

BMJ Open Job demands and resources related to burn-out symptoms and work engagement in supervisors working with people with severe disabilities in social firms: a cross-sectional study

Ann-Christin Kordsmeyer , Ilona Efimov, Volker Harth, Stefanie Mache

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Institute for Occupational and Maritime Medicine (ZfAM), University Medical Center Hamburg-Eppendorf (UKE), Hamburg, Germany

Correspondence to

Ann-Christin Kordsmeyer;
ann-christin.kordsmeyer@justiz.hamburg.de

ABSTRACT

Objectives To analyse working conditions, work and health-related outcomes of supervisors working with people with severe disabilities in social firms.

Design Cross-sectional survey.

Setting Social firms who employ between 30% and 50% of people with different types of disabilities on the general labour market.

Participants Supervisors of social firms in Germany.

Primary outcome measures Descriptive, bivariate and multivariate analysis was used to analyse relations between job demands (quantitative and emotional demands), job resources (meaning of work, perceived organisational support and influence at work), personal resources (resilience) and burn-out symptoms as well as work engagement. Validated scales, for example, from the Copenhagen Psychosocial Questionnaire were applied.

Results 124 supervisors of social firms in Germany (59.7% were male and 39.5% female) participated within a cross-sectional quantitative online survey. Multiple hierarchical regression analysis indicated an association of quantitative job demands ($\beta=0.236$, $p<0.05$) and perceived organisational support ($\beta=-0.217$, $p<0.05$) and burn-out symptoms of supervisors in social firms. Meaning of work ($\beta=0.326$, $p<0.001$) and perceived organisational support ($\beta=0.245$, $p<0.05$) were significantly associated with work engagement.

Conclusions Our study specified main job demands and resources for supervisors in German social firms and their impact on both burn-out symptoms and work engagement. When designing measures for workplace health promotion in social firms, especially supervisors' quantitative job demands need to be reduced and perceived organisational support strengthened.

BACKGROUND

In 2019, about 7.8 million severely disabled people lived in Germany, of which 57% were integrated into the labour market or looked for a job. For comparison purposes, the employment rate of non-disabled people was about 82%.¹ For people with disabilities, employment exhibits a central component to

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The study was the first providing insights into working conditions, work and health-related outcomes of supervisors of social firms in Germany to develop recommendations for action on workplace health promotion.
- ⇒ A strength of the study was the recruitment process of social firms via the REHADAT-Portal providing a list of social firms in Germany, the use of well-validated instruments and setting-specific complements.
- ⇒ Limitations of the study resulted from the cross-sectional design restricting causal conclusions and the use of an online survey allowing no descriptions of the population in which the survey was distributed.
- ⇒ Likewise, a possible selection bias could not be ruled out, for example, due to voluntary participation of supervisors or due to non-response of participants with certain characteristics.

establish self-esteem and responsibility, foster social skills and autonomy or to increase participation in the community.² Beside employment opportunities like sheltered workshops or supported employment, social firms serve first and foremost as companies on the general labour market in competition with other companies. In Germany, at least 30% and up to 50% of people with different kinds of disabilities like mental, physical, sensory or multiple ones must be employed maintaining an inclusive employment approach with equal participation (§ 215, Book Nine of the German Social Code (SGB IX)). In general, employees are covered by social security and receive agreed wages, wherefore they are seen as equal employees.³ Today, more than 900 social firms or departments employ about 13 590 severely disabled people primarily with mental and intellectual disabilities in a wide range of sectors like gastronomy, gardening

and landscaping, industrial production or crafts.⁴⁵ On an international level, social firms are also called ‘affirmative businesses, adapted enterprises, cooperatives, collectives (or), consumer/survivor-run businesses’ (Corbière *et al*, p39)⁶ with varying country, legislation or management characteristics.

When creating inclusive work environments in social firms, several job resources are provided for their employees according to the current state of research.⁷ Not only high levels of flexibility,^{6 8–22} organised work tasks,^{8–13 15–18 20 21 23–26} trainings^{6 10 14 16 25} and job security^{8–11 15 16 18–20 26} are offered, but also social support of coworkers and supervisors.^{6 8–31} However, only limited evidence is reported regarding the working conditions and associated work and health-related outcomes like burn-out symptoms or work engagement of supervisors themselves.⁷ In social firms, qualified professionals (eg, chefs or gardeners), specialists for work and career promotion, occupational therapists or social pedagogues can provide work-accompanying support of employees with disabilities.³² Applied research specifically in the context of social firms is of great relevance, since, for example, employees in social work or pedagogy in general are found in the ten occupational groups with the most days of incapacity to work due to burn-out in 2019 (239.8 days per 1000 insured persons).³³ Burn-out is highlighted as feeling physically, emotionally and mentally exhausted due to an ongoing exposure to challenging work situations.³⁴ Kristensen *et al*³⁵ further summarise that ‘the additional key feature [of the concept burn-out] is the attribution of fatigue and exhaustion to specific domains or spheres in the person’s life. One such domain is work and a more specific domain is client work’ (Kristensen *et al*, p197).³⁵ Partly considered as the opposite, work engagement is described as a fulfilling state of mind regarding one’s work including the dimensions vigour (eg, as having energy and investing endeavour in work), dedication (eg, as being enthused or inspired) and absorption (eg, as being concentrated in one’s work, wherefore time goes by quickly).³⁶

When gaining insights into working conditions of supervisors in social firms, first exploratory qualitative studies indicate that supervisors experience specific job demands, such as emotional demands due to a high number of conversations or exposure to present fears and concerns of employees.³⁷ Systematic reviews and meta-analyses on emotional labour when interacting with others while showing or concealing certain emotions provide insights into its influence on well-being or work-related outcomes.^{38 39} For instance, surface acting (as the adaptation of emotion expression) is associated with emotional exhaustion, depersonalisation, mental distress, poorer physical well-being, the intention to quit or a decreased job satisfaction.³⁸

Existing evidence presented for social firms so far highlights that especially in this setting, supervisors do not only need to instruct and care for their employees as a social objective of the company, but also pursue economic

goals when operating a daily business on the general labour market which may result in conflicts between both domains.³⁷ In fact, additional quantitative demands regarding working hours, pace and workload are underlined for supervisors in social firms.^{8 12 17 18 24 37} Other studies of the general labour market indicate that quantitative workloads were significantly linked to an increased mental health risk for supervisors in general⁴⁰ and to the development of emotional exhaustion,^{41–43} burn-out^{44–46} or higher depression scores⁴⁶ of employees.

Additionally, supervisors in social firms are provided with several resources according to qualitative exploratory research, such as a high meaning of work, for example, when employees with mental illnesses acquire more stability.³⁷ Based on the concept from Schnell *et al*⁴⁷ meaning of work can be defined as ‘coherence, direction, significance and belonging in the working life’ (Schnell *et al*, p4).⁴⁷ Summarising meta-analyses outline positive impacts of work meaningfulness on motivation, organisational commitment, work engagement and job satisfaction as well as negative ones on turnover intentions, burn-out, stress and counterproductive behaviours.^{48 49} Supervisors in social firms report also high levels of social support, either from colleagues, management or pedagogical support.³⁷ Within the current state of research, it is also specified that supervisors who feel supported at work report less commonly about negative strain reactions.⁴⁰ The construct of perceived organisational support postulates the extent to which employees perceive their organisation as appreciating their effort and caring about their well-being.⁵⁰ Two psychological mechanisms provide a basis for the construct, including a high level of support of the organisation for the employees’ needs and the feeling of belonging to the organisation, which in turn leads to a higher level of identification with the organisation. Due to the reciprocity to give something back to the organisation, a higher work engagement can be assumed.⁵¹ However, supervisors report on receiving slightly less support from superiors or colleagues than employees without a leadership function.⁵² As an additional job resource of supervisors in social firms their influence on decisions, work content, its sequence and workloads is highlighted in exploratory research.^{37 53} There is evidence that influence at work appears to buffer negative strain reactions in supervisors.⁴⁰ In fact, supervisors seem to have significantly more influence at work in comparison to employees without a management function, since they are more often able to plan and influence their amount of work as well as breaks.⁵²

Considering the presented job demands of supervisors in social firms, personal resources can also be discussed as mitigating the negative effects of stress. For instance, resilience represents the process of adapting to challenging situations and the ability to bounce back.⁵⁴ The authors Wagnild and Young⁵⁴ subdivide resilience into ‘acceptance of self and life’ and ‘personal competence’ (Wagnild and Young, p165).⁵⁴ Previous studies indicate negative relations between resilience and burn-out

symptoms or perceived stress,^{55 56} positive ones to work engagement^{57 58} or examined resilience as a moderator in the relationship between stress and burn-out.^{55 59}

Theoretical background

To gain insight into working conditions and personal resources of supervisors in social firms in relation to work and health-related outcomes like burn-out symptoms or work engagement, the Job Demands–Resources (JD-R) model developed by Bakker and Demerouti was applied.^{60–62} As depicted by the model, job factors depending on enduring physical or mental effort can be considered as job demands with a possible exhausting impact (health impairment process). On the contrary, job resources are represented by physical, psychological, social and organisational factors which promote accomplishing work-related goals, reduce work demands and its related costs, and promote personal growth and development (motivational process). Overall, the effects of the JD-R model are empirically proven, wherefore the model can be applied to predict burn-out symptoms and work engagement, which in turn have an impact on organisational performance.^{60–62}

Study aims

Traced back to the presented limited evidence for supervisors in social firms, the study aimed at addressing the knowledge gap on working conditions of supervisors including the associations between supervisors' job demands (quantitative and emotional demands), job resources (meaning of work, perceived organisational support and influence at work), personal resources (resilience) and burn-out symptoms as well as work engagement.

Therefore, three research questions were stated:

- ▶ Are quantitative and emotional demands related to burn-out symptoms and work engagement of supervisors in social firms?
- ▶ Are meaning of work, perceived organisational support and influence at work related to burn-out symptoms and work engagement of supervisors in social firms?
- ▶ Is resilience related to burn-out symptoms and work engagement of supervisors in social firms?

Hypotheses

Referring to the displayed research evidence in combination with the JD-R model, the following hypotheses were developed and displayed in [figure 1](#).

- ▶ Hypothesis 1 (H1). Quantitative and emotional demands are associated with supervisors' burn-out symptoms (1a) and work engagement (1b).
- ▶ Hypothesis 2 (H2). Meaning of work, perceived organisational support and influence at work are associated with supervisors' burn-out symptoms (2a) and work engagement (2b).
- ▶ Hypothesis 3 (H3). Resilience is associated with supervisors' burn-out symptoms (3a) and work engagement (3b).
- ▶ Hypothesis 4 (H4). Resilience moderates the relationship between supervisors' quantitative and emotional demands and burn-out symptoms.

METHODS

Study design and recruitment process

The study was planned as a cross-sectional online survey for supervisors in German social firms (according to § 215, Book Nine of the German Social Code (SGB IX)).

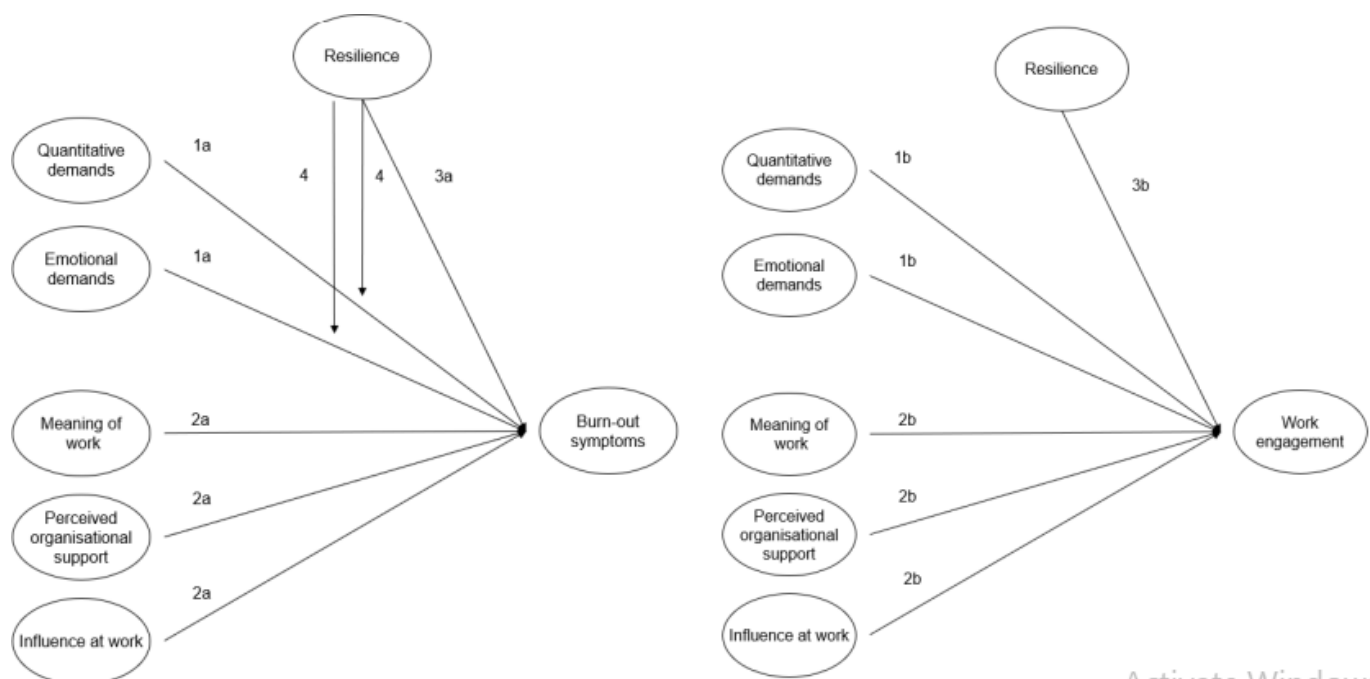


Figure 1 Conceptual model of the study with displayed hypotheses.

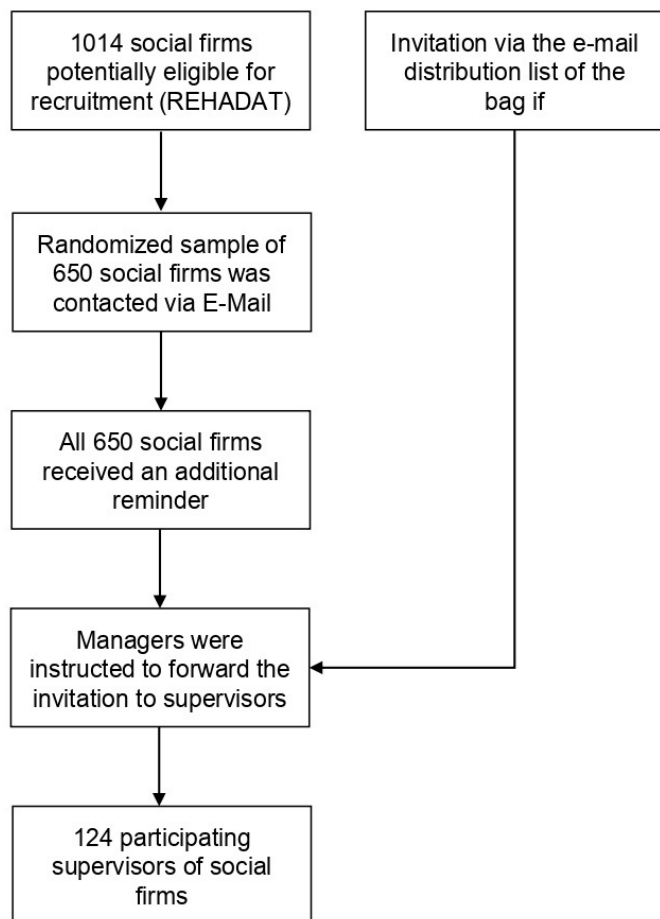


Figure 2 Recruitment process of the study.

Beforehand, a scoping review on working conditions in social firms was conducted,⁷ followed by a qualitative study on job demands and resources of German supervisors due to a lack of research on their working conditions.³⁷ Identified crucial job demands, resources and outcomes were subsequently tested in this study. Data were collected between August and November 2021. According to the REHADAT-Portal,⁶³ 1014 social firms were potentially eligible for participation from all 16 federal states (figure 2).

A total of 650 companies were randomised and contacted via email including leaflets with information on the study. After some weeks, the contacted companies received a reminder. Additionally, an invitation via email was sent to members of the German National Association of Inclusion Companies ('Bundesarbeitsgemeinschaft Inklusionsfirmen', bag if), which serves as a representation of interests of social firms in Germany. Within both recruitment processes, managing directors were instructed to forward the survey invitation to direct supervisors within the company. Overall, participation in the survey was on a voluntary basis. Supervisors were informed about the study, its aims and data protection regulations and provided informed consent when entering the questionnaire. Inclusion criteria for participating in the study were predefined beforehand, including (1) supervisors

who are employed in a social firm for at least 6 months, (2) who are at least 18 years old and (3) who are in direct contact with employees. The survey was accessed 191 times, consent was refused by 9 supervisors and 58 participants dropped out (reasons for non-participation could not be reported traced back to the study design). Finally, 124 supervisors participated in the online survey. Beforehand, the necessary sample size was calculated by using G*Power 3.1.9.7⁶⁴ based on an effect size of $f^2=0.15$ (medium effect according to Cohen,⁶⁵), $\alpha=0.05$, included predictors and a statistical power of $\beta=0.80$, resulting in $n=103$ required participants.

Variables

Demographic and work-related variables

The items sex, age, work experience, work time and number of locations were self-constructed. Professional qualification was adapted based on to the *Mikrozensus*, an annual household survey conducted by official statistics in Germany.⁶⁶ The number of subordinate employees was assessed via the Copenhagen Psychosocial Questionnaire (COPSOQ).⁶⁷ When examining the size of the company, the definition for micro-sized, small-sized and medium-sized enterprises of the European commission was applied.⁶⁸ Gaining insight into the sectors of supervisors of social firms, the most prominent sectors were used^{5 69} with the possibility to report about other sectors.

Job demands and resources

The former described conflict between social and economic objectives of supervisors in social firms was operationalised by means of quantitative and emotional demands. Therefore, scales from COPSOQ were introduced and complemented by those of meaning of work and influence at work.⁶⁷ An example of the five-item scale for quantitative demands was 'How often does it happen that you do not have enough time to complete all your tasks?'. Additionally, the perceived burden of setting-specific demands was assessed and rated on a 5-point Likert scale ranging from a very low degree to a very high degree based on emerging results of qualitative analysis of supervisors in social firms in Germany as a complement to standardised instruments.³⁷ 'Is part of your job to deal with other people's personal problems?' was an example item of the emotional demands two-item-scale. Meaning of work was assessed by using a two-item scale (eg, 'Do you feel that your work is important?') and influence at work via a three-item scale (eg, 'Do you have much influence over decisions that affect your work?'). For all items a 5-point Likert scale was used and transformed to values from 0 (never/almost never/to a very low degree) to 100 (always/to a very high degree).⁶⁷ Psychometric evaluation of all COPSOQ scales indicated positive results.⁶⁷

When examining perceived organisational support an eight-item-scale was used developed by Siebenaler and Fischer providing a Likert scale from 1 (totally disagree) to 7 (totally agree). An example item was 'The organisation shows very little interest in me.' Since the survey only

includes supervisors from social firms, the name (in this case social firm) was directly included in the instruction, as described in the scope of application of the scale.⁷⁰ Perceived organisational support was evaluated as having a high psychometric quality and was validated by supervisors at various hierarchical levels.⁷⁰

Resilience

To measure supervisors' resilience, a short form of the Resilience Scale, the RS-13 was included within the questionnaire with 13 items to be answered on a 7-point Likert scale (1=I don't agree, 7=I totally agree). One example item of the scale was 'When I am in a difficult situation, I usually find a way out'. Results are divided into low (13–66), moderate (67–72) and high levels of resilience (73–91). The psychometric evaluation of the RS-13 was considered as good in past research.⁷¹

Work engagement

Work engagement was also assessed via the COPSOQ with a three-item-scale (eg, 'In my work I am full of energy') providing the possibility to choose on a 5-point Likert scale. Likewise the scale was transformed to values ranging from 0 (never/almost never) to 100 (always).⁶⁷

Burn-out symptoms

Likewise, burn-out symptoms were assessed via the COPSOQ which was traced back to the Copenhagen Burnout Inventory. On a 5-point Likert scale, three items were introduced. An example item of the burn-out symptoms scale was 'How often are you physically exhausted?'. Like the previous items, the three-item scale was transformed into values from 0 (never/almost never) to 100 (always).⁶⁷

Data analysis

Statistical analysis was conducted using the software IBM SPSS Statistics (V.28). Since only a little amount of missing data was identified within the final sample (7.3%), list-wise deletion was applied to maintain a complete dataset. Initially, descriptive statistics of all variables concerned were displayed. Plausibility checks were run, and data were checked for normal distribution. Shapiro-Wilk test, skewness and kurtosis as well as histograms partly showed lacking normal distribution indicating the use of a Spearman's r correlation. Prerequisites for multiple regression analysis were checked, including for instance multicollinearity by reporting variance inflation factor (VIF), the detection of autocorrelation in the residuals by using the Durbin Watson statistics or outliers by looking at cook's distance. The prerequisites of linearity, normal distribution of residuals and homoscedasticity were checked graphically. To analyse predictors of burn-out symptoms and work engagement, two hierarchical regression analyses were applied, wherefore the order of variables could be determined, and improvements of the model could be observed when adding more factors. Predictors were introduced to the model based on the results of correlation analysis conducted beforehand. To control for

heteroscedasticity, robust standard errors (SE) were additionally reported by using the HC3 method.⁷² Likewise, two moderation analyses were conducted separately after all main associations were observed to examine the role of resilience in the relationship between demands and burn-out symptoms by using centred interaction terms of concerned variables. P values of <0.05 were evaluated as significant and were given two tailed. According to Cohen (1988), R^2 was classified as a small (0.02), medium (0.15) and large (0.35) explained variance.⁶⁵

Patient and public involvement

Patients or the public were not involved in the design, conduct, reporting or dissemination plans of our research.

RESULTS

Most of the 124 participants were male (59.7%) and between 51 and 60 years old (35.5%) (table 1). Most supervisors had a diploma, bachelor's degree, master's degree, state examination or a teacher's examination (45.2%). Almost half of the participants were employed in the social firm for 1–5 years (44.4%). 80.6% of participants worked between 31 and 40 hours per week. Most of the participating supervisors worked in hotels, restaurants and gastronomy (41.9%) or in manufacturing companies (23.4%). About one in five supervisors worked in a social firm with more than five locations. 40.3% of supervisors worked in medium-sized social firms with 50–249 employees and about one-third were responsible for 11–20 employees. Mostly they worked with employees with mental disabilities ($n=101$; 81.5%), intellectual disabilities ($n=80$; 64.5%), physical disabilities ($n=91$; 73.4%), sensory disabilities ($n=86$; 69.4%) or other disabilities ($n=22$; 17.7%), whereby multiple choices were possible.

Table 2 indicates descriptive statistics of the concerned variables including an acceptable reliability of all scales (Cronbach's alpha, $\alpha>0.7$).

Spearman correlation coefficients were highlighted in table 3. The correlation between quantitative job demands and burn-out symptoms was positive and significant. No significant correlation coefficients were observed for quantitative demands and work engagement or for emotional demands and both outcomes. The three job resources each correlated significantly positively with work engagement and significantly negatively with burn-out symptoms. Resilience was significantly positively related to work engagement and significantly negatively to burn-out symptoms. The correlation between work engagement and burn-out symptoms was significant and negative.

As depicted in table 4, perceived organisational support was the strongest predictor for burn-out symptoms with ca. 10% of explained variance. Within model 2, quantitative job demands were introduced following an increase of 0.059 in R^2 ($p<0.01$). In models 3–6, no significant changes of R^2 were observed. The complete model 6 with all predictors of burn-out symptoms was significant

**Table 1** Participant characteristics (n=124)

Variables	n	%
Sex		
Male	74	59.7
Female	49	39.5
Other	1	0.8
Missing	0	0.0
Age groups		
21–30 years	6	4.8
31–40 years	28	22.6
41–50 years	36	29.0
51–60 years	44	35.5
61–70 years	9	7.3
Older than 70 years	1	0.8
Missing	0	0.0
Professional qualification		
Without professional qualification	1	0.8
Apprenticeship, vocational training in the dual system	34	27.4
Master craftsman/technician or equivalent technical college degree	28	22.6
Diploma, bachelor's degree, master's degree, state examination, teacher's examination	56	45.2
Doctorate	3	2.4
Other professional qualification	2	1.6
Missing	0	0.0
Work experiences in the current social firm		
Less than a year	5	4.0
1–5 years	55	44.4
6–10 years	25	20.2
11–15 years	22	17.7
15–20 years	11	8.9
More than 20 years	4	3.2
Missing	2	1.6
Work time		
Less than 20 hours	8	6.5
21–30 hours	10	8.1
31–40 hours	100	80.6
Missing	6	4.8
Sectors	*	
Hotels, restaurants and gastronomy	52	41.9
Building services	23	18.5
Gardening and landscaping	19	15.3

Continued

Table 1 Continued

Variables	n	%
Manufacturing	29	23.4
Trade	25	20.2
Education and training	1	0.8
Other services	17	13.7
Other sectors	35	28.2
No of locations		
1	53	42.7
2	18	14.5
3	18	14.5
4	10	8.1
More than 5	24	19.4
Missing	1	0.8
Size of the company		
1–9 employees	6	4.8
10–49 employees	61	49.2
50–249 employees	50	40.3
More than 250 employees	6	4.8
Missing	1	0.8
Subordinate employees		
1–10 employees	20	16.1
11–20 employees	37	29.8
21–30 employees	18	14.5
More than 30 employees	32	25.7
Missing	17	13.7

*Multiple choice answer.

($F(9, 104)=3.43, p<0.001$) and explained 16.2% of the variance (indicating a medium explained variance.⁶⁵) Considering the proposed hypothesis, hypothesis 1a was partly confirmed, since quantitative demands significantly predicted burn-out symptoms ($\beta=0.236, p<0.05$). In addition, supervisors reported several setting-specific demands. One hundred and twenty-three supervisors highlighted tasks which had to be completed simultaneously (eg, to deal with employee concerns during times of high work intensity, 66.9%, $n=83$) and frequent work interruptions (eg, due to employee concerns, 61.3%, $n=76$) as demanding to a high/very high degree. Similarly, about half of the supervisors (46.8%, $n=58$) outlined that compensating for short-term employee absences also represented a demand to a high/very high degree. Other reasons which were rated as demanding to a high/very high degree included an administrative burden (39.6%, $n=49$), or a high number of employees to look after (20.1%, $n=25$).

In the further course of the analysis, hypothesis 2 was also partly confirmed for perceived organisational support ($\beta=-0.217, p<0.05$), but not for influence or meaning at work. However, when controlling for

Table 2 Descriptive statistics of concerned variables

Variables	M	SD	Min	Max	α
Job demands					
Quantitative demands	57.58	14.77	15	95	0.74
Emotional demands	74.39	17.88	0	100	0.78
Job resources					
Influence at work	71.81	17.25	25	100	0.70
Meaning of work	85.47	14.79	50	100	0.79
Perceived organisational support	5.24	1.24	1.75	7	0.93
Personal resources					
Resilience	75.08	8.03	45	91	0.84
Outcomes					
Work engagement	71.10	15.16	25	100	0.78
Burn-out symptoms	48.04	20.83	0	100	0.84

α = Cronbach's alpha.

heteroscedasticity, lacking significance was observed for perceived organisational support. Hypothesis 3 on resilience as a personal resource can be rejected as well. Likewise, a moderation of resilience could not be found because of lacking significance in both interactions of resilience and emotional and quantitative demands, respectively. This leads to the conclusion that resilience did not moderate the relationship between quantitative and emotional demands and burn-out symptoms (model fit: $F(10, 103) = 3,17, p < 0.001$ for quantitative demands and $F(10, 103) = 3.06, p < 0.01$ for emotional demands without significant changes in R^2). **Figure 3** provides an overview of the conceptual model and the standardised coefficients.

Additionally, hierarchical regression analysis of job demands as well as job and personal resources

on work engagement provided significant insights (**table 5**). Within the first model, meaning of work was included as the strongest predictor explaining about 20% of its variance. In the next step, perceived organisational support was added, leading to an increase of R^2 of .078 ($p < 0.001$). In models 3–6, neither significant changes in R^2 nor significant predictors of work engagement were observed. The complete model 6 with all predictors of work engagement was significant ($F(9, 105) = 6.35, p < 0.001$) and explained about 30% of the variance indicating a large explained variance.⁶⁵ As a result, hypothesis 1b on the influence of job demands on work engagement could be rejected. Hypothesis 2b could partly be confirmed, since meaning of work ($\beta = 0.326, p < 0.001$) and perceived organisational support ($\beta = 0.245, p < 0.05$) predicted work engagement of supervisors in social firms (**figure 3**). As observed for burn-out symptoms, when controlling for heteroscedasticity, lacking significance was identified for perceived organisational support. Hypothesis 3 on the personal resource resilience and its effects on work engagement could be rejected.

DISCUSSION

Within the current state of research, the presented study was one of the first analysing working conditions of supervisors in German social firms working with employees with severe disabilities on the general labour market. Significant relations between job demands and job resources and burn-out symptoms or work engagement were presented by using hierarchical regression analysis. Referring to the proposed hypotheses, hypothesis 1a was partly confirmed as quantitative demands significantly predicted burn-out symptoms. Likewise, hypothesis 2a on perceived organisational support and its association with burn-out symptoms was partly confirmed. The stated hypothesis on work engagement was partly verified as well. Hypothesis 1b referring to job demands and its relation to work engagement was rejected. In contrast, hypothesis 2b was partly confirmed on meaning of work and perceived

Table 3 Spearman correlation analyses

Variables	1	2	3	4	5	6	7	8
1. Quantitative demands	–							
2. Emotional demands	0.130	–						
3. Meaning of work	–0.016	0.245**	–					
4. Perceived organisational support	–0.143	0.018	0.367**	–				
5. Influence at work	–0.229*	0.066	0.272**	0.495**	–			
6. Resilience	–0.159	0.142	0.372**	0.248**	0.404**	–		
7. Work engagement	0.014	0.139	0.476**	0.424**	0.342**	0.312**	–	
8. Burn-out symptoms	0.323**	0.050	–0.192*	–0.345**	–0.235**	–0.212*	–0.287**	–

Spearman correlation coefficient: * $p < 0.05$; ** $p < 0.01$.



Table 4 Hierarchical regression analysis for burn-out symptoms

Burn-out symptoms	2			3			4			5			6			
	B (95% CI)	SE	β	B (95% CI)	SE	β	B (95% CI)	SE	β	B (95% CI)	SE	β	B (95% CI)	SE	β	
Regression with robust SE																
Perceived organisational support	-5.594 (-8.606 to -2.582)	1.520	-0.337***	-4.971 (-7.925 to -2.016)	1.490	-0.300**	-4.333 (-7.688 to -0.978)	1.692	-0.261*	-4.371 (-7.727 to -1.014)	1.693	-0.263*	-3.663 (-7.088 to -0.239)	1.727	-0.221*	-3.593 (-7.073 to -0.113)
	-5.594 (-9.106 to -2.083)	1.772	-0.337**	-4.971 (-8.554 to -1.388)	1.808	-0.300**	-4.333 (-8.837 to 0.171)	2.272	-0.261	-4.371 (-8.875 to 0.134)	2.272	-0.263	-3.663 (-8.333 to 1.006)	2.355	-0.221	-3.593 (-8.453 to 1.267)
Quantitative Demands	0.324 (0.095 to 0.552)	0.115	0.246**	0.307 (0.074 to 0.540)	0.117	0.233*	0.298 (0.064 to 0.531)	0.118	0.226*	0.298 (0.043 to 0.522)	0.129	0.226*	0.315 (0.056 to 0.574)	0.131	0.239*	0.310 (0.047 to 0.574)
	0.324 (0.089 to 0.559)	0.118	0.246**	0.307 (0.058 to 0.555)	0.125	0.233*	0.298 (0.043 to 0.522)	0.120	-0.081	-0.063 (-0.311 to 0.186)	0.125	-0.053	-0.058 (-0.304 to 0.188)	0.124	-0.049	-0.063 (-0.313 to 0.187)
Influence at work				-0.096 (-0.335 to 0.142)	0.135	-0.081	-0.063 (-0.339 to 0.213)	0.139	-0.053	-0.063 (-0.339 to 0.213)	0.139	-0.053	-0.058 (-0.334 to 0.218)	0.139	-0.049	-0.063 (-0.350 to 0.224)
Resilience				-0.234 (-0.709 to 0.241)	0.240	-0.091	-0.234 (-0.709 to 0.241)	0.276	-0.091	-0.234 (-0.781 to 0.312)	0.276	-0.091	-0.098 (-0.594 to 0.398)	0.290	-0.038	-0.109 (-0.614 to 0.396)
				-0.234 (-0.781 to 0.312)	0.276	-0.091	-0.234 (-0.781 to 0.312)	0.276	-0.091	-0.234 (-0.781 to 0.312)	0.276	-0.091	-0.098 (-0.594 to 0.398)	0.290	-0.038	-0.109 (-0.701 to 0.483)
Meaning of work				-0.221 (-0.476 to 0.033)	0.129	-0.166	-0.221 (-0.476 to 0.033)	0.129	-0.166	-0.221 (-0.476 to 0.033)	0.129	-0.166	-0.221 (-0.476 to 0.033)	0.129	-0.166	-0.221 (-0.476 to 0.033)
Emotional demands				-0.221 (-0.532 to 0.089)	0.157	-0.166	-0.221 (-0.532 to 0.089)	0.157	-0.166	-0.221 (-0.532 to 0.089)	0.157	-0.166	-0.221 (-0.532 to 0.089)	0.157	-0.166	-0.221 (-0.532 to 0.089)
				0.027 (-0.176 to 0.231)	0.102	0.025	0.027 (-0.176 to 0.231)	0.102	0.025	0.027 (-0.176 to 0.231)	0.102	0.025	0.027 (-0.176 to 0.231)	0.102	0.025	0.027 (-0.176 to 0.231)
				0.027 (-0.259 to 0.314)	0.145	0.025	0.027 (-0.259 to 0.314)	0.145	0.025	0.027 (-0.259 to 0.314)	0.145	0.025	0.027 (-0.259 to 0.314)	0.145	0.025	0.027 (-0.259 to 0.314)
n	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114	114
R ²	0.136	0.194	0.199	0.199	0.206	0.228	0.228	0.228	0.228	0.228	0.228	0.228	0.228	0.228	0.228	0.228
Adj. R ²	0.104	0.157	0.154	0.154	0.154	0.169	0.169	0.169	0.169	0.169	0.169	0.169	0.169	0.169	0.169	0.169

Continued

Table 4 Continued

Burn-out symptoms	1	2	3	4	5	6
Regression with SE	B (95% CI)	B (95% CI)	B (95% CI)	B (95% CI)	B (95% CI)	B (95% CI)
	β	β	β	β	β	β
	SE	SE	SE	SE	SE	SE
Regression with robust SE	B (95% CI)	B (95% CI)	B (95% CI)	B (95% CI)	B (95% CI)	B (95% CI)
	β	β	β	β	β	β
	SE	SE	SE	SE	SE	SE
	β	β	β	β	β	β
	SE	SE	SE	SE	SE	SE

*p<0.05; **p<0.01; ***p<0.001. Controlled for sex, age groups and professional experience. To identify multicollinearity the VIF was analysed (Model 1: 1.058 for perceived organisational support; model 2: 1.082 for perceived organisational support and 1.028 for quantitative job demands; model 3: 1.391 for perceived organisational support, 1.063 for quantitative job demands and 1.379 for influence at work; model 4: 1.392 for perceived organisational support, 1.070 for quantitative job demands, 1.492 for influence at work and 1.148 for resilience; model 5: 1.475 for perceived organisational support, 1.078 for quantitative job demands, 1.492 for influence at work, 1.276 for resilience; 1.266 for meaning of work; model 6: 1.509 for perceived organisational support, 1.100 for quantitative job demands, 1.528 for influence at work, 1.312 for resilience, 1.301 for meaning of work and 1.153 for emotional demands). To test for autocorrelation in the residuals, the Durbin Watson test was used (2.097) and cook's distance to examine outliers (between 0.000 and 0.152). B, unstandardised coefficient; VIF, variance inflation factor; β , standardised coefficient.

organisational support. Hypotheses 3 and 4 on the role of resilience as a personal resource were rejected.

Working conditions in relation to burn-out symptoms and work engagement

When referring to job demands of supervisors in social firms, previous studies postulate a conflict between social and economic goals in social firms for supervisors when operating a daily business on the general labour market.^{8 12 17 18 24 37} Therefore, working conditions were operationalised in this study by means of quantitative and emotional demands. It was shown that only quantitative job demands were related to burn-out symptoms of supervisors in social firms. These findings differ only to a limited extent, for example, from supervisors in general,⁴⁰ or from professionals in sheltered workshops.⁷³ However, descriptive complements underlined task-specific factors and peculiarities for this setting. For instance, challenges like high workloads due to staff shortages⁷⁴ or work absences of employees due to mental health conditions which must be intercepted by the supervisor at short notice³⁷ were replicated as setting-specific demands of supervisors. Approaches to buffer quantitative demands are presented in recent qualitative results, calling for the support of non-disabled colleagues in the social firms' department.³⁷

Regarding emotional demands, assumed relations to burn-out symptoms or work engagement could not be replicated leading to the conclusion that emotional demands are either perceived as less challenging or that sufficient support is already provided, for example, by social pedagogies or specialists in work and career promotion. Though, perceived emotional demands of supervisors appeared higher on a descriptive level in comparison to other occupations ($M=74.39$ for supervisors in social firms vs $M=52$ for other occupations),⁷⁵ wherefore more differentiated insights are needed. For instance, recent qualitative results inform about present fears and concerns of employees with disabilities in social firms, for example, due to private problems.³⁷ Therefore, cross-sectoral partnerships are suggested by other authors when merging both company objectives—not only due to challenges when finding skilled staff but also for improving social and pedagogical support of supervisors.¹²

With regard to job resources, perceived organisational support was presented as a crucial resource impacting both burn-out symptoms and work engagement, supporting the theory of organisational support.⁵¹ Though, both associations remained non-significant when controlling for heteroscedasticity. Similar tendencies are found by Zimmer *et al*⁴⁰ for supervisors in general stating social support as a central resource buffering mental strain reactions and by Schwangler *et al*⁷⁶ on low levels of appreciation at work (OR 2.72; $p<0.01$; 95% CI 1.32 to 5.58) as increasing the risk of burn-out. Likewise, results using the same construct to assess perceived organisational support concur to influence emotional exhaustion and depersonalisation in disability support staff.⁷⁷

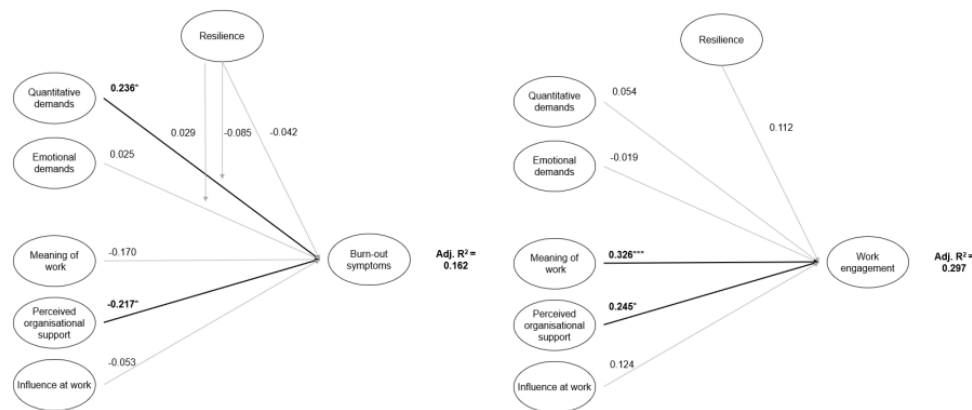


Figure 3 Conceptual model of the study with standardised beta-coefficients. * $P < 0.05$; ** $p < 0.01$. *** $p < 0.001$. Controlled for sex, age groups and work experience in the current social firm.

For the second job resource meaning of work, associations with work engagement were evaluated. Beforehand, additional impacts of meaning of work on burn-out were assumed,^{48 49} which could not be replicated in this study. Prior qualitative results on supervisors of social firms present a high perceived meaning of work when employees made progress and gained more stability or improved language and motor skills. An attributed meaning of work is also stated in comparison to other settings of the general labour market,³⁷ which was also underlined by descriptive statistics of the current study ($M=85.47$ for supervisors in social firms vs $M=75$ of other occupations).⁷⁵

Contrary to previous research, influence at work was neither evaluated as associated with burn-out symptoms nor work engagement. However, prior qualitative results highlight the supervisors ability to influence their workload as well as decision-making processes as important resources.³⁷ In general, supervisors are described as having significantly more latitude in decision-making in comparison to employees without a management function.⁵² Those differences were also apparent when comparing means of supervisors regarding their influence at work ($M=71.81$) to other occupations ($M=42$).⁷⁵

Personal resources in relation to burn-out symptoms and work engagement

Adverse to postulated hypotheses and results of previous studies,^{55–59} present findings indicated that resilience was neither associated with burn-out symptoms nor with work engagement. However, correlation analysis was in line with our hypothesis highlighting significant associations to work engagement and burn-out symptoms. Nevertheless, when introduced into the regression model, results were evaluated as non-significant leading to the conclusion that working conditions appear as stronger predictors of burn-out symptoms and work engagement in comparison to resilience. Likewise, no moderating effects of resilience were examined, which could be interpreted as quantitative demands were linked to burn-out irrespective of supervisors' levels of resilience and underlining the health impairment process proposed by the theoretical

framework of the study.^{60–62} According to the RS-13, supervisors in general were characterised as having high levels of resilience indicating that they were able to adapt to challenging or adverse situations.⁷¹ Though, recent results emphasise that even with high levels of resilience, individuals are still subject to burn-out symptoms as resilience may offer protection to some extent, but not full prevention.⁷⁸

Implications for policy and practice

Overall, the results obtained provide important information for practice, which cannot only be used by companies in the context of psychosocial risk assessment but can also provide starting points for the development of interventions for workplace health promotion adapted for supervisors in social firms.⁷⁹ It is recommended to combine both structural and behavioural interventions to address supervisors' working conditions and own behaviour.⁸⁰ On the one hand, structural approaches may reduce supervisors' quantitative demands, which were according to present findings directly associated with burn-out symptoms. In this context, a reduction of time pressure, diminished workloads, higher staff ratios or more support by non-disabled colleagues should be taken into consideration. Likewise, perceived organisational support of supervisors should be addressed including interest in supervisors and their opinions, goals, well-being, and job satisfaction, appreciation, and support in challenging situations.⁷⁰ To increase and emphasise supervisors' meaning of work (which was evaluated as associated with work engagement) and to reflect on their achievements like progress among employees, elevated skills, independence or stability team meetings and workshops could be used. On the other hand, regardless of our results but in line with other studies, behavioural approaches should be added, for example, resilience trainings that strengthen supervisors' personal resources and in turn increase work engagement.⁸¹ In general, results are also relevant not only for strengthening supervisors' health and productivity but also to enable them to provide appropriate support for their employees.⁸²

Table 5 Hierarchical regression analysis for work engagement

Work engagement	2			3			4			5			6					
	B (95% CI)	SE	β	B (95% CI)	SE	β	B (95% CI)	SE	β	B (95% CI)	SE	β	B (95% CI)	SE	β			
Regression with robust SE																		
Meaning of work	0.449 (0.288 to 0.610)	0.081	0.463***	0.362 (0.202 to 0.523)	0.081	0.374***	0.348 (0.188 to 0.509)	0.081	0.359***	0.317 (0.149 to 0.486)	0.085	0.327***	0.319 (0.147 to 0.491)	0.087	0.329***	0.316 (0.142 to 0.488)	0.087	0.326***
	0.449 (0.264 to 0.634)	0.093	0.463***	0.362 (0.163 to 0.562)	0.101	0.374***	0.348 (0.150 to 0.547)	0.100	0.359***	0.317 (0.128 to 0.507)	0.096	0.327***	0.319 (0.123 to 0.515)	0.099	0.329**	0.316 (.118 to .514)	0.100	0.326**
Perceived organisational support	3.650 (1.616 to 5.685)	1.026	0.301***	2.842 (0.577 to 5.107)	1.143	0.235*	2.842 (0.456 to 6.140)	1.143	0.235*	2.963 (0.692 to 5.234)	1.146	0.245*	2.940 (0.629 to 5.250)	1.165	0.243*	2.972 (0.653 to 5.291)	1.170	0.245*
	3.650 (0.341 to 6.959)	1.670	0.301*	2.842 (-0.456 to 6.140)	1.664	0.235	2.842 (-0.456 to 6.140)	1.664	0.235	2.963 (-0.332 to 6.259)	1.662	0.245	2.940 (-0.387 to 6.267)	1.678	0.243	2.972 (-0.344 to 6.288)	1.672	0.245
Influence at work	0.123 (-0.033 to 0.278)	0.078	0.142	0.123 (-0.033 to 0.278)	0.078	0.142	0.123 (-0.033 to 0.278)	0.078	0.142	0.096 (-0.065 to 0.258)	0.081	0.112	0.098 (-0.066 to 0.261)	0.082	0.113	0.107 (-0.059 to 0.274)	0.084	0.124
	0.123 (-0.045 to 0.290)	0.085	0.142	0.123 (-0.045 to 0.290)	0.085	0.142	0.123 (-0.045 to 0.290)	0.085	0.142	0.096 (-0.086 to 0.278)	0.092	0.112	0.098 (-0.094 to 0.289)	0.097	0.113	0.107 (-0.097 to 0.311)	0.103	0.124
Resilience	0.192 (-0.135 to 0.520)	0.165	0.103	0.192 (-0.135 to 0.520)	0.165	0.103	0.192 (-0.135 to 0.520)	0.165	0.103	0.192 (-0.194 to 0.579)	0.165	0.103	0.195 (-0.137 to 0.528)	0.168	0.104	0.209 (-0.127 to 0.546)	0.170	0.112
	0.192 (-0.191 to 0.579)	0.195	0.103	0.192 (-0.191 to 0.579)	0.195	0.103	0.192 (-0.191 to 0.579)	0.195	0.103	0.192 (-0.194 to 0.579)	0.195	0.103	0.195 (-0.191 to 0.582)	0.195	0.104	0.209 (-0.174 to 0.593)	0.193	0.112
Emotional demands	-0.009 (-0.142 to 0.125)	0.067	-0.011	-0.009 (-0.142 to 0.125)	0.067	-0.011	-0.009 (-0.142 to 0.125)	0.067	-0.011	-0.009 (-0.142 to 0.125)	0.067	-0.011	-0.009 (-0.142 to 0.125)	0.067	-0.011	-0.015 (-0.150 to 0.120)	0.068	-0.019
	-0.009 (-0.163 to 0.146)	0.078	-0.011	-0.009 (-0.163 to 0.146)	0.078	-0.011	-0.009 (-0.163 to 0.146)	0.078	-0.011	-0.009 (-0.163 to 0.146)	0.078	-0.011	-0.009 (-0.163 to 0.146)	0.078	-0.011	-0.015 (-0.180 to 0.150)	0.083	-0.019
Quantitative Demands	0.052 (-0.105 to 0.209)	0.079	0.054	0.052 (-0.105 to 0.209)	0.079	0.054	0.052 (-0.105 to 0.209)	0.079	0.054	0.052 (-0.105 to 0.209)	0.079	0.054	0.052 (-0.105 to 0.209)	0.079	0.054	0.052 (-0.105 to 0.209)	0.079	0.054
	0.052 (-0.113 to 0.217)	0.083	0.054	0.052 (-0.113 to 0.217)	0.083	0.054	0.052 (-0.113 to 0.217)	0.083	0.054	0.052 (-0.113 to 0.217)	0.083	0.054	0.052 (-0.113 to 0.217)	0.083	0.054	0.052 (-0.113 to 0.217)	0.083	0.054
n	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115
R ²	0.248	0.326	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.350	0.350	0.350	0.350	0.350	0.352	0.352	0.352	0.352

Continued

Table 5 Continued

	2			3			4			5			6		
	β	SE	B (95% CI)	β	SE	B (95% CI)	β	SE	B (95% CI)	β	SE	B (95% CI)	β	SE	B (95% CI)
Work engagement															
Regression with SE															
Regression with robust SE															
Adj. R ²	0.221		0.295	0.305		0.307	0.301		0.297						

*P<0.05; **p<0.01; ***p<0.001. Controlled for sex, age groups and professional experience. To identify multicollinearity the VIF was analysed (Model 1: 1.022 for meaning of work; model 2: 1.124 for meaning of work and 1.161 for perceived organisational support; model 3: 1.138 for meaning of work, 1.459 for perceived organisational support and 1.356 for influence at work; model 4: 1.263 for meaning of work, 1.471 for perceived organisational support, 1.470 for influence at work and 1.277 for resilience; model 5: 1.301 for meaning of work, 1.508 for perceived organisational support, 1.495 for influence at work, 1.306 for resilience and 1.128 for emotional demands; Model 6: 1.306 for meaning of work, 1.511 for perceived organisational support, 1.540 for influence at work, 1.327 for resilience, 1.152 for emotional demands and 1.103 for quantitative demands). To test for autocorrelation in the residuals the Durbin Watson test was used (1.978) and cook's distance to examine outliers (between 0.000 and 0.321).
B, unstandardised coefficient; VIF, variance inflation factor; β , standardised coefficient.

In general, when implementing health promotion interventions and a culture of health, especially managing directors of social firms should recognise themselves as important key players. Since social firms are mainly considered as small-sized and medium-sized companies,⁸³ which often operate in more than five locations (19.4% in the present sample), cooperation and regional partnerships for workplace health promotion for pooling resources, promoting networking and exchange, and receiving technical and financial support, for example, by social insurance institutions, are recommended.⁸⁴

Implications for future research

When classifying the study with the current state of research, it became apparent that various subject areas or research designs in the context of social firms are not applied yet. Future research should focus on longitudinal studies with larger sample sizes gaining insights into causal relationships between job demands, resources and work and health-related outcomes of supervisors in social firms. Due to identified parallels to supervisors from other sectors, further comparative studies between supervisors in social firms and supervisors from other sectors might be a useful complementary approach as well as comparisons within predominant sectors and tasks of supervisors in social firms. The development of new or adapted instruments to assess peculiarities in the setting could also provide a starting point for further research. Moreover, effects of emotional demands should be examined more differentiated or other job demands, like physical ones, could be included, as they have shown an increased risk for burn-out in studies from related settings.⁷⁶ When focusing on the prevention of burn-out, future studies could also gain insights into modifiable factors at work. For instance, ways to distribute tasks or to organise work which are perceived as less straining can be discussed as a complement to individual stress reduction approaches, especially when persons concerned have narrow energy resources.⁸⁵ Other questions in the context of burn-out remain open, for example, due to different conceptualisations without providing threshold values indicating a clinical disease.⁸⁵ Moreover, results mostly rely on the self-reported appraisals of participants without providing complementary approaches in applied methods.⁸⁵

Likewise, ongoing COVID-19 pandemic-related influences on social firms can be included in future studies.⁸⁶ Another field of research which can also be investigated is represented by role model function of supervisors and the impact of health-oriented leadership on work-related and health-related outcomes of employees with disabilities.⁸² Lastly, further research may consider the evaluation of workplace health promotion interventions in social firms or cooperation approaches between small-sized and medium-sized companies in this context.⁸⁴

Strengths and limitations

The study underlined the relevance of gaining insights into working conditions and work, and health-related outcomes of supervisors of social firms in Germany. A strength of the study was the systematic and randomised recruitment process of social firms. Well-validated instruments were applied, and participants provided predominantly fully completed questionnaires. However, setting or task-specific factors were only covered to a limited extent by the applied validated constructs, which is why descriptive results on peculiarities for supervisors were added (eg, compensating for short-term employee absences). Additionally, the cross-sectional design of the study did not allow causal conclusions. Data were collected by using self-report measures of independent and dependent variables in the same measurement context, which might have biased our results and introduced common method bias.⁸⁷ Furthermore, a possible selection bias cannot be ruled out, either due to voluntary participation, so that individuals with certain characteristics are more likely to participate in the study, or due to non-response, wherefore participants with a certain characteristic drop out of the study or do not participate at all. Likewise, the population in which the online survey was distributed cannot be described,⁸⁸ since managing directors were instructed to forward the survey. Therefore, representativeness for all social firms in Germany cannot be expected. Lastly, an influence of the COVID-19 pandemic and the resulting changes in working conditions in social firms may have affected the results of the study. Explorative results underlined that at the beginning of 2020, employees reported fears of an infection with SARS-CoV-2, for example, due to comorbidities and a lack of routines, which affected especially employees with mental illnesses. Likewise, a sudden loss of work was perceived as stressful resulting in boredom, a lack of exercise and social contacts. Therefore, supervisors had to deal with less staffing, the interception of work and economic impacts for the social firm.⁸⁶

CONCLUSION

The results were one of the first gaining insights into working conditions and its associated outcomes of supervisors in German social firms providing people with disabilities employment on the general labour market. Offered results mainly resonated with the proposed associations according to the JD-R model. Results on the working conditions of supervisors differed only to a limited extent from those of other supervisors on the general labour market. However, descriptive complements underlined task-specific factors for this setting providing starting points for psychosocial risk assessment or the development of interventions for workplace health promotion. Those interventions should

mainly focus on reducing quantitative demands and strengthen perceived organisational support of supervisors to promote work engagement and reduce burn-out symptoms. Likewise, a high meaning of work should be emphasised. Lastly, it should be noted that the consideration of the supervisors' working conditions enables both a promotion of their own health and productivity, and the provision of appropriate support for their employees with disabilities.

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Contributors All authors conceived of the study and participated in its design. A-CK, IE, VH and SM designed the online survey. A-CK recruited supervisors of social firms, conducted statistical analyses and drafted the manuscript. IE, VH and SM contributed to data interpretation and to the revision of the manuscript. All authors read and approved the final version of the manuscript. ACK acts as guarantor for the paper.

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Patient consent for publication Not applicable.

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Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement No data are available. The datasets analysed during the current study are not publicly available due to German national data protection regulations.

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ORCID ID

Ann-Christin Kordsmeyer <http://orcid.org/0000-0002-9998-5027>

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