

'We always support each other – no matter what': a qualitative analysis of work-related psychosocial demands, stressors and resources in general practice teams

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Research

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Abstract

Background Work-related stress has been associated with poor psychological and physical outcomes. A better understanding of work-related psychosocial demands, risks and resources can therefore contribute to the prevention of work-related stress. Compared to the general population, medical staff have reported a higher prevalence of chronic stress. Using general practices as an example for small enterprises, this study aims to gain a deeper understanding of work-related psychosocial demands, stressors and resources in the primary care setting.

Methods We applied an ethnographic design, comprising a combination of participating observations, individual interviews with physicians (N = 6) and focus group discussion with practice assistants and administrative staff (N = 19) in five general practices in Germany. Access to the practice teams was established via a university general practice network. A grounded theory approach was applied to analyze all data.

Results Our results identified specific psychosocial demands, stressors and resources exemplified mainly along two typical tasks in GP practices: the issuing of medical prescriptions and blood sampling. Main psychosocial risks included factors related to work content and tasks (e.g. incompleteness of task), organization of work (e.g. frequent interruptions), and the working environment (e.g. noise). Work-related resources comprised staff's influence on aspects related to work organization (e.g. scope for action) and social support (e.g. positively perceived teamwork). These factors did not occur in isolation but were closely interrelated with each other.

Conclusion Although work processes in general practices are complex and required to comply with legal regulations, the specific organization of work processes is the responsibility of the general practitioner. Therefore, there are opportunities for practice owners and practice teams to establish working procedures in ways that reduce psychosocial risks and strengthen work-related resources.

Background

The majority of employees in Europe work in small and medium-sized enterprises [1] where the availability of financial and human resources may be limited to develop strategies for the prevention or mitigation of work-related stress [2]. General practices are established micro-enterprises confronted with healthcare specific challenges but also with aspects similar across other smaller and larger businesses. This includes, for example, a highly regulated working environment [3, 4], as well as financial competition from other practices and new emerging health business models (e.g. medical care centers), or increasing difficulties to find successors willing to pursue a career within a complex and demanding working environment [5-7]. Using general practices as an example for small enterprises, this study aims to gain an in-depth understanding of work-related psychosocial demands, stressors and resources in the primary care setting, an increasingly challenging working environment in Germany [8, 9].

Work-related stress in the primary care environment

Work-related stress has been discussed as a response to work demands and pressures, and as a causal factor regarding employees' health and work performance [10]. This has promoted a growing interest in a better understanding of work-related psychosocial demands and the empowerment of work-related organizational and individual resources [11]. In several European countries, including Germany [12], employers are required by law [see Article 153 of the Lisbon Treaty, 13] to provide measures ensuring decent working conditions. This includes, for example, the prevention of work-related psychosocial risks comprising stressors such as poor work organization or a hazardous working environment, and the promotion of work-related resources [11, 14].

The job demand-control model [15], the job demand-control-support-model [16], the effort-reward-imbalance-model [17] and the concept of organizational justice [18] are well-established theoretical models explaining the development of work-related stress. They relate potentially harmful factors (e.g. frequent interruptions, lack of leadership) and beneficial factors (e.g. good working atmosphere, appropriate salary) to health and health-related behaviors [e.g. 19, 20]. Based on these models, existing European [11] and German [21] recommendations have structured work-related psychosocial demands, comprising, for example, "work content and task" (e.g. completeness of tasks), "organization of work" (e.g. working procedures), "social relations" (e.g. social support from colleagues and managers), "working environment" (e.g. workplace equipment), and "new forms of work" (e.g. telework) [22]. These recommendations provide a useful framework to identify and evaluate work-related stressors and resources, and we will structure our findings accordingly.

Mostly using quantitative research methods, previous studies have identified and analyzed various work-related psychosocial demands in the health care setting [e.g. 23, 24, 25]. Compared to the general population and other professions, prior research has shown that the risk of reporting work-related stress is relatively high in health care staff [26], including general practitioners (GPs) and practice staff [8, 9, 27] (subsequently, the terms "practice staff" or "practice team" include practice assistants and administrative staff to distinguish between the physician and non-physician professions). The reasons are manifold and have, for example, been related to a very high workload, increasing working hours per week or practice characteristics (e.g. high number of patients with statutory health insurance) [9]. Furthermore, a shortage of skilled workers, the economization of the health care system and the increase of administrative tasks can affect job satisfaction of employees and practice owners [6, 28]. Although GPs in Germany have reported dissatisfaction with their income, physical and psychological workload [29], they have reported to be generally happy to cooperate with colleagues and practice staff [30]. A qualitative study including GPs from eight European countries identified common work-related resources such as a positive occupational profile, a long-term doctor-patient relationship, or autonomy in the workplace [31]. A study from Germany showed that the opportunity to apply their skills and expertise had the strongest associations with job satisfaction for GPs [32]. This study also showed that practice staff rated their job satisfaction higher than GPs. A good working atmosphere, opportunities for career development, clearly defined responsibilities within a diverse spectrum of activities, recognition of their performance, the support among the practice team as well as social interactions with patients have been identified as major work-related resources for practice staff in Germany [33, 34]. They have, however, also

reported a number of work-related stressors including high workload, dealing with unpredictable incidents, or a lack of support and/or appreciation from supervisors and colleagues [34]. Like the GPs, they rate their income as rather low [29].

Although previous research has investigated psychosocial working conditions of GPs [29, 30, 35, 36] and practice assistants in Germany [25, 33, 34, 37], there is a lack of in-depth analyses of potential relationships between particular psychosocial work-related stressors and resources affecting entire health care teams. General practices in Germany provide a variety of therapeutic and preventive health care services and procedures, including medical check-ups, vaccinations, laboratory testing, and disease management programs. Regarding the organization and execution of working routines, general practices have to comply with legal regulations (e.g. hygiene standards, quality management [38]) although the specific organization of work processes is the responsibility of the general practitioner. The practice team has therefore limited influence on the content of activities regulated by law and specific to particular occupational groups (specific training is a requirement for blood sampling; the GP has to check and sign prescriptions). GPs can, however, delegate specific medical tasks to the practice assistants (PAs) once legal requirements are met [35].

Aims and objectives

To address current health system challenges at the local level - e.g. managing new infectious diseases and dealing with the increasing morbidity due to chronic diseases effectively and sustainably - it is important to gain a better understanding of issues related to occupational health and safety for personnel working in the primary care setting [19] in order to also ensure the quality of health care [25]. This study is the first work package (WP 1) of the transdisciplinary research network *IMPROVEjob* (supplementary material A), funded by the German Federal Ministry of Education and Research (FKZ-01GL1751A, 01GL1851D). In the research network, researchers from medical, social and economic disciplines address questions concerning work-related stress and job satisfaction in general practice teams, using the primary care setting as an example for small enterprises [40, 41]. The results of this study (WP 1) will contribute to the development of subsequent work packages of the *IMPROVEjob* study comprising the development and testing of a participatory intervention for the improvement of job satisfaction and the prevention of work-related stress within primary care teams (WP 2 and 3). The intervention is expected to improve job satisfaction and reduce and prevent work-related psychological distress [42, 43]. Finally, the *IMPROVEjob*-Consortium will evaluate options for the transfer of the results into small enterprises of other economic branches (WP 4) which may eventually promote the prevention and reduction of work-related stress in small enterprises.

In this first work package of the *IMPROVEjob* study, we aimed to gain an in-depth understanding of how specific psychosocial demands, associated stressors as well as organizational and social resources in general practice teams are interrelated. During our analysis, we discovered that the interconnectedness of tasks and responsibilities was a relevant factor. We chose the issuing of medical prescriptions and blood sampling as two core tasks in primary care to elaborate upon in this article. The different levels of

interconnectedness already become apparent particularly in the responsibility of the practice staff for the care and treatment of their patients. Furthermore, both examples are subject to regulations [44] and specific guidelines [45] and are therefore not only relevant nationally but also in an international context. Similar to other European countries, in Germany there are over-the-counter and prescription-only drugs. The latter have to be acquired in pharmacies and require medical prescriptions issued by the treating physician only, including regular monitoring and medical supervision of the patient [46]. According to legal regulations, blood collection may be delegated to [44, 47]; however, the decision as to whether blood collection is necessary and which tests are required, remains the responsibility of the physician. However, legal regulations alone do not give us information on how the two procedures are actually organized on site by practice teams and how this affects their perception of work-related stress.

Consequently, the following research questions will guide this paper:

- How do general practice teams organize working procedures related to the issuing of medical prescriptions and blood sampling?
- What can we learn from these two examples (issuing of medical prescriptions and blood sampling) about the interrelation of specific work-related psychosocial demands and associated stressors and resources in general practice teams?

Methods

In this manuscript, we focus on the most important aspects of the research methods applied. Further detailed information on background, research design and methodology have been published in the research protocol of this study [19].

Research Design

To study everyday working life and work-related stress in the primary care environments we applied a team-based ethnographic approach comprising participatory observation, individual interviews with practice owners, and focus group discussions with PAs and other staff (e.g. administrative staff, trainees). We treated each practice as a case that we tried to capture holistically through different data formats and perspectives. Participatory observation allowed to capture aspects of the working day in real time, and point out patterns the participants themselves are not aware of or would be unlikely to disclose in an interview (e.g. interdependence between working procedures and the structural design of the working environment) [19]. The individual interviews with the GPs included particular challenges in the areas of leadership, team and patient care. The focus group discussions captured the collective view on work contexts, working conditions and work processes within the practice team. As established previously [48], the triangulation of methods and data formats [49] allowed us to provide a focused and detailed evaluation of psychosocial demands, stressors and resources in the primary care environment and point out causal relationships which would not become apparent through surveys or interviews

alone. In line with the COREQ-criteria [50], the study design conforms to the guidelines for qualitative papers (supplementary material B).

Setting, recruitment and ethical considerations

Prior research has shown that work-related stressors and resources differ within the primary care environment; for example, a recent study [8] reports that female physicians showed a higher risk for emotional exhaustion. In contrast, the burnout prevalence was higher in general practitioners working in group practices compared to single practices, but group practice employees were more likely to report burnout symptoms than group practice owners. We expected each practice to have unique characteristics, nevertheless sharing strong similarities. To represent a variety of primary care settings, we used a purposive non-random sampling frame [51]. We looked for differences in the characteristics of the practices such as the location, number of doctors and PAs, or the sex of the practice owners. All practice teams agreed to participate in the entire team-based ethnographic approach.

We included three general practices in urban and two practices in more rural areas of North Rhine-Westphalia, a densely populated federal state in Germany. The practices comprised single and group practices (up to 6 physicians) owned and managed by male and female GPs. Practice staff comprised between 5 and 29 mostly female employees including PAs, administrative staff and trainees. We estimate the age of the practice owners between 40 and 60+ years whereas the practice staff mirrored the whole age range of occupational life. While most practice owners were white, a higher proportion of persons of color could be found among the PAs. The gender balance between the practice owners was almost equal, whereas most of the PAs were female.

All practices recruited were part of a general practice network associated with the Institute for General Medicine, University Hospital Essen (Germany) and had signed a letter of intent to participate in this project during the initial funding application for this project. The practices were recruited via postal invitation and telephone. For reasons of confidentiality, we did neither collect any patient-related data nor any personal information about the general practice teams. Practice staff and patients were informed about the participatory observation, individual declarations of consent were signed by the practice staff, and each participant had the possibility to revoke their consent at any time over the course of the study. Furthermore, each of the three researchers collecting the data (ET, SH, ER) signed a declaration of confidentiality. Ethical approval for this study was obtained from the responsible Ethics Committee of the Medical Faculty, University Hospital of Tuebingen (MR, SH, ET, ER; reference number: 640/2017B02).

Preparation of the field work, data collection and management

In preparation of the fieldwork, the transdisciplinary research network *IMPROVEjob*, including all authors, designed an observational framework based on established recommendations [22] with a specific focus on psychosocial demands potentially relevant in the primary care environment. The framework helped the observers to identify relevant context and to better understand “what was going on”. [34]; For example, we used the framework to identify and to structure factors that were likely to be observed (e.g. actual

interruptions) or that would rather be discussed during the interviews and the focus group discussions (e.g. different perceptions of interruptions).

Prior to the participatory observations, the observers attended a workshop - conceptualized and conducted by BW - to gain further insight into the particular norms and culture of the setting. Additionally, the researchers (ET, SH, ER) conducted a two-day trial observation in different general practices to gain first impressions of the setting, its facilities and organizational structures which were developed and organized by BW. The female observers with different professional backgrounds (health sciences, health care and sociology), could thereby explore their own role in the field and identify suitable areas for the participatory observation where they would attract as little attention and disruption as possible.

Data collection (ET, SH, ER) commenced in February 2018. Each practice was visited daily (Monday to Friday) and in turn by two researchers for 2 to 4 hours [52] to cover a variety of situations and procedures over the course of one working week (e.g. at the reception desk, in the waiting area, the laboratory or consulting room). If appropriate, the researchers took field notes on site, and observation protocols were written subsequently. The researchers also conducted semi-structured interviews (questioning routes: supplementary material C) with each practice owner (n = 6) and five focus group discussions with members of the practice teams (n = 19). The interviews and focus group discussions lasted about 45 min – 60min. They were recorded and transcribed word-by-word according to a simplified system [53] by a professional company. Quality checks, de-personalisation and pseudonymisation of all data were carried out by the team conducting the fieldwork (ET, SH, ER). MAXQDA 2018 [54] was used for data management. Subsequent to the analysis, all quotations included in this study were translated from German into English (ET, ER). As we did not apply a conversation analysis approach [55] but focussed on the overall content and meaning of the data collected, we do not expect any significant loss of meaning due to the translation.

Data analysis and data validation

Applying a grounded theory approach [56], data collection and data analysis were carried out alternately including open, axial and selective coding. The grounded theory approach was chosen to connect the different data formats to each other and to unveil content and topics as well as procedures and practices. It is a process of continuous abstraction of the data: open coding helped getting a first and creative access to the data. During axial coding, connections between codes were analysed and a linking concept was worked out during selective coding. The analysis was conducted by the researchers carrying out the fieldwork (ET, SH, ER) with an interdisciplinary team of researchers of the *IMPROVEjob* collaboration with expertise in general (BW), psychosomatic (TSD, FJ, FS), and occupational medicine (MR) as well as sociology (CP). This promoted intersubjectivity in determining key topics and core concepts emerging from the data which were included in the subsequent analysis. We completed the alternating process of data collection and analysis when no new conceptual insights occurred during the discussion of the material from the fifth practice [57]. To validate the findings presented in this study, ET,

SH, and ER conducted a workshop with three GPs and two PAs who were not previously involved in the research process [49].

Results

In our study, we analyzed how specific psychosocial demands, associated stressors as well as organizational and social resources in general practice teams were interrelated. Subsequently, we will present how general practice teams organize working procedures related mainly to the issuing of medical prescriptions and blood sampling. Both are subjected to specific regulations and guidelines and come along with different forms of interconnectedness of procedures and responsibilities. We will describe which work-related stressors and resources emerge during these processes according to the relevant psychosocial demands. Although we aimed to present specific examples for each of the psychosocial demands included, it becomes evident that many of the quotations could also be categorized into other subsections highlighting the complexity of the working procedures described.

Work content and task

Responsibilities for the issuing of prescriptions as well as for blood sampling are largely determined by legal regulations and required training. In comparison to GPs who are responsible for the entirety of the procedures, the practice staff takes over primarily preparatory and executive tasks. For example, all PAs need to be able to prepare prescriptions and take blood from patients, whereas trainees need to be supervised and other employees (e.g. administrative staff) may support the medical staff, but should not execute tasks requiring medical training.

Two aspects became evident during the preparation of medical prescriptions: (1) the specific responsibilities of the GPs, and (2) the teamwork required to complete the task. Prescriptions can be issued or reissued directly as a result of the consultation with the GP, or they may be reissued without an appointment. Frequently, the latter occurs during consultation hours when patients ask for a renewal of prescriptions by telephone, email or directly at the registration desk. Before the prescription can be handed to the patient, the GP is required by law to check and sign the prescription. Hence, the GPs can either complete the entire tasks by themselves or delegate parts of the process - the preparation and handing over of the prescription to the patient - to trained personnel. Although each practice observed had slightly different ways of handling prescriptions, staff was always involved in the administrative part highlighting the division of this task through delegation and the dependency of the practice team on the GP to complete the whole procedure:

Q1, observation protocol, single practice:

"A MA returns to her work station where a waiting patient requests a prescription. The MA immediately begins to prepare and print off the prescription. The patient is asked to wait in the waiting area until the prescription has been signed [by the doctor]."

The practice staff (and the patients) had to wait frequently for the doctors to sign prescriptions. Due to the high work intensity observed in all practices, the practice team usually turned to another task (e.g. patient registration, answering the phone) which was interrupted when the prescription was signed and had to be handed over to the patient. This example also highlights that staff are constantly meeting the needs of patients, colleagues or superiors.

Compared to the process of issuing prescriptions, MAs carried out both administrative and medical procedures during the process of blood sampling. The blood sampling procedure usually comprised a prior consultation of the patient with the GP who orders a specific blood test. Subsequently, the doctors can either complete the whole procedure by themselves or delegate particular tasks to a MA, including the preparation of the necessary administrative and medical equipment, the collection of the blood, and the preparation of the blood sample for the transport to an external laboratory usually undertaken by a laboratory transport service. Some tests (e.g. blood sugar) were carried out directly in the practices whereas the comprehensive analysis of blood samples was completed by an external laboratory. Usually the MAs could execute their part of the procedure without any further consultation of the GP until the results from the laboratory arrived. Then, the GP communicates the results to the patient and is responsible for the final documentation. Compared to handling prescriptions, the MAs had a larger scope of action during the process of blood sampling including preparatory as well as executing tasks, more influence on the sequence of the work (e.g. the preparation of the equipment was usually undertaken the day before), and the probability of completing one task at a time was greater.

Organization of work

As noted previously, how work is organized is partly determined by legal regulations and recommendations as well as by the management preferences of the GPs and arrangements negotiated within the team. The subsequent example also highlights the importance of acknowledging the broader organizational context including an assessment of whether work content and task fit the training or abilities of the staff:

Q2, interview, single practice:

"We used to work with ladies who have retired. For them it was a nightmare to work with the computer. Or we used to have somebody [...] who was almost deaf. She said: 'I can do anything, but I can't answer the phone.' Ok, here I have to show consideration. But I have to have worked at another work station to appreciate the work of the others and to understand - we do that in team meetings when we have time - which part do I play in the whole system? And if I do not play my part which processes are interrupted or blocked?"

An interruption is a temporary suspension of the current activity which is to be continued at a later time [58]. Across all practices we observed high levels of work intensity. Interruptions through colleagues and patients were part of many work processes although not always consciously perceived as being particularly stressful:

Q3, focus group discussion, single practice:

"Interviewee (I)1: But I used to experience this when I was by myself at the front [desk]. [...], telephone, everybody wants to pick up something, this and that. [...] but if this is already stress, [...], no, [...]."

I2: Yes, because you have that [incomplete task] in the back of your mind. Hopefully, I do not forget anything [...]."

I3: Yeah, that is stressing you out, I think so, that is stressful, isn't it? So, hopefully I haven't forgotten anything. Register something, prepare a bill, this and that."

Subsequently, a MA describes an approach to deal with interruptions:

Q4, focus group discussion, group practice:

"Especially at the reception desk, you cannot finish a thing, you really have to put your notepad next to you and write stuff down, bullet points, because otherwise you'll forget stuff. Of course, this shouldn't happen, so everything should be written down immediately and if possible one thing should be completed before the next thing."

On the one hand, interruptions due to incoming calls or inquiries from patients were likely to be put on hold till the previous task was completed:

Q5, focus group discussion, single practice:

"I1: We try to be aware of everything. So, if somebody interrupts us at the registration desk while we are working on something else and another patient comes and says 'I'd just like to ...', [we say:] 'Just a moment, we'll finish this first, because otherwise we'll lose track and then we can [...] continue with you'. [...]."

I2: Exactly. [...]

I1: [...] everybody has to queue [...]."

I2: Everything is being taken care of one after another."

I1: Exactly, exactly."

I2: So that one thing can be finished."

I1: Yes."

Although interruptions could frequently not be avoided, there was some scope for prioritization which increased the likelihood to complete one task before the next. Prioritization was particularly relevant at the reception desk, the center of activities and interruptions during consultation hours:

Q6, observation protocol, group practice:

"Meanwhile [on top of all of the other things happening] the phone rings, which is ignored by the trainee saying 'this has to wait'."

On the other hand, interruptions from colleagues or superiors were frequently taken for granted:

Q7, focus group discussion, group practice:

"Interviewer: [...] I got the impression there are a lot of feedback loops and inquiries [between you and your colleagues], [...]."

I1: Yes, I don't even notice it, it just happens, doesn't it? We just talk it over."

Q8, focus group discussion, group practice:

Interviewer: [...]. During the observations I got the impression that you are exposed to many interruptions over the course of one particular task.

I2: Yes.

Interviewer: How do you feel about that?

I2: That's right. Yes, that's right. Even if you always do the same thing, you can finish a lot of things, but it depends on whether [one doctor] appears from a consulting room or [another doctor] appears from [another consulting room], if you want to make a phone call, of course you have to interrupt this and finish it later. That's right. That happens every day."

The procedure of blood sampling is an example of mostly *"do[ing] the same thing"* (Q 8). Usually, blood sampling took place during early consultation hours in a specifically equipped laboratory undertaken by one MA assigned to that task, sometimes for the entire week. As the process of blood sampling was largely prepared and executed by the MAs, we observed interruptions more frequently during the issuing of prescriptions where the practice team is more dependent on the GPs to complete the procedure. The handling of prescriptions was taken care of at various work stations throughout the practice by doctors as well as the team (e.g. registration desk, consultation room, back office). On the one hand doctors sometimes requested to reduce interruptions during consultation hours:

Q9, interview, group practice:

"I'm calling a patient, [...]. At that moment one of the staff dashes forward and hands a prescription to me. [...] And here I am bossy and say: 'Dear people, please arrange work in a way that the consultation hours with the patients run smoothly and thoroughly; therefore, I do not want any heckling, for example, no telephone calls.'"

On the other hand, we also observed that prescriptions were signed by GPs during ongoing treatments of patients interrupting the consultation process, potentially resulting in spending more time, concentration and energy to return to the original task. For the MAs, however, this is an opportunity to complete their task quickly and hand the signed prescription to a waiting patient:

Q10, observation protocol, single practice

„While [the doctor] is treating the patient, a MA knocks at the door and enters with a prescription for [the doctor] to sign. While the [doctor] is typing something at the computer, the MA is standing behind [the doctor]. She has to wait a moment until the doctor finishes typing and turns towards her taking the prescription to sign, handing it to the MA. The MA takes the prescription and leaves. [The doctor] and [the] MA have not spoken a word to each other.”

In some of the practices observed, there were particular areas for prescriptions to be signed (e.g. trays, shelf space), some of which were in the immediate vicinity of the consulting rooms. The doctors were able to finish an appointment or a series of consultations before signing documents such as prescriptions stored in designated trays. Doctors were thus able to control their flow of work, and interruptions in the consulting room were reduced.

Working environment

The previous example highlights the interrelation between work organization and working environment, the latter including, for example, the spatial design of the waiting area, the treatment and consultation rooms and the associated work stations including any equipment.

During consultation hours, the registration desk was the most exposed work station, the center of various activities including, for example, short consultations between physicians, the PAs and administrative staff, the registration of patients, handling of prescriptions, arrangements of appointments, and the dealing with a multitude of phone calls:

Q11, observation protocol, group practice

„Today, the registration desk and the waiting area appear to be busier [than yesterday]. In the registration area, trainee 1 and 2 are making phone calls at the same time, one of the PAs is talking to patients or to a doctor, the waiting room is full, and the patients seated in front of the laboratory talk to each other. From time to time, an alarm clock rings in the lab - something needs to be checked [...]. Returning to the registration desk, doctor A notices the list of registered patients and asks the PA: ‘Am I too fast?’ The PA replies: ‘No, that’s fine, there are more [patients] listed on the next page.’ Doctor A mentions to doctor B that the consulting hours in the evening should not finish too late, [...]. Now, the waiting room is completely packed, and three patients have to stand. Again, I notice that only a few patients say ‘hello or good day’ at the registration desk, but usually mention their concern immediately. PA 1 is always friendly and mostly replies ‘What can I do for you?’ PA 2 appears at the registration desk [...], she is wearing

surgical gloves, looks around and I ask whether she had time to talk about her tasks in the laboratory. She replies that she has to take care of an electrocardiogram first and leaves the registration area."

In some of the practices, the registration area was designed in such a way that a multitude of tasks could be carried out at the same time. In other practices, however, the design of the working environment aimed at the separation of tasks. For example, there were workplaces at the registration desk not equipped with a telephone. There were also practices where separate workplaces were set up in a back-office area to handle, for example, administrative tasks or to take telephone calls. Similar to working in the laboratory, patient contact in these areas was limited, interruptions occurred less frequently, the parallel processing of several tasks was less likely, and the noise level was lower. At the same time, the staff working at the registration desk did not have to deal with particular administrative tasks (e.g. scanning of laboratory results) or were relieved of taking phone calls reducing the noise level during consultation hours considerably. Overall, noise levels at the registration desk were, however, not mentioned by practice staff without direct inquiry from the observers.

Another factor discussed was the concern with the feeling of the staff of being under constant observation. Working at the registration desk, all personnel was continuously exposed to inquiries from patients, colleagues or superiors, and micro breaks were important to relax the body and the mind:

Q12, observation protocol, group practice

"[The employee mentions to the observer] that she is "on display" at her work station. The patients can watch her continuously and she has to be on the spot all of the time. Therefore, she occasionally has to leave [her work station] for a short time to see something else and take a breath."

Working in the laboratory, the privacy of the PAs was more protected because the perceived social control through third parties (e.g. patients or superiors) did occur less frequently or not at all as the PA was responsible only for one patient at a time.

The working environment also includes the availability and functioning of technical equipment at different work stations, such as computers, printers and work specific software (e.g. lab management software). For example, the advantage of investing in several printers at different work stations facilitates smooth working processes, particularly evident in the laboratory environment. All but one of the laboratories visited were equipped with a computer, whereas a printer was available in only one lab. This printer, however, could not be used to print the required forms used in the lab:

Q13, observation protocol, group practice

"The PA tells [the observer] that she has to go [from the laboratory] to the front desk because she needs to use another printer. [The observer] follows the PA to the registration. Here, the PA puts [the required] form into an old printing device. [...]. Subsequently, [the observer] follows the PA back to the lab. [...]. The PA explains that patient data had to be printed on a particular form, and the printer in the lab can't do that."

Furthermore, appropriate software can facilitate laboratory processes including information on particular blood tests or medical prescriptions when staff can access patient data directly in the lab. For example, we observed that PAs checked current medication plans directly at the laboratory computer before choosing appropriate equipment to take blood from patients taking drugs affecting clotting time. This was possible if electronic patient records were available which we observed only in some of the practices.

The laboratories were usually equipped with all utensils necessary to take blood samples (e.g. surgical gloves, antiseptics, used needle containers or disinfectants); nevertheless, we observed that hygiene regulations were implemented to varying degrees of consistency in several practices:

Q14, observation protocol, group practice

"[The PA] goes to the sink, takes some disinfectant into her right hand to rub a little on her hands. Shortly afterwards, she takes paper towels and wipes her hands again. [The observer] wonders whether this was the entire procedure of hand disinfection. In any case, this did not comply with the hand hygiene protocol poster displayed at the wall [...]. Furthermore, neither did she use surgical gloves during the blood sampling nor has she disinfected or washed her hands between different patients."

As our project did not intend to evaluate workplace hygiene, the implementation of hygiene regulations was not discussed further in any of the interviews or focus group discussions. During one observation only, one staff member mentioned that hand hygiene gives the patient a sense of security whereas self-protection was not mentioned at all. As we wanted the staff to discuss factors related to occupational stress as openly as possible, we aimed to avoid any criticism related to hygiene regulations.

Spatial design, missing or faulty equipment resulted in additional work for staff, particularly evident in the laboratories and at the registration desk. The availability of additional printers and appropriate software in the lab could facilitate work processes, avoid additional noise or work at the registration desk; from an economical point of view, however, providing additional equipment also creates additional costs.

Social relations

Whereas some of the GPs emphasized their special and long-term relationships with patients, the PAs participating in the focus group discussions highlighted particularly the value of mutual support and team work that we observed across all practice teams:

Q15, focus group discussion, group practice

"I1: Well, there are really days when you see, for example, that [there is a lot of work to do] in the lab. [...]. The person who has [less to do] supports the person in the lab. [...]. Yes, there are really situations like that. Anyhow. [...], you just go and help."

I2: "We always support each other, no matter what."

Across all practices observed, there were several work stations at the registration desk where PAs could work simultaneously, facilitating mutual support, but also increasing the likelihood of interrupting each other. In the laboratory, work stations were more isolated which sometimes complicated direct communication and support. We observed, however, that PAs took particular effort and care to support each other during busy laboratory hours which also included communication across different work stations and rooms, and additional support from staff designated to different work stations than the lab:

Q16, Observation protocol, group practice

"[After trying twice] the PA stops the blood sampling and informs the patient that she will get a colleague. The patient says that this is not necessary. The PA insists and says that she only tries twice [to puncture a vein]. [...]. She leaves the laboratory and after a short time a colleague appears, who [...] grabs a pair of surgical gloves from one of the two boxes, and sits down at the table [to continue with the procedure]."

Over the course of the field work, all practice teams highlighted the dependency on each team member to deal with the work intensity and ensure the quality of patient care. It was also discussed that insufficient team work can result in a serious burden for both individual team members as well as for the entire staff.

Discussion

Using the examples of issuing prescriptions and blood sampling, we analyzed how general practice teams organize working procedures, focusing on the interrelation of specific work-related psychosocial demands and associated stressors.

Key organizational differences in working procedures and related psychosocial stressors and resources

All professional groups were involved in the handling of prescriptions at various workstations throughout the medical practices. The practice staff usually prepared the prescriptions for the doctors to check and sign resulting in a division of labor and dependency of the practice team to complete the task. In comparison, individual steps of the blood sampling procedure were less intertwined between the professional groups, and the PAs could usually complete their responsibilities in the laboratories independent of the GPs. As summarized in figure 1, key psychosocial risks observed comprised stressors related to work content and task (incompleteness of tasks), organization of work (frequent interruptions, high levels of work intensity, simultaneous processing of several tasks, tightly coupled work processes), and the working environment (noise, missing, unsuitable or unused/incorrectly used equipment/software, the feeling of being under constant observation). Key resources related to work content and task comprised an appropriate scope for action (influence on the sequence of activities) and sufficient patient-related information, particularly during the process of blood sampling. Furthermore, factors regarding work time (possibility of mini-breaks), and efficient communication and cooperation within the team (clearly defined areas of responsibilities particularly in the laboratory) were important resources related to work organization. In terms of social relations, positively perceived teamwork was an important resource, and a supportive working environment included access to suitable workstations, equipment and

software. Aspects related to “new forms of work” (e.g. atypical forms of employment, geographic mobility, no clear division between work and private life) [7] were not relevant in the material chosen for this analysis.

Figure 1 Work-related psychosocial demands, risks and resources in general practice teams

Cumulative and compensatory interrelation of psychosocial demands

In line with previous research [21], our results demonstrate that different psychosocial demands do not occur in isolation, but are closely interconnected. Daily routines across all practices were characterized by a very high work intensity frequently concurring with disturbances, interruptions, delegation and the division of labor. Working at the reception desk is an example for the cumulative and compensatory effects of different psychosocial demands and their associated risks and resources. Here, all of the previously reported perceived stressors come together including noise, frequent interruptions, and the parallel processing of several tasks. Even though some of the stressors, such as noise or interruptions were not always perceived as particularly stressful by the study participants, prior research has shown that a continuously high level of noise, frequent interruptions, ineffective communication or the parallel processing of multiple tasks have a negative effect on psychological and physical well-being [58]. At the reception we also observed the compensatory effect of working together as a team, a well-established work-related resource mitigating factors associated with an intense working environment [16, 59]. We also point out the uniqueness of the doctor-patient relationship, comprising long-term rich relationships with patients as well as mutual trust and respect, previously described as an important resource for GPs in Europe [31].

Furthermore, our study highlights that the process of dealing with interruptions affects the staff involved differently. We observed, for example, that doctors were interrupted by practice staff during ongoing consultations or other tasks (e.g. at the registration desk) to check and sign prescriptions for patients waiting outside the consultation rooms. For the GPs, the interruption was a potential stressor, including loss of time and additional effort required to finish their primary task [21, 60]. For the PAs, however, the interruption of the doctor resulted in a broader scope of action, a speedier finalization of dealing with a prescription and waiting patients, and a decreased likelihood of being interrupted at another task while waiting for the GPs signature. Interestingly, none of the practices observed decided to issue repeat prescriptions after consultation hours which could reduce the frequency of interruptions for both, the physicians and the practice staff probably mitigating the negative effects associated with interruptions [60].

Work design measures to reduce work-related psychological stress and strain

We observed that in some practices the working environment was designed in a way that allowed for areas and periods during which the signing of prescriptions could be undertaken without being disturbed (e.g. specific desk or shelf where doctors can sign prescriptions between consultations). This also

provided the possibility of restorative breaks which have been shown to have a positive effect on physical and mental health in health care staff [61].

Depending on financial, spatial and human resources, the design of the workplace can mitigate the negative effects of an intense working environment and facilitate the implementation of effective and correct working procedures. In comparison to single work stations, for example, a working environment with several work stations can be louder, bustling and buzzing. Spatial proximity can, however, facilitate mutual support and speed up work processes. Additionally, other factors need to be considered regarding the correct implementation of working procedures. In terms of blood sampling, for example, all the necessary equipment was usually provided in the laboratory areas, but sometimes not handled in the correct way (e.g. disinfectant) or not used at all (e.g. surgical gloves). Our observation is consistent with prior research showing that only 20% of the medical staff in hospitals applied correct hand hygiene procedures [62]. Interestingly, this inadequate implementation of hygiene and occupational safety measures was not actively addressed by the study participants in the interviews. The main reasons for poor hand hygiene reported by Erasmus et al. [62] were a lack of positive role models and of convincing evidence that hand hygiene is one of the most important factors to prevent cross-infection. Other reasons included, for example, insufficient time, skin problems, or not being aware of the right protocols. Conducting a psychosocial risk assessment in general practices, which is mandatory in Germany [22], could help to identify the underlying reasons for poor hand hygiene and improve the acceptance and consequent implementation of hygiene procedures. Finally, qualification and job rotation could be a good measure in some settings to equally distribute the different psychological demands, stressors and resources among the PAs.

Strengths and limitations

The study benefited significantly from the cooperation within the transdisciplinary research collaboration *IMPROVEjob* [41]. For example, the development of the observational framework included the GPs and PAs of the research support group, the members of the scientific advisory board and the interdisciplinary research group of the *IMPROVEjob* consortium. The combination of academic and practical expertise contributed to the development of a comprehensive observational framework relevant in the primary care setting [see 63 for comprehensive discussion of transdisciplinarity in health research], facilitated the recruitment process (as we had access to a local GP network), and mitigated challenges of the ethnographic approach (e.g. disruption of daily routines) through comprehensive familiarization with the setting. Furthermore, intersubjectivity was achieved over the course of the analysis (by triangulation of methods and an interdisciplinary analysis team), confirmed through communicative validation by an independent research support group [49]. The applied ethnographic design is a methodological strength of this study, as it was possible to analyze (a) which work characteristics were observed, (b) which were actively addressed in the interviews and (c) which were only addressed upon a narrative request during the interviews. Thus, applying only interviews or even only a standardized questionnaire to assess psychological demands, stressors and resources would have resulted in a less complex understanding of the interrelation between the factors described in this study.

All practices visited were part of a general practitioner network comprising practices that are involved in teaching and training of medical students. This may have resulted in a sample including participants being particularly open and reflective concerning our study approach. Due to the ethnographic approach, we assume that the issue of social desirability is rather low in the data. Over the course of the fieldwork, it became evident that especially practice staff are used to being observed at work. Our participatory observation fit into a daily routine, but was surely more intimate and more intensified as we were also allowed access to sections of the practice where patients were not allowed. Still, full adaption of behavior would not have been possible for a whole week. The participants were simply too busy to constantly pay attention to the observers. The incidents in our data in which participants did not follow protocol or regulations (e.g. hand hygiene) show that participants were either not able or not intending to hide critical aspects of their routines. Furthermore, the focus groups and interviews were conducted after the observations and the participants were already familiar with the researchers.

It should also be noted, that the presentation of our results has intended and unintended “blanks” [64]. For example, the different professional backgrounds of the observers (sociology, health sciences, health care) have contributed to a comprehensive view on reoccurring themes (e.g. interruptions or hygiene standards). Nonetheless, unintended “blanks” have occurred over the course of the observation; for example, we did not record the technical equipment or the organization of particular working procedures to varying degrees because the researchers had different priorities depending on the actual situation observed or discussed during the fieldwork. Intentional gaps arose where, for example, we observed issues related to the implementation of hygiene regulations but did not further explore motives for particular practices to avoid any sense of occupational hazard control which was not the aim of our research. For reasons of patient confidentiality, we also predominantly observed situations outside the treatment rooms; hence, the results focus rather on the perspectives of the practice staff and to a lesser degree on those of the GPs.

Finally, we chose to report work-related psychosocial demands and related stressors and resources exemplified mainly along the preparation of medical prescriptions and the procedure of blood sampling. This means we did not capture all of the psychosocial demands and risks summarized in the observational framework based on the recommendations for implementing a comprehensive psychosocial risk assessment [22]. We therefore also did not capture all of the psychosocial risks or resources relevant in the primary care setting. For example, we did not discuss appointment scheduling within the context of this paper which is, however, a well-known organizational task that has a significant impact on the management of consultation hours [65]. In Germany, new regulations for drop-in consultation hours particularly relevant for patients with statutory health insurance came into effect in January 2020 [66]. The impact of putting new law into practice remains to be seen, but issues concerned with an improved accessibility to health care, additional administrative workload and intervening with workplace autonomy are currently being discussed [67]. Yet, many of the resources and work design measures described here have general positive effects on reducing psychosocial stress in primary care practice teams.

Conclusions

The psychosocial risks reported in this study including high work intensity, frequent interruptions, simultaneous processing of several tasks or tightly coupled work processes have been reported relevant in small and medium-sized enterprises of other economic branches [11]. Prior research has also highlighted the importance of positive social relationships in small enterprises where many workers describe their working environment as a place where they were “treated as a person” or “where the boss ‘cares’” and “where people ‘look out for one another’” [68]. We emphasize that the mutual social support we observed across all practices mitigates work-related stress to a certain degree, but should not be taken for granted for coping with an intense working environment. Putting laws and recommendations into practice, general practice teams may also choose different approaches such as the organization of work or the design of the working environment. Implementing the mandatory psychosocial risk assessment in all smaller and larger enterprises should therefore not be seen as “another administrative burden”, but as an opportunity to find different ways to deal with work-related psychosocial risks.

List Of Abbreviations

GP - general practitioner

PA - practice assistants

Q - Quotation

WP – work package

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained from the responsible Ethics Committee of the Medical Faculty, University Hospital of Tuebingen (reference number: 640/2017B02). All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Practice staff and patients were informed about the participatory observation, individual declarations of consent were signed by the practice staff, and each participant had the possibility to revoke their consent at any time over the course of the study. Furthermore, each of the three researchers collecting the data (ET, SH, ER) signed a declaration of confidentiality.

Consent for publication

Not applicable.

Availability of data and materials

The datasets analyzed during the current study are not publicly available due to German national data protection regulations.

Competing interests

The authors declare that they have no competing interests.

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Figures

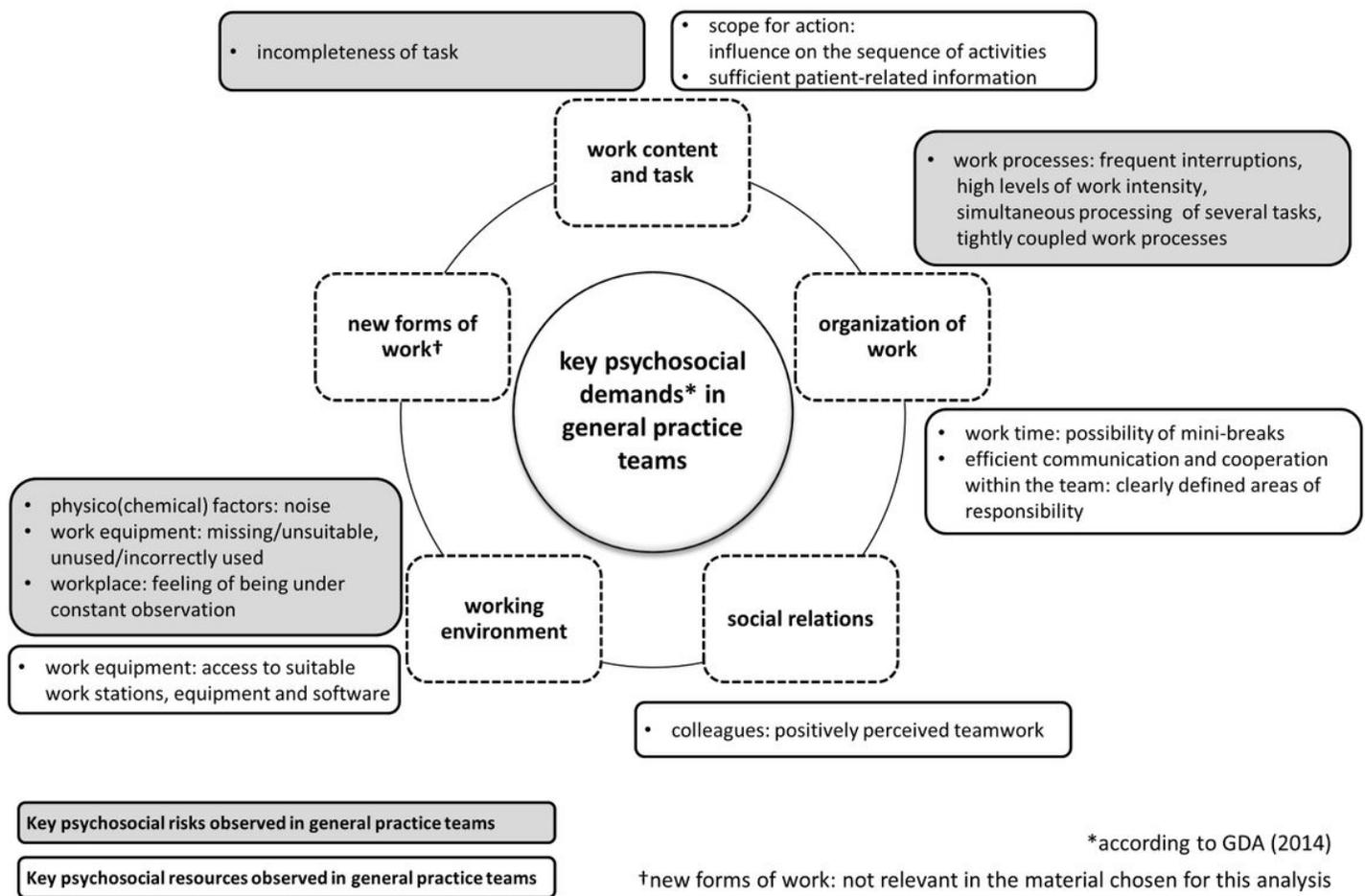


Figure 1 Work-related psychosocial demands, risks and resources in general practice teams

Figure 1

Work-related psychosocial demands, risks and resources in general practice teams

Supplementary Files

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