the findings.

Transferability of this study with a small sample of doctors from a hospital is not claimed; however, being consistent with previous research, our study findings can be useful to healthcare delivery organizations experiencing similar challenges in their specific context.

Introduction

High-quality health care depends not only on high-tech equipment, sufficient resources and reliable evidence, but also on health professionals who are engaged and find meaning with their work. Researchers have recently argued for expanding the traditional health care improvement goals. In addition to enhancing patient treatment, securing the population's health and reducing the per capita cost of health care [1], they argue for promoting professional fulfillment[2-4]. Bodenheimer and Sinsky expressed this succinctly as, "care of the patient requires care of the provider" [5].

In order to improve quality of care, while containing costs, and promoting professional fulfillment we seem to need additional knowledge. A review from 2013 found that 70% of interventions aiming to improve quality and reduce health care costs did not succeed in doing both[6]. Common strategies were hospital or department mergers and downsizing, without attaining increased quality[7] and leading to negative effects for work environment as well as increased stress, burnout and feelings of alienation among employees [8-10].

Several studies have explored links between professional fulfilment and different measures of quality of care (both as perceived by doctors themselves or more objectively measured in relation to treatment outcomes or patient complaints) [11-15]. Other studies have explored the relationships between different organizational factors and how they influence professional behavior, motivation, engagement and satisfaction[16-22]. Only few studies have studied the dynamic interaction among all three dimensions - organizational factors, quality of patient care and professional fulfillment [23-25]. Although these studies indicate the importance of doctors´ active involvement in change processes, research informs us that such engagement is limited[26-29]. We need to understand more about these relationships. To better care for the

providers, a better understanding of the interactions among professional fulfillment, quality of patient care and organizational factors is needed[30]. There seems to be a call for research to provide more practice-informed and actionable knowledge to facilitate local workplace development[30 31].

In Norway, as in other countries, recent decades have seen a stronger emphasis on budget control and value for money. A number of reforms are implemented, all with the intention to improve quality, reduce waste, and lead to better priorities. The many reforms and increased focus on budget constraints seem to have led to some skepticism among doctors[32]. Norwegian doctors have expressed their worries about maintaining the quality of care through the many reforms and changes[33]

The Norwegian health care system is a single payer, universal coverage system, funded by the State. Hospital care is organized as regional trusts with independent boards. Yearly contracts are made with the Ministry of Health. Primary care is organized with independent contractors to the health care system. GPs are gatekeepers to specialist care and patients need to first meet with a GP before having access to specialist care. Patients incur a nominal co-payment when receiving care services and the bulk of the funding comes from the State. Although doctors in Norway[34] (as in other Western countries[35]) have high scores on work satisfaction, there is a clear difference between specialties. Community doctors and general practitioners scored highest and doctors in surgical disciplines lowest[36] . Qualitative interviews of hospital doctors have found that surgeons, as one of three specialties, experience conflicts between adhering to their views of what a good doctor is/does and the consequences this has for the interaction with healthcare leaders, their colleagues and for the balance between work and home[37]. In 2008 more than 30% of senior and 18% of junior

hospital doctors reported working under "unacceptably" high rates of stress fairly often or often and over 75% of hospital doctors reported fairly or very high stress related to frequent reorganizations [38].

Thus, exploring how Norwegian doctors understand the relationships among organizational factors, professional fulfillment and quality of patient care will inform and support commensurate interventions toward improving doctors' well-being and the quality of patient care[39].

Aim

The study aims to explore how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care.

Methods

Design

An exploratory qualitative study design was chosen. Such a design is appropriate when there is limited knowledge[40]. This study was conducted as the first part of a multi-year and multi-site interactive [41 42] research project, interviewing doctors from two hospitals in Norway and one in the USA. This article focuses the first set of doctor interviews from one of the Norwegian hospitals.

Setting

The study was done in a mid-sized emergency hospital in Norway. The hospital provides medical, surgical and psychiatric care with approximately 1,400 employees who serve a population of about 135,000. This is also a teaching hospital for doctors and nurses. The hospital has, during the last years, reorganized the executive leaders and engaged in a

hospital wide leadership development program to create alignment with how new societal requirements are integrated and to facilitate improvements of managerial processes and processes impacting quality of patient care.

Following a presentation about the study to the hospital management, the researchers received approval to approach department managers. The study's aim and interactive study concept were presented to the group of doctors and head of the department. Following an internal discussion, the surgical department agreed to participate. Both doctors and the leader of the surgical department expressed appreciation of the cooperative aspects of the study and the explicit intent to listen to doctors' voices about their local situation.

Participants

The participating surgical department asked us to work with a small study population in order to minimize time conflict with doctors' clinical work, without compromising the quality of the study. Based on experience from the research field and from interviewing doctors in other hospital settings we agreed on a minimum number of seven doctors. This is about a third of all doctors at the department. For the most effective use of the limited resources we used a purposeful sampling, which is a widely used technique for identification and selection of information rich cases[40]. Gender and seniority were used as selection criteria to provide maximum variation[43] in the empirical material. Three participants were senior doctors (two female, one male) and four were in training (three male, one female).

Data Collection

Data was collected via individual interviews. A semi-structured interview guide was used to facilitate consistency between interviews [40]. The questions were inspired by the quadruple aim [5] and Appreciative Inquiry[44]. The interview guide was initially developed by FB. It was then tested on KIR for readability and clarity. After adjustments and a new test with evaluation it was accepted. All interviews were done in the local language. We constructed open-ended questions to allow the respondent to tell their own story[45]. Each interview started with questions about number of years working as a doctor and the current position. Then the respondents were asked to describe a day when they felt satisfied or fulfilled at work, and a day when they did not. After this they were asked to reflect on the relationships among professional fulfillment, quality of patient care and organizational factors. To be consistent when introducing this question the respondents were shown a conceptual model (figure 1). Each doctor received a written and oral description of the study before signing the written consent and before the interview started. An interview guide, translated into English, is available as Appendix 1.

[Figure 1 here]

Figure 1. Conceptual framework used in the interview situation

The individual doctor interviews were conducted in November and December 2016. Interviews took place in a conference facility in the hospital area and were digitally recorded. Each interview was scheduled to last 60 minutes. The researchers allowed participants to use more time in order to provide information richness, given the limited numbers of interviews. This resulted in an average interview time of 74 minutes.

In order to capture rich information from this small number of participants[46] we were two experienced researchers with complementary experience participating in every interview,

but one. During the interview one researcher was leading while the other listened and took extensive notes, occasionally interacting to further probe interesting aspects relating to the study aim. Both researchers (PhD) had solid experience with physician interviews and knew the research field well. One interviewer (KIR) has a background as an occupational physician and many years of experience counseling doctors both individually and in groups. The other interviewer (FB) has a professional background as department head at a university hospital, working with organizational development for many years, educational background from industrial engineering and management and consultant level training in group relations theory.

Analysis

To provide for a multifaceted interpretation of the empirical material, the analytical process involved a team of four researchers with complimentary experiences. In addition to those two who conducted the interviews, a senior researcher (PhD) with experience in epidemiology and with professional background in surgical nursing took part (JR), as well as a senior health care researcher with a PhD in sociology (BB).

The analytical process started with a tentative analysis to capture the main content from the interviews. The two interviewers (FB+KIR) went through their notes and impressions from the interviews and started to create an overarching understanding. JR listened to all audio recordings and made notes with the targeted task to ask the material two key questions: What is the most pressing problem? What do they do to handle/solve this problem? BB listened to most of the interviews and made notes about her first impressions. The research group then met and compared initial notes. This first step provided an overall perspective

that was presented back to the department to allow them to react to it. This material provided good resonance with the participants, and also with the other doctors who were present in the meeting but had not been interviewed. Also the head of the department confirmed that what the researcher presented back to the department was in line with his understanding. .

The more developed analytical process was guided by Miles and Huberman [47] and was done without specific analytical software. All interviews were transcribed verbatim in the local language. Based on the study aim, the interviews were read individually to capture words and sentences, meaning units, which showed similarities in terms of content. These meaning units were condensed and labeled with a descriptive code close to the textual meaning. Sometimes these codes were in English and sometimes they were in the local language. The research group met and each person presented their descriptive coding. Mostly there was congruence. When congruence was not experienced, face to face conversations were carried out to challenge each other's perspective. Sometimes these conversations went back to the original text to find a common ground and interpretation, before moving on. The researchers then worked to group the descriptive codes, and related meaning units, based on the ones having similar content. Each grouping received a tentative descriptive header. Once this was in place, two alternative routes of further sorting and abstraction were followed in a comprehensive analysis of the content. One was to use the conceptual framework from the interview (Fig 1) and organize the different groupings in relation to if it concerned professional fulfillment, organizational factors or quality of patient care. This process created, at first, an experience of structure and cleanliness, but over time provided a blurred result, with a residual of empirical material that fitted in any or all of the three aspects. The other analytical route was to look for grouping that could be combined

with only slightly broadening or altering the content, as symbolized by an adjustment of the descriptive header. This iterative process eventually contributed to form five empirical themes that integrated all interview material into a comprehensive understanding. Quotations are used in the result section to allow individual doctor voices to illustrate a central content[45].

The interdisciplinary group of authors worked both individually and in a group to enrich the empirical interpretations and reduce the risk of any author overpowering the empirical material of doctors' voices. During the analytical process we paid extra attention if we found data that did not fit with the other data, indicating there were some empirical nuances we were missing with our small sample of seven doctors. This did not happen and regardless of gender or seniority there was a high degree of commonality between the different doctor voices relating to the aim. During the analyses it became clear that the seven information rich cases enabled a comprehensive understanding. It confirms, what Malterud[46] suggests, that a limited number of information rich interviews can contribute with new meaningful knowledge. During the analytical process alternative interpretations were continuously sought through critical reflections and ongoing conversations during face-to-face meetings. This process continued iteratively until alternative understandings and considerations were reconciled into a coherent result. Patton suggests that this type of research group triangulation is a way to reach comprehensive, robust and well-developed findings from a rich empirical material [40].

Ethics

This study followed the World Medical Association's Declaration of Helsinki [48]. The risk of harm to the participants was very low, and thus the project did not meet the criteria justifying a formal application to the ethics board, consistent with Norwegian law [49].

Patient and Public Involvement

Patients and the public were not involved in the design or planning of the study.

Results

Analyzing the interviewed doctors' experiences about the interactions among professional fulfillment, organizational factors and quality of patient care, resulted in an empirically grounded understanding with the following themes. (Quotes from participant are used to provide the original voice. Each doctor is assigned a random letter for anonymity.)

Quality of care crowded out by production numbers and economic data

Many doctors talked about how conversations at department meetings had changed. Previously, they were more about quality of clinical care, while now they mostly focused on the need to meet production targets and finding ways to handle budgetary constraints. The participant expressed how quality was starting to be experienced as an empty phrase, crowded out by production numbers and economic concerns.

> *Quality is more and more becoming an empty term in relation to what the hospital values are. What we hear about is mostly money issues and production numbers. (Doctor A)*

Changes in workplace conversations, combined with an experience of limited recognition for good professional work, made some doctors express that they did not really "recognize the workplace". Some of them also expressed concerns about who they were becoming, in their role as doctors. One doctor experienced a change from being a trustworthy and autonomous professional, to becoming more of a production worker.

> *I don't feel that I come to work as a capable and autonomous resource anymore. I feel I come to work only to produce a certain number of procedures. (Doctor B)*

While the interviewed doctors all appreciated swift and smooth operations, a new operating concept, with the explicit aim to increase output, troubled some. They expressed concerns about potential risks of patient complications since the allotted time was too limited to find anatomical landmarks and stop minor bleeding before proceeding to the next surgical step. With a dominating focus on quantity, there was an emergent worry as to whether individual quality standards were compromised.

> *Maybe the key dilemma is that you are pushed for quantity all the time. It leads you to start to feel, right after you go home from your on-call work, that you did not finish your task or finalize things the way you wanted to. You get pushed to increase quantity and it is affecting your own reference of good-quality work. (Doctor C)*

The participants expressed unease about conversations focusing more on cost and production than quality, but at the same time there was an awareness of the necessity of high productivity and cost control.

> *I am one of those doctors who consider that health care has an obligation to make sure we manage our resources and household with our tax-based money. (Doctor D)*

"Stretching oneself" to deliver quality of patient care despite organizational shortcomings

The participants emphasized the importance of delivering good quality care, even if it meant "stretching themselves" to overcome hindering organizational factors. The expression "stretching themselves" is a descriptive term arising from the empirical analysis. It is used to capture the experience that an individual doctor had to find workarounds, which often

involved overextending oneself, to balance the tension between production quantity versus quality, but also handling sudden resource shortages ("due to illness you now also need to handle the ward in between doing your surgical cases"), and balancing the potential tension between work and home. This way of ensuring quality of patient care was considered common practice. However, several doctors had begun to wonder whether the individual work-arounds could have negative consequences for the quality of patient care.

> *One starts to wonder if this constant stretching of oneself can have negative consequences. Like more patients expressing worries after their operations. (Doctor E)*

One example of an organizational shortcoming concerned unforeseen variations in the daily operating schedule. This could result in long work hours for the doctors, impinging on the work-home balance. Another dimension of stretching relates to a so-called "contract of conscience". This was not a formal contract, but rather related to their professional identity as doctors. The "contract" was driving them to further stretch themselves and spend considerable time at work, on top of normal duties.

> *I have to be there until the operation is finished. I am really concerned whether I will be in time for kindergarten. It generates a lot of frustration, but I have an implicit contract with the patient and also to the hospital to make sure the operation is carried through. (Doctor E)*

The accelerating struggle against time impacting well-being and quality of care

The struggle against time was a main concern in the interviews and the participants experienced that it influenced their overall well-being.

Suddenly you have one of these time and task collisions and it increases work strain and stress, impacting physical and mental health. You know, when you are expected to be in three places at once, it sort of triggers your stress level. (Doctor C)

The participants felt uncomfortable with an increasing number of time and task collisions and expressed concerns that this constant battle against time could jeopardize the quality of patient care.

There is a constant battle against time. We need time to make solid evaluations before and after operations. We are pushing the limits towards feeling uncomfortable. Definitely relating to quality of care. (Doctor A)

There were also experiences of stress in the operating room, a work place sanctuary where surgeons previously experienced that time was allowed to "stand still".

Over the last years, operating programs have expanded. It is not seldom that we push really hard to get through the program. As we realize we are not making it, you feel how stress is building up also in the operating room. (Doctor A)

Quality of patient care as the basis for professional fulfillment

The participants expressed that quality of patient care was foundational for their experience of professional fulfillment. Some of the doctors emphasized how the two were mutually reinforcing.

Vital for job satisfaction is that we have an experience that things go well with our patients. (Doctor A)

The importance of continuity between the individual patient and the individual physician was also brought up as a central aspect of providing good care.

What gives me satisfaction is when I greet my patients, operate on them and follow up afterwards, so the patient is satisfied. That is all I wish for. (Doctor B)

Satisfied patients gave doctors a sense of accomplishment. A consequence was that a mistake made by a doctor that affected a patient discomposed the individual doctor.

A downside of being a surgeon are complications, it sort of comes with the job. I had a severe surgical complication last week and this is darkening everything, it affected me fundamentally for many days. (Doctor G)

Management not recognizing quality of care challenges and providing limited support for doctor initiatives

The interviewed doctors experienced how the managerial focus on increasing volume conveyed an implicit assumption that more output, of the same quality, could be created by simply increasing the speed. This way of communicating about how to increase surgical volume created a strong dissonance with the everyday challenges experienced in the clinic.

Everyone expects that treatments are first class. We only measure waiting times and how soon we have written the discharge summary, and similar unimportant things. Everybody expects treatments to be the same and quality to be the same, no matter what. That is not true! (Doctor F)

A number of different individual initiatives to improve quality and facilitate every day work had been initiated. One doctor described saving time and increasing quality and safety by making standard patient record templates for different operational procedures. Another doctor worked to schedule ward rounds to make them visible, instead of being something that the doctors were supposed to "squeeze in" between other scheduled tasks.

> *We are measured on the number of operations we perform and on the number of patients we see in the outpatient clinic. But we are not measured on the time we spend on ward rounds. Talking with the doctor is a major part of what patients appreciate when measuring patient satisfaction. Now, ward rounds are scheduled. (Doctor G)*

The participants expressed a sense of disappointment, and surprise, that the organization neither seemed to appreciate the individual initiatives, nor provide a structure to go from the individual benefit towards benefitting the group of doctors. While many of the doctors had limited or no suggestions about what management ought to do differently, some suggested that the traditional hierarchical way of managing needs to be modernized.

> *I think this is about hospital management still struggling to find a more modern form. I find that teamwork is something that private enterprises have focused on for a long time. But the old way of leading is still what goes on in hospitals. With traditional hierarchies and top-down decisions. (Doctor A)*

Several doctors experienced that management did not do enough to facilitate for doctors to participate in clinical development work. There were also some who clearly articulated the

need for a major overhaul of the existing hospital culture, towards a situation where involvement from different employee groups was considered the norm.

> *If you are working with changes in such a fine-tuned and complex environment as a hospital, one must involve those affected by a change. You put small groups of surgeons and op-nurses together. Provide them some time to work on specific issues. Listen attentively to what they say about key pressure points and act accordingly. Not simply pushing decisions down at people! (Doctor A)*

Discussion

This study explores how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care.

The participants described how providing quality of patient care was the single most important dimension contributing to their professional fulfillment. The interactions among professional fulfillment, organizational factors and quality of patient care were often experienced as resulting in complex and challenging situations. A doctor could be scheduled to operate while also having to run to the ward to check on patients, or run late to pick up children from daycare because shift times between operations ran longer than planned. The interviewed doctors primarily handled this tension individually by "stretching themselves", and working around organizational hindrances in order to, no matter what, provide quality of patient care.

Quality of patient care is a key outcome for any healthcare organization. One might consider that statement as self-evident. In particular when working as a doctor in a hospital that is part of the societal infrastructure in Norway, a well-functioning and affluent Nordic country. On the other hand it might be prudent to remind ourselves that the amount of money available to spend on healthcare is limited. This restriction might be even clearer in a tax-financed healthcare system, like the Norwegian. There is thus a built-in tension that requires a constant balancing of clinical needs with budgetary means.

The participants expressed how conversations about **quality of care were crowded out by production numbers and economic data**. They conveyed that the essence of being a professionally fulfilled doctor, creating high quality care for patients, no longer receives sufficient recognition.

This finding is in line with research pointing to changes in what society, patients and employers are expecting from a doctor, and how this is starting to create a job situation that is no longer what doctors expect[50]. The research suggests that clinical leaders have a crucial role in supporting doctors to find meaning in a changing professional role[10 51 52]. The inherent tension between an organizational focus on the bottom line and doctors' focus on quality of patient care is found to increase the risk for experiencing meaninglessness, especially in combination with a lack of managerial recognition for work well done[53]. According to this research, the interviewed doctors express an unfortunate combination of factors that are found to contribute to a sense of meaninglessness.

Faced with an accelerating struggle against time, the participants described "**stretching themselves" to deliver quality care despite organizational shortcomings**. The experience of doctors having less time and more work is aligned with other studies [25 54-56]. However, in this

study, the participants describe how finding individual workarounds in order to handle organizational shortcomings, no longer is experienced as sustainable. Our participants relate how they have started to consider that quality of patient care, and their own wellbeing, both could suffer from this way of overextending themselves.

While limited time with patients was the primary concern, work–home balance was also an issue that troubled many of the participants. This is in line with recent studies in Sweden and Norway, where young doctors point to the importance of finding a job with good work-home balance [57 58]. This view resonates with "downshifting", a societal change defined by some researchers as an endorsement of the question, "In the last ten years, have you voluntarily made a long-term change in your lifestyle, other than planned retirement, which has resulted in you earning less money?". More time with family was the most important reason for downshifting, followed by the desire to gain more control and personal fulfillment [59].

That ***quality of patient care is foundational for professional fulfillment*** has been found in many previous studies [55 60 61 62]. While the professional identity of doctors has long hinged on delivering good quality of patient care, more recently, the lack of physician well-being has been recognized as a potential threat to quality care[3]. Research indicating a relationship between strain and stress in doctors and negative impact on quality and safety of patient care [12 14 15], has also lead to an amendment of the Declaration of Geneva, as adopted by the World Medical Association in 2017: "I will attend to my own health, well-being and abilities in order to provide care of the highest standard"[63].

The study participants experienced a hierarchical management culture and that management did ***not recognize quality of care challenges and provided limited support for doctor initiatives*.**

The respondents expressed frustrations with the limited possibility to participate in developing organizational policies, processes and systems. At the same time there were few accounts of actual aspirations or doctors actively working to find solutions to organizational shortcomings. These findings are aligned with other research reporting that doctors' engagement in development work has been a challenge[27 64 65]. However, doctors who did engage had positive experiences from similar improvement initiatives and had experienced that also this type of work task contributed to their sense of professional fulfilment [18 26 66]

To involve doctors in development work, recognizing their ideas and listening to understand what the difficulties are, has been suggested as a central dimension to reduce burnout[25 67]. A deliberate, collaborative process where managers commit scheduled doctor-time for this type of work is key. What a manager says in conversations with the doctors, and what a manager does really matters in relation to how clinicians participate in developing clinical policies, processes and systems [68-70]. In order to support this process, organizational leaders in healthcare need to be attuned to how psychological and social needs relate to doctors motivation and engagement [71 70 72]. In a participatory change study, where doctors analyzed work-related problems, created local solutions which were then implemented, working conditions and patients' perceived quality of care both showed positive changes[24]. Another study showed that doctors who were actively involved in the process of changing the local ward round experienced better-informed clinical decisions, had fewer follow-up questions from their patients and increased their own professional fulfillment[73].

Strengths and Weaknesses of this study

This study included a feedback session where the researchers presented findings from analyzing the interviews to the full group of doctors working at the surgical department. Both those who participated in interviews and several doctors who had not been interviewed, confirmed the researchers understanding of the local work situation. This is a study strength that substantiates the findings. It confirms, in line with Malterud [46], that a limited number of information rich interviews can contribute with new meaningful knowledge.

Having an interdisciplinary research group with complimentary educational, research and work related experiences analyzing the interviews contributed to a multifaceted and nuanced understanding of the empirical information.

In this study we examine doctors' perceptions about their work situation, without observing their actual behaviour. A potential weakness concerns if the interviewed doctors described their actual reality. Previous research has found that what people present in interviews reflect their perceptions, and these perceptions also inform their actions[43 74]. By asking for clinical examples we also strove to ensure close proximity to the local situation.

While this study focused on a single surgical setting, we suggest that other health care settings can learn from this study. We base this notion of transferability on research showing communality among doctors across different contexts[75], by some researchers called one occupational community of practice [76].

Conclusions

The interviewed doctors describe their struggle to balance the inherent tension among professional fulfillment, organizational factors and quality of patient care in their everyday work. They communicate how “stretching themselves”, to overcome organizational shortcomings, is no longer a feasible strategy without compromising both professional fulfillment and quality of patient care. Managers need to ensure that doctors are involved when developing organizational policies, processes and systems. By including doctors, the lived experience of the inherent tension among professional fulfillment, organizational factors and quality of patient care is used in a meaningful way to improve organizational factors. This is likely to be beneficial for both professional fulfillment and quality of patient care.

Practice Implications

Healthcare management has a central role, and is responsible, for ensuring time and planned forums for doctors to engage and contribute in meaningful change. Engaging doctors in development work, also challenges historical management practices, as this requires organizational leaders to consider how psychological and social needs contributes to individual doctor engagement and well-being.

Future research

This study has provided knowledge based on interviews with Norwegian doctors. It points to a need for future research to explore how the managerial side understands the interactions among professional fulfillment, organizational factors and quality of patient care.

Participatory interactive studies show positive effects from collecting doctors´ experiences, analyzing the empirical material and feeding it back in a consolidated and actionable form. This external and structured view helps doctors and managers identify areas for local organizational change and facilitates the active involvement of doctors in the change process. There is a need for more research with participatory interactive methodologies.

Contributorship

All four authors (FB, JR, BB, KIR) meet the conditions outlined in the ICMJE recommendations and have all contributed in all dimensions.

- Substantial contributions to the conception or design of the work, or the acquisition, analysis or interpretation of data.
- Drafting the work or revising it critically for important intellectual content.
- Final approval of the version published.

Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. There is no one who fulfills the criteria that has been excluded as an author.

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Conflicts of Interest

No competing interests exist for any of the researchers involved in this article.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Data sharing Statement

Interview transcript are the empirical source. These are only for the assigned research group in order to honor the commitment with the participants.

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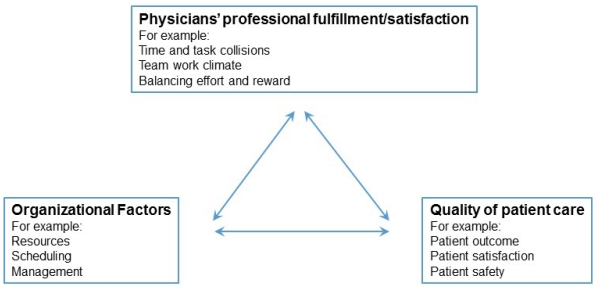

Figure 1. Conceptual model used in the interview situation

338x190mm (96 x 96 DPI)

Interview guide:

- Describe your role as physician here at the hospital
  - Position, seniority (consultant, resident, intern), specialty/sub-specialty, researcher
- Describe a day when you go home happy/satisfied/content with your workday
  - Describe another day when you go home and are not happy/satisfied/content
    - What are your thoughts about what it is that makes the difference?
- What are your experiences from the interactions between physician's professional fulfillment/satisfaction, organizational factors and quality of patient care?
  - Are there any challenges where you work today in relation to these interactions?
    - Examples from own individual experiences preferred
    - From you own experiences and reflections – what are perspectives that would benefit from being improved?
      - How does this relate to your own professional fulfillment/satisfaction?
      - How does this relate to quality of patient care?
      - Is it measured per today? How would you go about to measure this?
- Which of the targets and measurements that your department follow are you aware of?
  - Are any of these really important for you/ that you actively track and follow?
  - Are there other measurements you would appreciate to follow?
- Do you experience that the organization is supportive and facilitates for you to come up with suggestions for improvements?
  - When was the last time you had an idea/suggestion for improvement? (concrete example)
    - How did you go about to get support and initiate change based upon your idea/suggestion?
    - Has your idea/suggestion become reality?
  - From your own experience, what can be done, if anything, to further facilitate for new ideas to improve clinical practice?
- If you were the Head of the Department or Hospital Director are there things you would really want to pay additional attention to?
- Are there other questions you would have wanted us to ask, in relation to this research area?

Much appreciate your time and effort in participating!

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Standards for reporting Qualitative Research (SRQR *)

No.	Topic	Item found at page
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S16	Synthesis and interpretation	6,7,8,9,10
S17	Links to empirical data	6,7,8,9,10
	Discussion	
S18	Integration with prior work, implications, transferability, and contribution(s) to the field	11, 12, 13, 14, 15, 16
S19	Limitations	10
	Other	
S20	Conflicts of interest	17
S21	Funding	17

* **Standards for Reporting Qualitative Research: A Synthesis of Recommendations.**
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How do doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care? A qualitative study in a Norwegian hospital

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5997 words

Objectives: Doctors increasingly experience high levels of burnout and loss of engagement. To address this there is a need to better understand doctors work situation. This study explores how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care.

Design: An exploratory qualitative study design with semi-structured individual interviews was chosen. Interviews were transcribed verbatim and analyzed by a transdisciplinary research group.

Setting: The study focused on a surgical department of a mid-sized hospital in Norway

Participants: Seven doctors were interviewed. A purposeful sampling was used with gender and seniority as selection criteria. Three senior doctors (two female, one male) and four in training (three male, one female) were interviewed.

Results: We found that in order to provide quality care to the patients, individual doctors described "stretching themselves" i.e. handling the tensions between quantity and quality, to overcome organizational shortcomings. Experiencing a workplace emphasis on production numbers and budget concerns led to feelings of estrangement among the doctors. Participants reported a shift from serving as trustworthy, autonomous professionals to becoming production workers, where professional identity was threatened. They felt less aligned with work-place values, in addition to experiencing limited management recognition for quality of patient care. Management initiatives to include doctors in development of organizational policies, processes and systems were sparse.

Conclusion: The interviewed doctors described their struggle to balance the inherent tension among professional fulfillment, organizational factors and quality of patient care in their everyday work. They communicated how "stretching themselves", to overcome organizational shortcomings, is no longer a feasible strategy without compromising both professional fulfillment and quality of patient care. Managers need to ensure that doctors are involved when developing organizational policies, processes and systems. This is likely to be beneficial for both professional fulfillment and quality of patient care.

Strengths and limitations of this study

In this exploratory study, given our priority to capture in-depth, nuanced aspects, individual doctor interviews were given priority over the potentially higher number of participants that could have been included in group interviews. The interdisciplinary research group, conducting the analytical work, further provides a methodological basis to find a rich interpretation towards an empirically grounded doctors' voice.

This study has a potential limitation in that the empirical material was based on interviews with only seven doctors (this represented about 30% of the doctors working at the department). In order to capture input also from doctors not being interviewed a feedback session was included, where the researchers presented tentative findings to the larger group of doctors at the department. Both those who participated in interviews and several doctors who had not been interviewed, confirmed the researchers understanding of the local work situation. This substantiates the findings.

Transferability of this study with a small sample of doctors from a hospital is not claimed; however, being consistent with previous research, our study findings can be useful to healthcare delivery organizations experiencing similar challenges in their specific context.

Introduction

High-quality health care depends not only on high-tech equipment, sufficient resources and reliable evidence, but also on health professionals who are engaged and find meaning with their work. Researchers have recently argued for expanding the traditional health care improvement goals. In addition to enhancing patient treatment, securing the population's health and reducing the per capita cost of health care [1], they argue for promoting professional fulfillment[2-4]. Bodenheimer and Sinsky expressed this succinctly as, "care of the patient requires care of the provider" [5].

In order to improve quality of care, while containing costs, and promoting professional fulfillment we seem to need additional knowledge. A review from 2013 found that 70% of interventions aiming to improve quality and reduce health care costs did not succeed in doing both[6]. Common strategies were hospital or department mergers and downsizing, without attaining increased quality[7] and leading to negative effects for work environment as well as increased stress, burnout and feelings of alienation among employees [8-10].

Several studies have explored the links between professional fulfilment and different measures of quality of care (both as perceived by doctors themselves or more objectively measured in relation to treatment outcomes or patient complaints) [11-15]. Other studies have explored the relationships between different organizational factors and how they influence professional behavior, motivation, engagement and satisfaction[16-22]. Only few studies have studied the dynamic interaction among all three dimensions - organizational factors, quality of patient care and professional fulfillment [23-25]. Although these studies indicate the importance of doctors´ active involvement in change processes, research informs us that such engagement is limited[26-29]. We need to understand more about these relationships. To

better care for the providers, a better understanding of the interactions among professional fulfillment, quality of patient care and organizational factors is needed[30]. There seems to be a call for research to provide more practice-informed and actionable knowledge to facilitate local workplace development[30 31].

In Norway, as in other countries, recent decades have seen a stronger emphasis on budget control and value for money. A number of reforms are implemented, all with the intention to improve quality, reduce waste, and lead to better priorities. The many reforms and increased focus on budget constraints seem to have led to some skepticism among doctors[32]. Norwegian doctors have expressed their worries about maintaining the quality of care through the many reforms and changes[33]

The Norwegian health care system is a single payer, universal coverage system, funded by the State. Hospital care is organized as regional trusts with independent boards. Yearly contracts are made with the Ministry of Health. Primary care is organized with independent contractors to the health care system. GPs are gatekeepers to specialist care and patients need to first meet with a GP before having access to specialist care. Patients incur a nominal co-payment when receiving care services and the bulk of the funding comes from the State. Although doctors in Norway[34] (as in other Western countries[35]) have high scores on work satisfaction, there is a clear difference between specialties. Community doctors and general practitioners scored highest and doctors in surgical disciplines lowest[36] . Qualitative interviews of hospital doctors have found that surgeons, as one of three specialties, experience conflicts between adhering to their views of what a good doctor is/does and the consequences this has for the interaction with healthcare leaders, their colleagues and for the balance between work and home[37]. In 2008 more than 30% of senior and 18% of junior

hospital doctors reported working under "unacceptably" high rates of stress fairly often or often and over 75% of hospital doctors reported fairly or very high stress related to frequent reorganizations [38].

Thus, exploring how Norwegian doctors understand the relationships among organizational factors, professional fulfillment and quality of patient care will inform and support commensurate interventions toward improving doctors' well-being and the quality of patient care[39].

Aim

The study aims to explore how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care.

Methods

Design

An exploratory qualitative study design was chosen. Such a design is appropriate when there is limited knowledge[40]. This study was conducted as the first part of a multi-year and multi-site interactive [41 42] research project, interviewing doctors from two hospitals in Norway and one in the USA. This article focuses on the first set of doctor interviews from one of the Norwegian hospitals.

Setting

The study was done in a mid-sized emergency hospital in Norway. The hospital provides medical, surgical and psychiatric care with approximately 1,400 employees who serve a population of about 135,000. This is also a teaching hospital for doctors and nurses. The hospital has, during the last years, reorganized the executive leaders and engaged in a

hospital wide leadership development program to create alignment with how new societal requirements are integrated and to facilitate improvements of managerial processes and processes impacting quality of patient care.

Following a presentation about the study to the hospital management, the researchers received approval to approach department managers. The study's aim and interactive study concept were presented to the group of doctors and head of the department. Following an internal discussion, the surgical department agreed to participate. Both doctors and the leader of the surgical department expressed appreciation of the cooperative aspects of the study and the explicit intent to listen to doctors' voices about their local situation.

Participants

The participating surgical department asked us to work with a small study population in order to minimize time conflict with doctors' clinical work, without compromising the quality of the study. Based on experience from the research field and from interviewing doctors in other hospital settings we agreed on a minimum number of seven doctors. This is about a third of all doctors at the department. For the most effective use of the limited resources we used a purposeful sampling, which is a widely used technique for identification and selection of information rich cases[40]. Gender and seniority were used as selection criteria to provide maximum variation[43] in the empirical material. Three participants were senior doctors (two female, one male) and four were in training (three male, one female).

Data Collection

Data was collected via individual interviews. A semi-structured interview guide was used to facilitate consistency between interviews [40]. The questions were inspired by the quadruple aim [5] and Appreciative Inquiry[44]. The interview guide was initially developed by FB. It was then tested on KIR for readability and clarity. After adjustments and a new test with evaluation it was accepted. All interviews were done in the local language. We constructed open-ended questions to allow the respondent to tell their own story[45]. Each interview started with questions about number of years working as a doctor and the current position. Then the respondents were asked to describe a day when they felt satisfied or fulfilled at work, and a day when they did not. After this they were asked to reflect on the relationships among professional fulfillment, quality of patient care and organizational factors. To be consistent when introducing this question the respondents were shown a conceptual model (figure 1). Each doctor received a written and oral description of the study before signing the written consent and before the interview started. An interview guide, translated into English, is available as Appendix 1.

[Figure 1 here]

Figure 1. Conceptual framework used in the interview situation

The individual doctor interviews were conducted in November and December 2016. Interviews took place in a conference facility in the hospital area and were digitally recorded. Each interview was scheduled to last 60 minutes. The researchers allowed participants to use more time in order to provide information richness, given the limited numbers of interviews. This resulted in an average interview time of 74 minutes.

In order to capture rich information from this small number of participants[46] we were two experienced researchers with complementary experience participating in every interview,

but one. During the interview one researcher was leading while the other listened and took extensive notes, occasionally interacting to further probe interesting aspects relating to the study aim. Both researchers (PhD) had solid experience with physician interviews and knew the research field well. One interviewer (KIR) has a background as an occupational physician and many years of experience counseling doctors both individually and in groups. The other interviewer (FB) has a professional background as department head at a university hospital, working with organizational development for many years, educational background from industrial engineering and management and consultant level training in group relations theory.

Analysis

To provide for a multifaceted interpretation of the empirical material, the analytical process involved a team of four researchers with complimentary experiences. In addition to those two who conducted the interviews, a senior researcher (PhD) with experience in epidemiology and with professional background in surgical nursing took part (JR), as well as a senior health care researcher with a PhD in sociology (BB).

The analytical process started with a tentative analysis to capture the main content from the interviews. The two interviewers (FB+KIR) went through their notes and impressions from the interviews and started to create an overarching understanding. JR listened to all audio recordings and made notes with the targeted task to ask the material two key questions: What is the most pressing problem? What do they do to handle/solve this problem? BB listened to most of the interviews and made notes about her first impressions. The research group then met and compared initial notes. This first step provided an overall perspective

that was presented back to the department to allow them to react to it. This material provided good resonance with the participants, and also with the other doctors who were present in the meeting but had not been interviewed. Also the head of the department confirmed that what the researcher presented back to the department was in line with his understanding.

The more developed analytical process was guided by Miles and Huberman [47] and was done without specific analytical software. All interviews were transcribed verbatim in the local language. Based on the study aim, the interviews were read individually to capture words and sentences, meaning units, which showed similarities in terms of content. These meaning units were condensed and labeled with a descriptive code close to the textual meaning. Sometimes these codes were in English and sometimes they were in the local language. The research group met and each person presented their descriptive coding. Mostly there was congruence. When congruence was not experienced, face to face conversations were carried out to challenge each other's perspective. Sometimes these conversations went back to the original text to find a common ground and interpretation, before moving on. The researchers then worked to group the descriptive codes, and related meaning units, based on the ones having similar content. Each grouping received a tentative descriptive header. Once this was in place, two alternative routes of further sorting and abstraction were followed in a comprehensive analysis of the content. One was to use the conceptual framework from the interview (Fig 1) and organize the different groupings in relation to if it concerned professional fulfillment, organizational factors or quality of patient care. This process created, at first, an experience of structure and cleanliness, but over time provided a blurred result, with a residual of empirical material that fitted in any or all of the three aspects. The other analytical route was to look for groupings that could be combined

with only slightly broadening or altering the content, as symbolized by an adjustment of the descriptive header. This iterative process eventually contributed to form five empirical themes that integrated all interview material into a comprehensive understanding. Quotations are used in the result section to allow individual doctor voices to illustrate a central content[45].

The interdisciplinary group of authors worked both individually and in a group to enrich the empirical interpretations and reduce the risk of any author overpowering the empirical material of doctors' voices. During the analytical process we paid extra attention if we found data that did not fit with the other data, indicating there were some empirical nuances we were missing with our small sample of seven doctors. This did not happen and regardless of gender or seniority there was a high degree of commonality between the different doctor voices relating to the aim. During the analyses it became clear that the seven information rich cases enabled a comprehensive understanding. It confirms, what Malterud[46] suggests, that a limited number of information rich interviews can contribute with new meaningful knowledge. During the analytical process alternative interpretations were continuously sought through critical reflections and ongoing conversations during face-to-face meetings. This process continued iteratively until alternative understandings and considerations were reconciled into a coherent result. Patton suggests that this type of research group triangulation is a way to reach comprehensive, robust and well-developed findings from a rich empirical material [40].

Ethics

This study followed the World Medical Association's Declaration of Helsinki [48]. The risk of harm to the participants was very low, and thus the project did not meet the criteria justifying a formal application to the ethics board, consistent with Norwegian law [49].

Patient and Public Involvement

Patients and the public were not involved in the design or planning of the study.

Results

Analyzing the interviewed doctors' experiences about the interactions among professional fulfillment, organizational factors and quality of patient care, resulted in an empirically grounded understanding with the following themes. (Quotes from participant are used to provide the original voice. Each doctor is assigned a random letter for anonymity.)

Quality of patient care crowded out by production numbers and economic data

Many doctors talked about how conversations at department meetings had changed. Previously, they were more about quality of clinical care, while now they mostly focused on the need to meet production targets and finding ways to handle budgetary constraints. The participant expressed how quality was starting to be experienced as an empty phrase, crowded out by production numbers and economic concerns.

> *Quality is more and more becoming an empty term in relation to what the hospital values are. What we hear about is mostly money issues and production numbers. (Doctor A)*

Changes in workplace conversations, combined with an experience of limited recognition for good professional work, made some doctors express that they did not really "recognize the workplace". Some of them also expressed concerns about who they were becoming, in their role as doctors. One doctor experienced a change from being a trustworthy and autonomous professional, to becoming more of a production worker.

> *I don't feel that I come to work as a capable and autonomous resource anymore. I feel I come to work only to produce a certain number of procedures. (Doctor B)*

While the interviewed doctors all appreciated swift and smooth operations, a new operating concept, with the explicit aim to increase output, troubled some. They expressed concerns about potential risks of patient complications since the allotted time was too limited to find anatomical landmarks and stop minor bleeding before proceeding to the next surgical step. With a dominating focus on quantity, there was an emergent worry as to whether individual quality standards were compromised.

> *Maybe the key dilemma is that you are pushed for quantity all the time. It leads you to start to feel, right after you go home from your on-call work, that you did not finish your task or finalize things the way you wanted to. You get pushed to increase quantity and it is affecting your own reference of good-quality work. (Doctor C)*

The participants expressed unease about conversations focusing more on cost and production than quality, but at the same time there was an awareness of the necessity of high productivity and cost control.

> *I am one of those doctors who consider that health care has an obligation to make sure we manage our resources and household with our tax-based money. (Doctor D)*

"Stretching oneself" to deliver quality of patient care despite organizational shortcomings

The participants emphasized the importance of delivering good quality care, even if it meant "stretching themselves" to overcome hindering organizational factors. The expression "stretching themselves" is a descriptive term arising from the empirical analysis. It is used to capture the experience that an individual doctor had to find workarounds, which often

involved overextending oneself, to balance the tension between production quantity versus quality, but also handling sudden resource shortages ("due to illness you now also need to handle the ward in between doing your surgical cases"), and balancing the potential tension between work and home. This way of ensuring quality of patient care was considered common practice. However, several doctors had begun to wonder whether the individual work-arounds could have negative consequences for the quality of patient care.

> *One starts to wonder if this constant stretching of oneself can have negative consequences. Like more patients expressing worries after their operations. (Doctor E)*

One example of an organizational shortcoming concerned unforeseen variations in the daily operating schedule. This could result in long work hours for the doctors, impinging on the work-home balance. Another dimension of stretching relates to a so-called "contract of conscience". This was not a formal contract, but rather related to their professional identity as doctors. The "contract" was driving them to further stretch themselves and spend considerable time at work, on top of normal duties.

> *I have to be there until the operation is finished. I am really concerned whether I will be in time for kindergarten. It generates a lot of frustration, but I have an implicit contract with the patient and also to the hospital to make sure the operation is carried through. (Doctor E)*

The accelerating struggle against time impacting well-being and quality of patient care

The struggle against time was a main concern in the interviews and the participants experienced that it influenced their overall well-being.

Suddenly you have one of these time and task collisions and it increases work strain and stress, impacting physical and mental health. You know, when you are expected to be in three places at once, it sort of triggers your stress level. (Doctor C)

The participants felt uncomfortable with an increasing number of time and task collisions and expressed concerns that this constant battle against time could jeopardize the quality of patient care.

There is a constant battle against time. We need time to make solid evaluations before and after operations. We are pushing the limits towards feeling uncomfortable. Definitely relating to quality of care. (Doctor A)

There were also experiences of stress in the operating room, a work place sanctuary where surgeons previously experienced that time was allowed to "stand still".

Over the last years, operating programs have expanded. It is not seldom that we push really hard to get through the program. As we realize we are not making it, you feel how stress is building up also in the operating room. (Doctor A)

Quality of patient care as the basis for professional fulfillment

The participants expressed that quality of patient care was foundational for their experience of professional fulfillment. Some of the doctors emphasized how the two were mutually reinforcing.

Vital for job satisfaction is that we have an experience that things go well with our patients. (Doctor A)

The importance of continuity between the individual patient and the individual physician was also brought up as a central aspect of providing good care.

What gives me satisfaction is when I greet my patients, operate on them and follow up afterwards, so the patient is satisfied. That is all I wish for. (Doctor B)

Satisfied patients gave doctors a sense of accomplishment. A consequence was that a mistake made by a doctor that affected a patient discomposed the individual doctor.

A downside of being a surgeon are complications, it sort of comes with the job. I had a severe surgical complication last week and this is darkening everything, it affected me fundamentally for many days. (Doctor G)

Management not recognizing quality of care challenges and providing limited support for doctor initiatives

The interviewed doctors experienced how the managerial focus on increasing volume conveyed an implicit assumption that more output, of the same quality, could be created by simply increasing the speed. This way of communicating about how to increase surgical volume created a strong dissonance with the everyday challenges experienced in the clinic.

Everyone expects that treatments are first class. We only measure waiting times and how soon we have written the discharge summary, and similar unimportant things. Everybody expects treatments to be the same and quality to be the same, no matter what. That is not true! (Doctor F)

A number of different individual initiatives to improve quality and facilitate every day work had been initiated. One doctor described saving time and increasing quality and safety by making standard patient record templates for different operational procedures. Another doctor worked to schedule ward rounds to make them visible, instead of being something that the doctors were supposed to "squeeze in" between other scheduled tasks.

> *We are measured on the number of operations we perform and on the number of patients we see in the outpatient clinic. But we are not measured on the time we spend on ward rounds. Talking with the doctor is a major part of what patients appreciate when measuring patient satisfaction. Now, ward rounds are scheduled. (Doctor G)*

The participants expressed a sense of disappointment, and surprise, that the organization neither seemed to appreciate the individual initiatives, nor provide a structure to go from the individual benefit towards benefitting the group of doctors. While many of the doctors had limited or no suggestions about what management ought to do differently, some suggested that the traditional hierarchical way of managing needs to be modernized.

> *I think this is about hospital management still struggling to find a more modern form. I find that teamwork is something that private enterprises have focused on for a long time. But the old way of leading is still what goes on in hospitals. With traditional hierarchies and top-down decisions. (Doctor A)*

Several doctors experienced that management did not do enough to facilitate for doctors to participate in clinical development work. There were also some who clearly articulated the

need for a major overhaul of the existing hospital culture, towards a situation where involvement from different employee groups was considered the norm.

> *If you are working with changes in such a fine-tuned and complex environment as a hospital, one must involve those affected by a change. You put small groups of surgeons and op-nurses together. Provide them some time to work on specific issues. Listen attentively to what they say about key pressure points and act accordingly. Not simply pushing decisions down at people! (Doctor A)*

Discussion

This study explores how doctors experience the interactions among professional fulfillment, organizational factors and quality of patient care.

The participants described how providing quality of patient care was the single most important dimension contributing to their professional fulfillment. The interactions among professional fulfillment, organizational factors and quality of patient care were often experienced as resulting in complex and challenging situations. A doctor could be scheduled to operate while also having to run to the ward to check on patients, or run late to pick up children from daycare because shift times between operations ran longer than planned. The interviewed doctors primarily handled this tension individually by "stretching themselves", and working around organizational hindrances in order to, no matter what, provide quality of patient care.

Quality of patient care is a key outcome for any healthcare organization. One might consider that statement as self-evident. In particular when working as a doctor in a hospital that is part of the societal infrastructure in Norway, a well-functioning and affluent Nordic country. On the other hand it might be prudent to remind ourselves that the amount of money available to spend on healthcare is limited. This restriction might be even clearer in a tax-financed healthcare system, like the Norwegian. There is thus a built-in tension that requires a constant balancing of clinical needs with budgetary means.

The participants expressed how conversations about **quality of care were crowded out by production numbers and economic data**. They conveyed that the essence of being a professionally fulfilled doctor, creating high quality care for patients, no longer receives sufficient recognition.

This finding is in line with research pointing to changes in what society, patients and employers are expecting from a doctor, and how this is starting to create a job situation that is no longer what doctors expect[50]. The research suggests that clinical leaders have a crucial role in supporting doctors to find meaning in a changing professional role[10 51 52]. The inherent tension between an organizational focus on the bottom line and doctors' focus on quality of patient care is found to increase the risk for experiencing meaninglessness, especially in combination with a lack of managerial recognition for work well done[53]. According to this research, the interviewed doctors express an unfortunate combination of factors that are found to contribute to a sense of meaninglessness.

Faced with an accelerating struggle against time, the participants described "**stretching themselves" to deliver quality care despite organizational shortcomings**. The experience of doctors having less time and more work is aligned with other studies [25 54-56]. However, in this

study, the participants describe how finding individual workarounds in order to handle organizational shortcomings, no longer is experienced as sustainable. Our participants relate how they have started to consider that quality of patient care, and their own wellbeing, both could suffer from this way of overextending themselves.

While limited time with patients was the primary concern, work–home balance was also an issue that troubled many of the participants. This is in line with recent studies in Sweden and Norway, where young doctors point to the importance of finding a job with good work-home balance [57 58]. This view resonates with "downshifting", a societal change defined by some researchers as an endorsement of the question, "In the last ten years, have you voluntarily made a long-term change in your lifestyle, other than planned retirement, which has resulted in you earning less money?". More time with family was the most important reason for downshifting, followed by the desire to gain more control and personal fulfillment [59].

That ***quality of patient care is foundational for professional fulfillment*** has been found in many previous studies [55 60 61 62]. While the professional identity of doctors has long hinged on delivering good quality of patient care, more recently, the lack of physician well-being has been recognized as a potential threat to quality care[3]. Research indicating a relationship between strain and stress in doctors and negative impact on quality and safety of patient care [12 14 15], has also lead to an amendment of the Declaration of Geneva, as adopted by the World Medical Association in 2017: "I will attend to my own health, well-being and abilities in order to provide care of the highest standard"[63].

The study participants experienced a hierarchical management culture and that management did ***not recognize quality of care challenges and provided limited support for doctor initiatives*.**

The respondents expressed frustrations with the limited possibility to participate in developing organizational policies, processes and systems. At the same time there were few accounts of actual aspirations or doctors actively working to find solutions to organizational shortcomings. These findings are aligned with other research reporting that doctors' engagement in development work has been a challenge[27 64 65]. However, doctors who did engage had positive experiences from similar improvement initiatives and had experienced that also this type of work task contributed to their sense of professional fulfilment [18 26 66]

To involve doctors in development work, recognizing their ideas and listening to understand what the difficulties are, has been suggested as a central dimension to reduce burnout[25 67]. A deliberate, collaborative process where managers commit scheduled doctor-time for this type of work is key. What a manager says in conversations with the doctors, and what a manager does really matters in relation to how clinicians participate in developing clinical policies, processes and systems [68-70]. In order to support this process, organizational leaders in healthcare need to be attuned to how psychological and social needs relate to doctors motivation and engagement [71 70 72]. In a participatory change study, where doctors analyzed work-related problems, created local solutions which were then implemented, working conditions and patients' perceived quality of care both showed positive changes[24]. Another study showed that doctors who were actively involved in the process of changing the local ward round experienced better-informed clinical decisions, had fewer follow-up questions from their patients and increased their own professional fulfillment[73].

Strengths and Weaknesses of this study

This study included a feedback session where the researchers presented findings from analyzing the interviews to the full group of doctors working at the surgical department. Both those who participated in interviews and several doctors who had not been interviewed, confirmed the researchers understanding of the local work situation. This is a study strength that substantiates the findings. It confirms, in line with Malterud [46], that a limited number of information rich interviews can contribute with new meaningful knowledge.

Having an interdisciplinary research group with complimentary educational, research and work related experiences analyzing the interviews contributed to a multifaceted and nuanced understanding of the empirical information.

In this study we examine doctors' perceptions about their work situation, without observing their actual behaviour. A potential weakness concerns if the interviewed doctors described their actual reality. Previous research has found that what people present in interviews reflect their perceptions, and these perceptions also inform their actions[43 74]. By asking for clinical examples we also strove to ensure close proximity to the local situation.

While this study focused on a single surgical setting, we suggest that other health care settings can learn from this study. We base this notion of transferability on research showing communality among doctors across different contexts[75], by some researchers called one occupational community of practice [76].

Conclusions

The interviewed doctors describe their struggle to balance the inherent tension among professional fulfillment, organizational factors and quality of patient care in their everyday work. They communicate how “stretching themselves”, to overcome organizational shortcomings, is no longer a feasible strategy without compromising both professional fulfillment and quality of patient care. Managers need to ensure that doctors are involved when developing organizational policies, processes and systems. By including doctors, the lived experience of the inherent tension among professional fulfillment, organizational factors and quality of patient care is used in a meaningful way to improve organizational factors. This is likely to be beneficial for both professional fulfillment and quality of patient care.

Practice Implications

Healthcare management has a central role, and is responsible for, ensuring time and planned forums for doctors to engage and contribute in meaningful change. Engaging doctors in development work, also challenges historical management practices, as this requires organizational leaders to consider how psychological and social needs contributes to individual doctor engagement and well-being.

Future research

This study has provided knowledge based on interviews with Norwegian doctors. It points to a need for future research to explore how the managerial side understands the interactions among professional fulfillment, organizational factors and quality of patient care.

Participatory interactive studies show positive effects from collecting doctors´ experiences, analyzing the empirical material and feeding it back in a consolidated and actionable form. This external and structured view helps doctors and managers identify areas for local organizational change and facilitates the active involvement of doctors in the change process. There is a need for more research with participatory interactive methodologies.

Contributorship

All four authors (FB, JR, BB, KIR) meet the conditions outlined in the ICMJE recommendations and have all contributed in all dimensions.

- Substantial contributions to the conception or design of the work, or the acquisition, analysis or interpretation of data.
- Drafting the work or revising it critically for important intellectual content.
- Final approval of the version published.

Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. There is no one who fulfills the criteria that has been excluded as an author.

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Conflicts of Interest

No competing interests exist for any of the researchers involved in this article.

Transparency declaration

The lead author affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned have been explained.

Data sharing Statement

Interview transcript are the empirical source. These are only for the assigned research group in order to honor the commitment with the participants.

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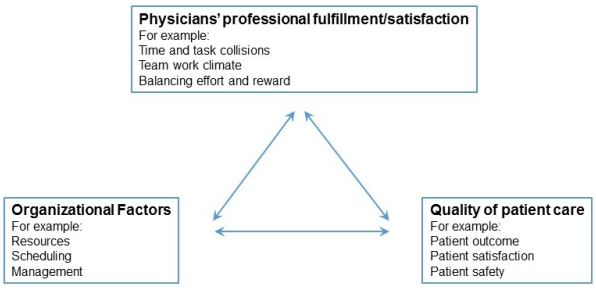

Figure 1. Conceptual model used in the interview situation

338x190mm (96 x 96 DPI)

Interview guide:

- Describe your role as physician here at the hospital
  - Position, seniority (consultant, resident, intern), specialty/sub-specialty, researcher
- Describe a day when you go home happy/satisfied/content with your workday
  - Describe another day when you go home and are not happy/satisfied/content
    - What are your thoughts about what it is that makes the difference?
- What are your experiences from the interactions between physician's professional fulfillment/satisfaction, organizational factors and quality of patient care?
  - Are there any challenges where you work today in relation to these interactions?
    - Examples from own individual experiences preferred
    - From you own experiences and reflections – what are perspectives that would benefit from being improved?
      - How does this relate to your own professional fulfillment/satisfaction?
      - How does this relate to quality of patient care?
      - Is it measured per today? How would you go about to measure this?
- Which of the targets and measurements that your department follow are you aware of?
  - Are any of these really important for you/ that you actively track and follow?
  - Are there other measurements you would appreciate to follow?
- Do you experience that the organization is supportive and facilitates for you to come up with suggestions for improvements?
  - When was the last time you had an idea/suggestion for improvement? (concrete example)
    - How did you go about to get support and initiate change based upon your idea/suggestion?
    - Has your idea/suggestion become reality?
  - From your own experience, what can be done, if anything, to further facilitate for new ideas to improve clinical practice?
- If you were the Head of the Department or Hospital Director are there things you would really want to pay additional attention to?
- Are there other questions you would have wanted us to ask, in relation to this research area?

Much appreciate your time and effort in participating!

LEFO
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Standards for reporting Qualitative Research (SRQR *)

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* **Standards for Reporting Qualitative Research: A Synthesis of Recommendations.**
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