

# Mental strain among staff at medical rehabilitation clinics in Germany

## Psychische Beanspruchung der Mitarbeiter in medizinischen Rehabilitationskliniken in Deutschland

### Abstract

**Objectives:** The aim of the study is to compare the frequency of mental strain effects on employees in somatic and psychosomatic rehabilitation clinics as well as between the different occupational groups. Associations between mental strain effects and working conditions, cooperation in the team and employee satisfaction are also investigated.

**Methods:** The present study is cross-sectional with a descriptive-explorative design. It is composed of a survey with standardized questionnaires (Human Service Workload, Questionnaire on Teamwork and Questionnaire on Staff Satisfaction in Medical Rehabilitation) and global items, and was conducted among all employees of twelve rehabilitation teams (five somatic and seven psychosomatic rehabilitation clinics ( $n=549$ )). The response rate of the survey averaged 45% ( $n=252$ ).

**Results:** One in four participants reported being emotionally exhausted. There were significantly more emotionally exhausted employees working in the psychosomatic (31%) than in the somatic rehabilitation clinics (16%) ( $\chi^2=7.403$ ,  $df=1$ ,  $p<0.05$ ), with physicians most frequently reporting emotional exhaustion (45%). The negative appraisal of mental strain effects is accompanied by negative values for cooperation in the team and employee satisfaction ( $r=-.38$  to  $r=-.50$ ,  $p<.001$ ). There were mostly high correlations ( $r=-.503$  to  $r=-.609$ ) between the working conditions and the mental strain effects (emotional exhaustion, intrinsic motivation, dissatisfaction).

**Conclusions:** The results clearly show that the employees in medical rehabilitation clinics have a high stress level at work, a situation which is also known in other health care organizations. Observations of strong associations between cooperation in the team and strain effects confirm the positive impact of social support in the daily work routine. Correlation between the subjective appraisal of working conditions and the impact of strain is mostly high. It can be assumed that the strain effects can be influenced positively with supportive team and human resource development (person-related interventions) and interventions that enhance working conditions (condition-related interventions).

**Keywords:** health care professionals, cross sectional study, questionnaire, mental health, emotional exhaustion, medical rehabilitation

### Zusammenfassung

**Zielsetzung:** Ziel des Beitrags ist ein Vergleich der Häufigkeiten von psychischer Beanspruchung bei Beschäftigten in somatischen und psychosomatischen Rehabilitationskliniken sowie zwischen den verschiedenen Berufsgruppen. Zudem werden die Zusammenhänge zwischen psychischer Beanspruchung, Arbeitssituation, Kooperation im Team und Mitarbeiterzufriedenheit untersucht.

**Methode:** Die vorliegende Studie ist eine Querschnittsstudie mit einem deskriptiv-explorativen Design. Es wurde ein Fragebogen aus standar-

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disierten Fragebögen (Fragebogen zur Beanspruchung durch Human-dienstleistungen (FBH), Fragebogen zur Arbeit im Team (FAT) und Fragebogen zur Mitarbeiterzufriedenheit (MiZu-Reha)) und Globalitems bei allen Mitarbeitern von zwölf Rehabilitationsteams (fünf somatische und sieben psychosomatische Rehabilitationskliniken) eingesetzt (n=549). Die durchschnittliche Rücklaufquote betrug 45% (n=252).

**Ergebnisse:** Ein Viertel aller befragten Mitarbeiter geben an emotional erschöpft zu sein. Dabei tritt die emotionale Erschöpfung in der psychosomatischen Rehabilitation signifikant ( $\chi^2=7.403$ , df=1, p<.005) häufiger auf (31%) als in der somatischen Rehabilitation (16%), dabei fühlt sich das ärztliche Personal (45%) am häufigsten emotional erschöpft. Die negativen Ausprägungen der Beanspruchungsfolgen geht einher mit negativen Bewertungen der Teamarbeit und Mitarbeiterzufriedenheit ( $r=-.38$  bis  $r=-.50$ , p<.001). Zwischen der Arbeitssituation und den Beanspruchungsfolgen (emotionale Erschöpfung, intrinsische Motivation, Unzufriedenheit) zeigen sich meist hohe Zusammenhänge ( $r=-.503$  bis  $r=-.609$ ).

**Fazit:** Die Ergebnisse verdeutlichen, dass Mitarbeiter in Rehabilitationskliniken, wie aus anderen medizinischen Versorgungseinrichtungen schon bekannt ist, eine hohe Beanspruchung haben. Betrachtet man die hohen Korrelationen zwischen der Kooperation im Team und den Beanspruchungsfolgen, bestätigt dies den positiven Einfluss sozialer Unterstützung bei der täglichen Arbeit. Die subjektive Bewertung der Arbeitsbedingungen und die Beanspruchungsfolgen korrelieren meistens hoch. Es kann davon ausgegangen werden, dass die Beanspruchungsfolgen mit Personal- und/oder Teamentwicklungsmaßnahmen (personenbezogenen Interventionen) als auch Interventionen zur Verbesserung der Arbeitsbedingungen (bedingungsbezogene Interventionen) positiv beeinflusst werden können.

**Schlüsselwörter:** Gesundheitsberufe, Querschnittsstudie, Fragebogenstudie, Beanspruchung, Medizinische Rehabilitation

## Introduction and background

Medical rehabilitation in Germany mostly (95%) takes place as in-patient measures in rehabilitation clinics and aims at the restoration of health, activities (e.g. learning and applying knowledge, communication, general tasks and demands, mobility, self care, interpersonal interactions and relationships), and participation (e.g. domestic life major life areas, community, social and civic life). Approximately 25% of all rehabilitation measures are post-acute rehabilitation (Anschlussrehabilitation, AHB), while three-fourths are "preventive rehabilitation" with the aim of slowing down the progression of the disease itself, training functional capacities and activities, providing information about the disease and education on medication, nutrition, physical exercise, coping, lifestyle etc. [1]. This multidimensional, bio-psychosocial treatment requires a rehabilitation team with multiple health care professionals (e.g. physician, psychologist, occupational therapist, physiotherapist, nurse, social worker etc.). The different occupational groups have to interact with each other in bringing the different professions, assessments and evaluations together to obtain a holistic view of the patients' problems. Teamwork is therefore a key feature of the work in medical rehabilita-

tion and a precondition for effective patient treatment [2], [3].

Cooperation between the different occupational groups is affected by an ever-increasing workload at health care facilities such as medical rehabilitation clinics. The everyday working life of the health care providers, or rather employees at medical rehabilitation clinics in Germany, is affected by economic cutbacks, transition to more "flexible" working conditions, high levels of time pressure, and increasing job requirements. In addition, employees must meet high demands with regard to patient-centred treatment, variable working hours, unfavourable external conditions (for example temporary employment), cost pressure on clinics, fear of job loss and a lack of social support [4], [5]. All these factors influence the working conditions and result in increased mental strain when coping with work as well as a rise in negative effects for employees' health [5]. High levels of absenteeism, employee turnover and lack of satisfaction are leading indicators for the increase in mental strain [4].

Mental disorders are the third and fifth leading causes of occupational disability in Germany [6]. The number of sick days resulting from mental health problems among employees in health care was 55% above the German national average in the year 2004 [7]. Health care profes-

sionals in the United Kingdom also have higher absence and sickness rates than staff in other sectors [8]. With regard to individual occupational groups in health care facilities, work-related strain among nursing staff has been extensively examined [8], [9], [10], [11], [12], [13]. Compared with blue and white-collar workers, nursing staff have higher levels of work strain and make more efforts to cope with it [9]. Nurses have been identified as one of the professional groups with the highest sources of stress [8], [10]. Nearly half of all nursing staff indicated emotional exhaustion [12], and this occupational group had the highest burnout levels among the disciplines in psychiatric rehabilitation [14]. In the study by Messenzehl et al. [15] on burnout among mental health professionals in a psychiatric institution in Germany, burnout among nursing staff amounted to 11.5% and 16.7% among academic staff. Surveys on burnout among physicians stated at least 20% of all physicians in Germany suffer from burnout, and 78% are dissatisfied with their working conditions [16].

Higher levels of ward atmosphere support, autonomy and order and organization were accompanied by lower burnout levels [14]. Garner et al. [17] explored the individual and the organizational factors associated with burnout among corrections-based drug treatment staff. The most significant individual factors related to burnout were younger counsellor age and gender (males reported significantly higher levels of burnout than females). Organizational factors, such as lower adaptability, poorer clarity of agency mission and higher stress levels have a stronger influence on burnout. Assessing how the organization and staff function can help identify problem areas, which can then be addressed by future burnout prevention measures, e.g. better organizational climate, clarity of the organizational mission [17]. Sources of stress were positively associated with emotional exhaustion and burnout. Systematic reviews [8], [11] identified most frequently reported stressors (e.g. administration and organizational concerns, heavy workload, interprofessional conflicts, financial and resource issues, changes in health service, maintenance of standards, emotional cost of caring, lack of reward and shift working), coping strategies (e.g. social support, stable relationships, recognizing limitations, fitness level, personal strategies, supervision etc.) and organizational interventions. Biron et al. [13] recommended a risk assessment before implementing organizational interventions to ensure that the interventions effectively address the sources of stress. Corrigan et al. [18] reported on the impact of organizational development measures (eight months of interactive staff training). After this interactive staff training, which helps the rehabilitation team develop behavioural approaches to changing clients' behaviour, staff members reported significantly less emotional exhaustion. The findings of Stoll and Richter [19] showed low to medium correlations between teamwork and health as well as well-being ( $r=0.18$  to  $r=0.32$ ). Mental health problems often correlate positively with workload [20]. In addition multilevel analyses by Garman et al. [21] revealed significant asso-

ciations between staff burnout, especially emotional exhaustion (Maslach Burnout Inventory) and patient satisfaction (Consumer Satisfaction Scale) in psychosocial rehabilitation teams. The correlations between satisfaction with treatment and emotional exhaustion are medium ( $r=.43$ ). This implies that there is an association between mental strain and patient outcome in terms of patient satisfaction. This association between strain and performance has been demonstrated in social services [22]. Until now, there is no epidemiologically reliable information available on the impact of strain and mental health problems in employees at inpatient medical rehabilitation clinics.

## Aim of the study

The aim of the study is to compare the frequencies of mental strain effects in somatic and psychosomatic rehabilitation clinics as well as between the different occupational groups. It will also consider the extent to which their mental strain is connected with working conditions, cooperation within the team and job satisfaction.

## Pursuing this objective poses the following questions:

1. Are there any differences in the frequencies of mental strain effects felt by employees in the somatic and psychosomatic rehabilitation clinics?
2. Are there any differences in the frequencies of mental strain effects between the occupational groups? Which of the occupational groups are most frequently stressed in medical rehabilitation clinics?
3. What correlations exist between the impact of strain and attitudes toward teamwork, staff satisfaction, and employee attitudes to voluntary turnover due to their work situation?

## Methods

### Subjects and procedures

The study is cross-sectional with a descriptive-explorative design. The data was collected by means of a survey of the team members at inpatient medical rehabilitation facilities. All providers of various occupational groups directly participating in treatment were defined as team members. Physicians, nursing staff, therapists of the psychosocial department (such as psychotherapists, social workers, art, work and music therapists), and therapists of the physiological department (such as physiotherapists, masseurs, sport, exercise and nutrition therapists, dieticians) constitute a medical rehabilitation team. We asked cooperating partners at rehabilitation clinics who are members of the Freiburg-Bad Säckingen Rehabilitation Research Network if they were interested in participating in the study. Fifteen medical rehabilitation clinics

took part. Distribution of the sets of questionnaires to team members was performed by responsible persons at the individual clinics, and data collected over a 9-month period.

## Measurements

The questionnaire pack for the employee attitude survey contains standardized questionnaires and global items. The global items regarding working conditions ("How do you judge your labour situation/working conditions as a whole" – graphical 7-point scale, low values are positive, high values are negative) and employee attitudes to voluntary turnover ("Have you ever considered quitting or changing your place of work because of the unfavorable working conditions or the strain?" Four-point Likert Scale: never, seldom, at times, often) [23]. The demographic information (such as gender and occupational group) was only collected for a few items in order to preserve anonymity.

The standardized questionnaires are:

- *Fragebogen zur Beanspruchung durch Humandienstleistungen* [Human Service Workload]
- *Fragebogen zur Arbeit im Team (FAT)* [Questionnaire on Teamwork]
- *Fragebogen zur Mitarbeiterzufriedenheit (MiZu-Reha)* [Questionnaire on Staff Satisfaction in Medical Rehabilitation]

**Fragebogen zur Beanspruchung durch Humandienstleistungen [Human Service Workload]** – taken from the *Beanspruchungsscreenings bei Humandienstleistungen* [Human Services Workload Screening] [24]. It was specially designed for the domain of care in clinics, rehabilitation facilities and nursing homes. The questionnaire captures the medium and long term impact of mental strain as well as short-term effects of burnout such as "experience of monotony" and "psychological exhaustion". The wording of the items is chosen in such a way as to connect the situation of the respondent and the statements about the task and the working conditions (for example, "I feel exhausted at the end of the shift"). Besides this, the items queried the impact of strain on the respondent's behaviour (for example, "I can get away from it all after work") and ill effects on health (for example, "My work frustrates me"). The questionnaire consists of 39 items on a 7-point Likert scale ("does not apply at all" to "applies perfectly"). The items are accumulated into five scales (*emotional exhaustion*, *work-related intrinsic motivation*, *experienced (dis-)satisfaction at work*, *aversion to clients* and *reactive protection*). The data of the scales are transformed into standardized values, the so-called Stanine values. Empirical validation studies calculated the cut-off points for the scales to determine the Stanine values [24]. Stanine values of "1" to "3" are considered positive assessments, "4" to "6" are neutral and "7" to "9" are critical. Internal consistencies (Cronbach's Alpha) can be considered to be satisfactory for nearly all scales: (*emotional exhaustion* ( $\alpha=.82$ ),

*work-related intrinsic motivation* ( $\alpha=.79$ ), (*dis-)satisfaction at work* ( $\alpha=.74$ ), *aversion to clients* ( $\alpha=.74$ ), except for the "reactive protection" scale ( $\alpha=.42$ )). Although the internal consistency of the scale "reactive protection" is too low, the scale has been kept in the instrument as it describes an important coping-strategy and emphasis on the practical validity is more important. Internal validity is proved by correlation with the scales of the Maslach Burnout Inventory (MBI). The correlations between comparable factors with the highest variance of the two instruments (*emotional exhaustion*) are, as expected, high ( $r=.80$ ), while those scales which are not comparable show no significant associations. External validity is documented by the high associations of the scale "emotional exhaustion" with the psychosomatic disorders ( $r=.60$ ), health status ( $r=-.54$ ) and job satisfaction ( $r=.45$ ) [24]. Correlations with the other scales of the Human Services Workload Screening are lower.

**Der Fragebogen zur Arbeit im Team (FAT) [Questionnaire on Teamwork]** [25] can be universally employed and has been psychometrically validated. It allows a practically oriented and comprehensive description of cooperation in a team as well as providing a direct source of content ideas for courses in team development. The questionnaire consists of 24 bipolar items, (such as "The objectives of the team are clear" versus "The objectives of the team are unclear") in the six-point Likert scale. The scales focus on the person on the one hand and on structure on the other hand. The scale on "structure orientation" (Reliability: Cronbach's Alpha in the study was 0.78) focuses on the achievement of objectives and effective task accomplishment (e.g. we easily achieve all objectives; the team members know their tasks; we coordinate our efforts in a positive way). The scale on "person orientation" (Reliability: Cronbach's Alpha in the study was 0.86) focuses on confidence, social support, respect, commitment to work, engagement, and responsibility. One item is, for example, "There is no competition between the team members". If there are clear goals, task sharing, and the team members accept and support each other, they feel responsible for the team output and their involvement is higher. Two further items combine to make up one scale to measure "social desirability". In these scales, values less than two are critical. In the other scales and subscales, values less than four or heterogeneous results (high standard deviation) indicate problems in the team [25].

**Der Fragebogen zur Mitarbeiterzufriedenheit (MiZu-Reha) [Questionnaire on Staff Satisfaction in Medical Rehabilitation]** [26] measures satisfaction resulting from special facets of work at medical rehabilitation facilities. It consists of the scales: "workplace atmosphere" (7 items, such as "The workplace atmosphere is too impersonal"), "leadership" (14 items, such as "My superior was often unfair to her/his staff", "My superior talked with her/his staff about their performance progress") and "organization and communication" (10 items, such as "Many colleagues are either overstrained or under-chal-

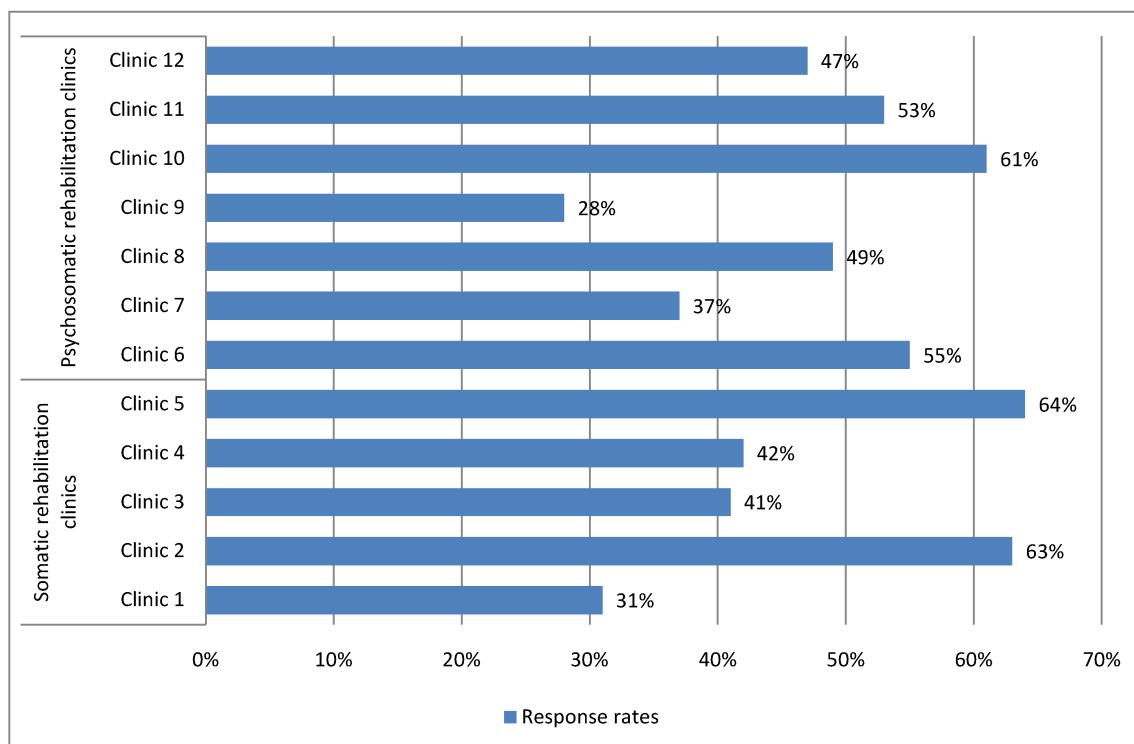


Figure 1: Response rates for each clinic

lenged"). The scales are deployed using 31 items in bipolar six-degree form. In addition, the Questionnaire on Staff Satisfaction in Medical Rehabilitation also contains individual items on the following specific topic blocks: "personal importance" (11 five-level items), "general job satisfaction" (12 five-level items) and "weak points" (7 four-level items). The scales of this questionnaire demonstrate good to excellent reliability (Cronbach's Alpha: 0.86 to 0.95). The discriminatory power of the items is satisfactory, with a range of values between 0.61 and 0.73. There is evidence of statistical congruent or rather discriminant validity because the correlation with the non-related individual items is low ( $r=0.114$  to  $r=0.539$ ), but the scales correlate highly ( $r=0.611$  to  $r=0.813$ ) with the related albeit independent indicators for job satisfaction (individual items on general job satisfaction). A critical point is that the single items used as external criteria were assessed in the same data collection period but were separated from the questionnaire [26]. However, as expected there are also associations (not significant because of the small sample) with patient satisfaction ( $r=.20$  to  $.30$ ), quality of rehabilitation process ( $r=.21$  to  $.38$ ) and outcome quality ( $r=.13$  to  $.36$ ). The results of the Questionnaire on Staff Satisfaction in Medical Rehabilitation can be used to demonstrate effects of interventions of organizational development. This point underpins the practical validity of the instrument [27].

## Statistical analysis

The data entry quality was tested by verification of random samples. The items were further checked for plausibility and missing data analysis was performed. Items or cases

with more than 30 per cent missing data were eliminated from the study. Descriptive analysis was conducted in order to determine the frequencies of critical (negative) values of strain. The Chi-square test was applied by conducting a number of individual tests to compare the distribution of critical (negative) values of the scales of Human Services Workload Screening with non-critical values (neutral and positive) in the field of rehabilitation/indication (somatic versus psychosomatic) and in the occupational groups (physician, nursing staff, psychosocial therapist and somatic therapist). The associations between strain and attitudes toward teamwork, staff satisfaction and working conditions were determined by correlation coefficients and regression analysis.

## Sample

From the 15 clinics, three were excluded because of response rates under 25%. Of the twelve that remained, five were somatic and seven psychosomatic rehabilitation clinics (including two addiction treatment clinics). The response rate for the survey averaged 45% (252 of 556 questionnaires) and ranged from 28% to 64% in the twelve inpatient facilities (see Figure 1). The five somatic rehabilitation clinics which participated provided 138 beds ( $SD=22.6$ ) on average. Occupancy rate varied between 60% and 118% (one of the clinics works with additional beds and in doing so reaches a rate of occupancy of over 100%). The teams consisted on average of 44 members (range=19–85). Therefore, one team member was responsible for two to four beds. The somatic rehabilitation clinics employed two to three times as many women as men.

**Table 1: Description of the sample**

	Somatic rehabilitation 5 clinics	Psychosomatic rehabilitation 7 clinics
	n=220	n=336
Number of beds	138	129
Rate of occupancy	85%	89%
Average team size	44	48
Response rate	46%	44%
Sample	n=102	n=149
Gender		
Male	26 (26%)	44 (30%)
Female	74 (73%)	100 (67%)
Occupational group	n=102	n=149
Physicians	10 (10%)	28 (19%)
Psychosocial therapists	14 (14%)	59 (40%)
Somatic therapists	31 (30%)	18 (12%)
Nursing staff	32 (31%)	27 (18%)
Other occupational groups	12 (12%)	14 (9%)
Critical values of the scales	n=102	n=149
Emotional exhaustion	16 (16%)	46 (31%)
Intrinsic motivation	13 (13%)	27 (18%)
(Dis)satisfaction	13 (13%)	26 (18%)
Aversion to clients	22 (22%)	34 (23%)
Reactive protection	5 (5%)	14 (10%)

**Table 2: Comparison of the rates of the different occupational groups in the team and in the sample broken down in somatic and psychosomatic rehabilitation**

	Somatic rehabilitation clinics		Psychosomatic rehabilitation clinics	
	Team	Sample	Team	Sample
Physicians	36 16%	14 14%	68 20%	29 19%
Psychosocial therapists	28 13%	14 14%	112 34%	59 40%
Somatic therapists	63 29%	31 30%	46 14%	18 12%
Nursing staff	78 35%	32 31%	85 25%	27 18%
Other occupational groups	15 7%	11 11%	25 7%	17 11%
	220 (100%)	102 (100%)	336 (100%)	150 (100%)

The psychosomatic rehabilitation clinics had an acceptance capacity of 129 beds on average (rate of occupancy: 70% to 99%), with 48 members (range=33–69) per team on average. These clinics were better staffed than the somatic clinics. Here, too, there tended to be more women than men in the teams. At the two rehabilitation clinics for addiction treatment, the gender ratio was almost

balanced. The proportion of team members compared to the acceptance capacity was better at the addiction clinics than at other psychosomatic clinics (see Table 1). The distribution of the occupational groups in the sample is comparable with the actual distribution of the occupational groups in the clinics (see Table 2). The somatic therapists and nursing staff formed the largest group in

the somatic rehabilitation clinics, with the psychosomatic therapists most frequently represented in the psychosomatic clinics.

## Results

One in four of the total participant sample reported being emotionally exhausted (Stanine values 7 to 9). A significantly higher number of men than women considered themselves to be suffering from strain, particularly where emotional exhaustion was concerned, with 16% of men and 10% of women showing critical ratings here (Stanine values 7 to 9) (comparing critical values with non critical values for gender in a two by two table:  $\chi^2=4.105$ , df=1,  $p<0.05$ ).

Emotional exhaustion was markedly more prevalent (31%) at psychosomatic rehabilitation clinics than at somatic rehabilitation clinics (16%;  $\chi^2=7.403$ , df=1,  $p<0.05$ ). The other scales of strain (work-related intrinsic motivation ( $\chi^2=1.263$ , df=1,  $p=.261$ ), experienced (dis-)satisfaction at work ( $\chi^2=0.983$ , df=1,  $p=.321$ ), aversion to clients ( $\chi^2=0.043$ , df=1,  $p=.835$ ) and reactive protection ( $\chi^2=1.732$ , df=1,  $p=.188$ )) did not differ greatly for the indication field (for the frequencies of each scale see Figure 2). The significant difference between somatic and psychosomatic rehabilitation was not so much in the distribution of gender ( $\chi^2=0.599$ , df=1,  $p=.439$ ); but rather in the distribution of occupational groups, with many more physicians ( $\chi^2=3.807$ , df=1,  $p=.051$ ) and psychosocial therapists ( $\chi^2=19.650$ , df=1,  $p<.001$ ) working in psychosomatic than in somatic rehabilitation clinics. In contrast, there were more somatic therapists ( $\chi^2=12.923$ , df=1,  $p<.001$ ) and nurses ( $\chi^2=35.914$ , df=1,  $p=.015$ ) in somatic rehabilitation clinics. The proportion of the category "other occupational groups" did not differ significantly ( $\chi^2=0.366$ , df=1,  $p=.545$ ) for the indication fields (see Table 1).

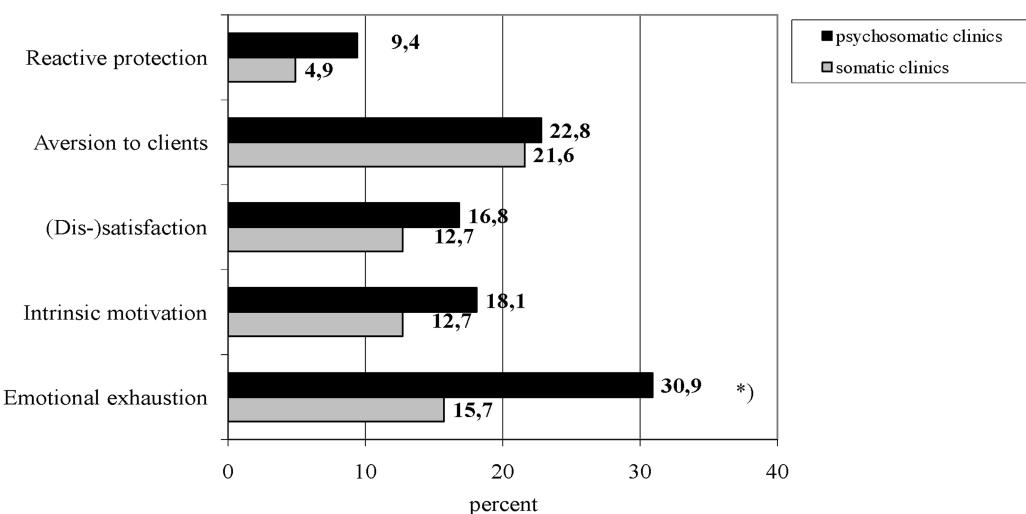
Physicians and psychosocial therapists (for example: psychologists, occupational therapists, social workers) are the occupational groups reporting the highest levels of emotional exhaustion (45% and 30% respectively) in rehabilitation clinics. While fewer members of nursing and therapist teams in the somatic division (for example, balneotherapists, physiotherapists, dieticians) reported feeling emotionally exhausted (13%), physicians, nurses and psychosocial therapists working in psychosomatic rehabilitation were more frequently exhausted than if they had been working in the somatic rehabilitation clinics. For therapists of the somatic division, emotional exhaustion was considerably more pronounced in somatic than in psychosomatic rehabilitation. 19% of both psychotherapists and nursing staff here evaluated work-related intrinsic motivation critically. The frequencies are higher for the employees of these two occupational groups when working in psychosomatic rehabilitation. In all occupational groups, 12% to 16% of responders were dissatisfied with working conditions. Physicians and psychosocial therapists belonging to psychosomatic rehabilitation

showed considerably more frequent dissatisfaction with their working conditions. On the contrary, somatic therapists in somatic rehabilitation reported dissatisfaction more frequently. Approximately one third of the physicians reported aversion toward the clients. In all the other occupational groups (disregarding the category "others") 20% of team members reported aversion to clients. Where the divergent rehabilitation fields were concerned, differences were particularly noticeable among the somatic therapists and nursing staff. Nurses in psychosomatic rehabilitation clinics reported aversion toward clients more frequently than nurses in somatic rehabilitation. Conversely, somatic therapists in somatic rehabilitation more frequently declared aversion toward the clients. Almost all occupational groups successfully used the coping strategy of "reactive protection". Physicians (13%) and nursing staff (8.5%) working in psychosomatic rehabilitation clinics most frequently failed to use this strategy. None of the percentages differed significantly, except for the proportion of emotional exhaustion for the psychosocial therapists (see Table 3).

The study showed low to medium associations between teamwork (the scales of the Questionnaire on Teamwork) and strain (emotional exhaustion, intrinsic motivation and dissatisfaction). "Organisation and communication", "leadership" and "workplace atmosphere" (the negative polarized scales of the Questionnaire on Staff Satisfaction in Medical Rehabilitation) also correlated significantly with strain (scales of the Questionnaire Human Service Workload excluding reactive protection). The correlations of the scales in the two last-named questionnaires were mostly moderate; except for the scales "aversion to clients" and "reactive support" (see Table 4). In addition, there were strong significant associations between the ratings for subjective working conditions and the impact of strain (emotional exhaustion, work-related intrinsic motivation, experienced (dis-)satisfaction on the job, see Table 4). The more positively the working conditions were perceived, the fewer negative implications of strain were displayed by team members. The tendency towards voluntary turnover (global item on a four-point Likert Scale: "Have you ever thought of quitting or changing your workplace because of unfavourable working conditions or workload?") correlates significantly positively with emotional exhaustion ( $r=0.51$ ), "work-related intrinsic motivation" ( $r=0.47$ ), "experienced dissatisfaction at work" ( $r=0.55$ ) and "aversion to clients" ( $r=0.29$ ).

The strongest associations are between the impact of mental strain and working conditions. It was possible to predict emotional exhaustion at 32% using the subjective appraisal of working conditions and the affiliation to the occupational group physician (see Table 5). Of the variables analyzed, working conditions also proved to be the best predictor of intrinsic motivation and dissatisfaction. The linearity of relations between variables was checked with scatter plots and no meaningful aberration was found. Job (dis-)satisfaction at 45% was predicted using the three variables "working conditions", "leadership" and "gender". Aversion to client could also be predicted

Frequencies of the critical values<sup>1)</sup> of strain effects among employees of somatic rehabilitation clinics in comparison to employees of psychosomatic rehabilitation clinics



**Figure 2: Proportions of critical values of strain<sup>1)</sup> among employees of somatic rehabilitation clinics in comparison to employees of psychosomatic rehabilitation clinics**

<sup>1)</sup> The diagram shows the frequencies of negative/critical strain effects (Stanine values of "7" to "9"). Values of "1" to "3" are considered positive assessments, "4" to "6" are neutral. These two categories are combined in one category (non-critical values) and they are not represented in the figure.

\*) The proportion of critical values for emotional exhaustion is significantly higher in psychosomatic rehabilitation clinics ( $\chi^2=7.403$ , df=1, p<0.05). For the other four scales the proportions are not significantly different between somatic and psychosomatic rehabilitation even if there is a slightly higher value for all scales in psychosomatic rehabilitation.

**Table 3: Frequencies of critical rating of strain<sup>1)</sup> (data in %)**

	Emotional exhaustion	Intrinsic motivation	(Dis-)satisfaction	Aversion to clients	Reactive protection
Physicians (n=38)	44.7	10.5	15.8	31.6	13.2
- Psychosomatic (n=28)	50	11	18	32	18
- Somatic (n=10)	30	10	8	30	0
$\chi^2$ (df=1)	1.192	0.04	0.342	0.016	2.056
Psychosocial therapists (n=73)	30.1	19.2	16.4	20	6.8
- Psychosomatic (n=59)	36	22	20	20	9
- Somatic (n=14)	7	7	8	14	0
$\chi^2$ (df=1)	4.350*	1.619	1.346	0.267	1.274
Somatic therapists (n=49)	13.1	12.2	14.3	18.6	4.1
- Psychosomatic (n=18)	11	6	17	11	0
- Somatic (n=31)	20	17	33	27	7
$\chi^2$ (df=1)	0.640	1.270	0.100	1.651	1.211
Nursing staff (n=59)	13.1	18.6	15.3	19.2	8.5
- Psychosomatic (n=27)	23	27	19	27	12
- Somatic (n=32)	6	13	13	13	6
$\chi^2$ (df=1)	3.416	1.942	0.496	1.942	0.506
Others (n=26)	23.1	15.4	11.5	34.6	7.7
- Psychosomatic (n=14)	15	15	8	31	7
- Somatic (n=12)	33	17	17	42	8
$\chi^2$ (df=1)	1.120	0.008	0.476	0.322	0.013

<sup>1)</sup> Stanine values from 7 to 9 are critical.

Significance: \* p<0.05

**Table 4: Correlation between the subjective appraisal of the impact of strain and teamwork, staff satisfaction and working conditions (Pearson's Correlation Coefficients)**

		Questionnaire Human Service Workload				
		Emotional exhaustion	Intrinsic motivation	(Dis-)satisfaction	Aversion to clients	Reactive protection
Scales of Questionnaire on Teamwork	Structure orientation	-0.397**	-0.457**	-0.503**	-0.228**	-0.061
	Person orientation	-0.381**	-0.436**	-0.463**	-0.232**	-0.053
Scales of Questionnaire on Staff Satisfaction in Medical Rehabilitation	Organization and Communication	-0.388**	-0.407**	-0.476**	-0.213**	-0.088
	Leadership	-0.341**	-0.368**	-0.445**	-0.167**	-0.047
	Workplace atmosphere	-0.404**	-0.437**	-0.439**	-0.259**	-0.038
Global item 1	Working conditions	-0.479**	-0.530**	-0.597**	-0.225**	-0.008
Global item 2	Voluntary turn over	0.509**	0.474**	0.557**	0.289**	0.064

\*\* The correlations are significant for the 0.001 level (two-tailed)

The scales of the Questionnaire Human Service Workload and the Global item 2 (Voluntary turn over) are negatively polarized, which means low values of the scale are positive and high values are critical. All the other scales (Scales of the Questionnaire on Teamwork and Scales of Questionnaire on Staff Satisfaction in Medical Rehabilitation) and the global item "Working Conditions" are positively polarized, meaning that low values of the scale are negative and high values are positive.

**Table 5: Regression analysis (method: enter) of the relationship between sociodemographic data, teamwork, staff satisfaction, working conditions and scales of strain (standardized β-coefficients, Adjusted R<sup>2</sup>, F)**

	Impact of Strain (The scales of Questionnaire Human Service Workload)	Emotional exhaustion	Intrinsic motivation	(Dis-)satisfaction	Aversion to clients	Reactive protection
Sociodemographic data	Gender (male/female)	-.082	-.100	-.127*	-.057	.089
	Occupational group - Physicians	.170*	-.046	-.073	.015	.196*
Scales of Questionnaire on Teamwork	- Psychosocial therap.	.035	-.023	-.022	-.115	.123
	- Somatic therapists	-.028	-.063	.010	-.127	.045
Scales of Questionnaire on Staff Satisfaction in Medical Rehabilitation	- Nursing staff	-.036	-.009	.041	-.082	.048
	- Others	-	-	-	-	-
Scales of Questionnaire on Teamwork	Structure orientation	-.077	-.118	-.125	-.022	-.029
	Person orientation	-.076	-.087	-.078	-.075	-.048
Scales of Questionnaire on Staff Satisfaction in Medical Rehabilitation	Organization and Communication	-.048	-.033	-.087	-.121	-.081
	Leadership	-.086	-.066	-.145*	.014	-.045
Global Item	Workplace atmosphere	-.068	-.067	.041	-.066	.046
	Working conditions	-.322***	-.362***	-.431**	-.106	.055
Statistical Analysis	Adjusted R <sup>2</sup>	.316	.342	.447	.064	-.007
	F (df=11)	10.757 ***	11.885 ***	18.045**	2.451*	0.849

\* p<0.05 \*\* p<0.01 \*\*\*p<0.001

Scales of Questionnaire Human Service Workload: High values are negative.

Scales of Questionnaire on Teamwork: Subscale values less than 4 are critical.

Scales of the Questionnaire on Staff Satisfaction in Medical Rehabilitation: Scales of 1 to 10: Means below five are substandard.

by the variables used (see Table 5). However, there is no significant predictor – only the constant term in the regression model is significant.

## Discussion and conclusion

The results of the study indicate that rehabilitation team employees feel stressed, particularly with regard to emotional exhaustion as one aspect of burnout. All im-

pacts of strain appeared more frequently in psychosomatic rehabilitation clinics, although the differences were not significant except for emotional exhaustion (see Figure 2). This fact is consistent with the findings that employees in mental specialisation (psychiatrists) suffer more often from burnout than those in other medical specialisation fields [28]. Based on the ergonomic stress-strain concept according to DIN EN ISO 10075, the significant differences of emotional exhaustion between the somatic and psychosomatic rehabilitation clinics could also be re-

garded as a result of the diverse demands associated with completing a job. Another alternative explanation for the varying impact of strain is that employee personalities and/or individual resources differ in these medical fields. Amstutz et al. [29] provides evidence for correlation between personality traits (neuroticism  $r=0.59$ ,  $p=0.0001$ ; frustration  $r=-0.057$ ;  $p=0.0001$ ) and burnout for physicians working in the psychiatric field. It could possibly be concluded that vulnerability for job-related strain in the occupational groups depends on the employee field of rehabilitation.

Regarding the different distribution of occupational groups (the sample constellations are representative for the actual team constellations) in the two fields of medical rehabilitation, it could be assumed that these structural differences also have an influence on the results. It is perhaps also necessary to include some confounding variables in the discussion, e.g. workplace facilities, leadership, to explain the difference between somatic and psychosomatic rehabilitation.

Aversion to clients is also conspicuous. 20% of the employees in medical rehabilitation clinics have to force themselves to treat their patients, with physicians most frequently affected here. This could again be related to the findings that physicians were more frequently emotionally exhausted than the other professional groups. Since most physicians are male, the fact that men are more frequently emotionally exhausted than women is not surprising. What is notable is that almost every second physician showed critical levels of emotional exhaustion. This result conforms to international findings, where values for emotional exhaustion and burnout varying between 19% to 53% [30], [31], [32], [33] were presented. Regarding occupational groups, the range of decision-making and emotional demands placed on the various groups explains a major part of the variance observed here in research into mental strain [34]. Physicians have to bear responsibility for patient care in rehabilitation clinics; they make the decisions, lead the rehabilitation team and coordinate treatment of the patients. They also put high demands on themselves, and so it is not surprising that they are more frequently exhausted. In addition, responsibility and leadership are often accompanied by more stressful working conditions, e.g. time pressure, overtime, more interruptions etc. Physicians are not prepared for leadership in their academic studies. Another interpretation might be that physicians are university graduates. In the study of Messenzehl et al. [16] physicians and psychologists revealed increased scores of burnout compared with nurses. It can be assumed that university graduates have higher expectations of work and of themselves, and therefore evaluate more critically than other occupational groups. Concluding this section, we can say that the vulnerability of job-related strain depends on personal (job training, occupation) and context determinants (working conditions, team constellation). The third aim of the study was to investigate the associations between the impact of strain and the working conditions, organisation and communication, leadership,

working atmosphere and teamwork (structure- and person-oriented). Associations for these variables are predominantly moderate (see Table 4). The strongest association is between emotional exhaustion, intrinsic motivation, dissatisfaction and working conditions. It could be assumed that better teamwork, organisation and communication, leadership and working atmosphere are accompanied by less strain. This could in turn mean that pronounced positive social and organizational factors could have a stress reducing impact. These aspects provide an informative basis for measures within workplace health promotion in terms of condition-related and personnel-related interventions, as well as organizational development in terms of personnel and team development. In the current report of the German Advisory Council on the Assessment of Developments in the Health Care System [35] there is evidence that the division of work in the health care system should be restructured, since it is not in accordance with the demands of the health care system. Restructuring could result in relief of strain and subsequently to a reduction in mental strain for medical staff. Equally so, the experts of the German Advisory Council consider it necessary to improve cooperation between the different occupational groups. Based on the moderate correlation between interdisciplinary cooperation and consequences of strain, it can be anticipated that this change would have a positive impact.

Some limitations of this study should be noted. The representational aspect is limited because of the sample size, the selection of the occupational groups (only employees of the rehabilitation teams) and the low, but acceptable in comparison with other studies [36], [37], [38] rate of return. The study sample may also suffer from selection bias caused by the representatives of the individual clinics. The response rates range from 28% to 64% in individual clinics, and in five clinics (1, 7, 9, 10, and 12) not all occupational groups could be reached. The cross-sectional study design means that the reported findings should be interpreted carefully. The causal relation between teamwork, working conditions and the impact of strain should be investigated through longitudinal study designs. Furthermore, the study focuses on subjective personal reporting of mental strain; however, the objectively existing workload was not considered. No conclusions can be drawn on the objective causes of strain on the individual employee with the present study, as it used a self-rating assessment and also because participation was anonymous. Concerning data analysis strategy, numerous individual Chi-square tests were used, which tends to result in an alpha-error accumulation. Nevertheless, due to the explorative approach of the study the statistical analysis remains appropriate.

Despite these limitations, the results could effectively be used as a starting point for in-house discussions and improvement processes, for example in human resource management (e.g. team building and development, leadership skills training, work health promotion) in the context of quality management. Until now there have been no interventions in Germany that specifically focus

on the rehabilitation setting. Hence, such measures should be developed and implemented, and further studies should then evaluate whether they effectively reduce work-related strain.

## Notes

### Competing interests

The authors declare that they have no competing interests.

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