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Research article

The relationship between leader-member exchange and work engagement in social work: A mediation analysis of job resources

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ABSTRACT

Introduction: The working environment of social workers has become an important concern in research. Whereas studies typically focus on negative aspects of these environments, this study investigates the possibility of creating a positive environment by examining whether and how high-quality leader-member exchange (LMX) relationships are related to social workers' work engagement. It is hypothesized that particularly relevant job resources mediate the relation between LMX and social workers' work engagement.

Method: To identify those job resources that are particularly important to social workers, a qualitative preparatory study was first conducted with social workers and social work executives. Based on that, study data were collected by administering an online survey among social workers. Both parts of the study were realized at twenty different advice centers for pregnancy issues of a leading social organization in Germany. The dataset for statistical analyses comprised 43 social workers in total. Regression analysis with parallel mediation was used to test the hypothesized relationships.

Results: Social workers in high-quality LMX relationships operate in working environments with more abundant social and structural job resources: they experience the team atmosphere more positively and have greater work control. Further, it was found that experiencing a positive team atmosphere was associated with higher work engagement, with team atmosphere fully mediating the relationship between LMX and work engagement. Notably, high-quality LMX relationships do not seem to promote work engagement directly.

Discussion: The study underscores the relevance of high-quality LMX relationships in fostering a resourceful work environment. This, in turn, contributes significantly to a high level of work engagement. Organizations and managers in social work should therefore strengthen managerial relationships and create resourceful environments.

1. Introduction

By solving individual and social problems, social work contributes to the welfare of a society [1]. Hence, the quality of services provided by social workers and social work organizations is of pivotal importance. It is well-known from prior research in the services marketing domain that service quality is essentially dependent on high-performing employees [2]. In recent years, numerous studies in organizational psychology have furthermore shown that employees' performance in delivering excellent results to clients is in turn closely related to whether and to what degree they have positive attitudes toward their jobs and are apt to engage in behaviors to support the organization and its clients [3, 4]. In other

words, the extent to which employees are actively engaged in their work substantially influences the quality of services delivered. Work engagement thereby denotes 'a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption' [5]. Vigor refers to work-related energy and resilience, dedication to work-related sentiments of pride and significance, and absorption to a particularly focused and flow-like working mode in which disconnecting from working appears difficult [5]. High work engagement implies the simultaneous investment of personal physical, emotional, and cognitive energies in working and thus contributes to high work performance [4].

Therefore, social work organizations should have an interest in encouraging their employees' work engagement. In research on social

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work, however, work engagement has so far received comparatively little attention. One early exception is the investigation by Schaufeli and colleagues [6], which found that social workers experienced rather low levels of work engagement in comparison to employees in other professions such as education or police. Another and more recent exception is Ravalier's [7] study that investigated the influence of work engagement in social workers in England. The study demonstrated that higher work engagement was significantly associated with a number of positive work-related outcomes in social work, i.e., lower stress and turnover intentions, less presenteeism and greater job satisfaction.

Regarding the antecedents of work engagement, previous research in organizational psychology has demonstrated a pivotal role of employees' working environment [3, 4, 8]. The topic of 'working environment' has also become an important concern in research on social work. Various studies examined the working environment of social workers and came to the conclusion that social work is a very demanding profession, characterized, e.g., by high psychological workload and time pressure, role conflicts, workplace aggression, lack of formal rewards, low social support, limited job autonomy and high job insecurity, leading to high risks of developing burnout and other mental and physical impairments of employees of social work organizations [9, 10, 11, 12, 13]. However, social work research has so far primarily focused on the negative aspects of working environments in social work organizations and associated adverse effects and has paid little attention to the possibilities of designing a working environment that has a positive impact on the work engagement of employees of social work organizations [14].

With work engagement being related to various positive outcomes, a better understanding of the working environment factors contributing to work engagement in social work may help to further professionalize the management of social work organizations, and in turn to improve the quality of services provided by those organizations. In addition, a greater understanding of such factors may add to research on working environments and work engagement in social work. Thus, this study's aim is to investigate the possibility of creating a positive working environment that nurtures employees' work engagement in social work organizations. To do so, we draw on prior research in organizational psychology that has confirmed that leaders are commonly a critical element in organizations' working environments [4]. Positive leadership has been related to work engagement [15, 16, 17, 18, 19, 20].

2. Theoretical background and research hypotheses

To investigate whether and how positive leadership is related to social workers' work engagement, this study draws on the leader-member exchange (LMX) theory. This theoretical approach emphasizes that the quality of dyadic relationships between leaders and employees is pivotal [21]. Leaders are assumed to establish different exchange relationships with their employees, potentially affecting how they exchange attention, favors, and resources. If followers interpret the LMX relationship as positive, this will unfold positive effects on employees' attitudes and behaviors in general [21, 22, 23, 24] and work engagement in particular [25, 26, 27]. We expect this to hold for employees in social work organizations as well.

To investigate the role of the quality of leader-member relationships in influencing social workers' work engagement, we build on the 'leadership and work engagement'-framework developed by Decuyper and Schaufeli [28]. Based on a review of well-established theories and recent empirical research, this framework differentiates between several mechanisms underlying the influence of leadership on work engagement. It first proposes a *direct interpersonal process* by which leaders directly influence work engagement through, among others, a 'cognitive pathway', i.e., social exchange. According to this social exchange perspective [29], the LMX relationship between leader and employee is an exchange relationship maintained by interdependence

and expected reciprocation of, e.g., favors, work, or support. Employees voluntarily reciprocate positive leadership behaviors, motivated by the returns this is expected to bring and typically brings from supervisors. Thus, when the LMX relationship is interpreted as positive by employees, it is more likely that they will reciprocate with strong work engagement in the form of vigor, dedication, and absorption [28]. We expect this to hold for employees in social work organizations, too. Social work organizations' supervisors and employees constitute interdependent dyads. When employees experience the dyadic LMX relationship as positive, they reciprocate with work engagement.

Hence, we propose:

H1. *A high quality of leader-member exchange directly fosters work engagement of employees in social work organizations.*

The 'leadership and work engagement'-framework further suggests that leaders *indirectly* influence work engagement by, among other things, a 'material pathway', i.e., via shaping work characteristics [28]. The job demands-resources (JD-R) theory [30, 31], which is widely used to explain the emergence of work engagement and has the advantage of being flexible to be adapted to different work contexts [32], groups work characteristics into two basic categories: job demands and job resources. Demerouti and colleagues define job demands as attributes of the job that require sustained physical, emotional, or cognitive effort and are thus linked to physiological and psychological costs [33]. Job resources, on the other hand, are defined as those physical, psychological, social, or organizational job characteristics that are helpful in either achieving work goals, reducing job demands and associated costs, or stimulating personal growth, learning, and development [33]. Two different processes are triggered by these two categories of work characteristics: one is a process of health impairment, the other is a motivational process [30, 34]. In the former, excessive demands and inadequate resources can cause burnout. In the latter, appropriate job resources can contribute to work engagement. Decuyper and Schaufeli assume that leaders can allocate job demands and resources to their employees, thereby alter their employees' demands and resources situation, and in turn indirectly affect employees' work engagement [28]. Based on that argumentation and in line with prior research in the LMX domain [21, 35], we expect that better leader-member relationships should result in more job resources being available to employees in social work organizations. More abundant job resources should in turn positively influence the work engagement of social work organizations' employees'. In this sense, Aiello and Tesi [36], Mette et al. [37], Tesi [38, 39] as well as Geisler and colleagues [40] recently found that factors such as decision latitude, meaning of work, coworkers' social support, group cohesion, quality of communication processes with coworkers, social support from superiors and general social community at work can act as job resources that foster social workers' work engagement.

Taken together, we thus expect:

H2. *The relation between LMX and social workers' work engagement is mediated by particularly relevant job resources.*

The proposed conceptual framework is summarized in [Figure 1](#).

To test the proposed hypotheses, a cross-sectional mixed-methods-design was chosen. Since, to our best knowledge, no previous studies have systematically examined which job resources are particularly relevant to social workers, a qualitative preparatory focus group study was conducted first to identify those job resources. Based on this, the quantitative main study was realized to test the hypotheses. Both parts of the study were realized at twenty different advice centers for pregnancy issues run by a leading social service organization in the state of Bavaria in Germany. The study was conducted in this domain because it belongs to the area of 'children and families', which is traditionally one of the largest fields of practice of social workers [41].

In the next section, we briefly review the ethical considerations common to both parts of our study. Then, we describe the preparatory focus group study. Subsequently, we turn to the main study.



Figure 1. Conceptual framework.

3. Ethical considerations

Prior to conducting the preparatory and the main study, a review of the University Ethics Committee statutes indicated that no ethical review of the research project was required. This decision was based on the fact that the investigations did not involve any experimental manipulations or vulnerable groups, that participants were assured of the confidentiality of their participation and data, and that all results would be anonymized. Additionally, the data were collected following the EU General Data Protection Regulation. Before the study started, all participants explicitly declared their informed consent, and participation was completely voluntary.

4. Preparatory focus group study

4.1. Method

4.1.1. Procedure

First, the relevance of various job resources in social work was investigated in a qualitative preparatory study using two focus groups with social workers and social work executives. The purpose of the focus groups was to identify the job resources that are particularly relevant in social work and to distill the absolutely decisive ones from them. Focus groups were used as methodology because we wanted to gain in-depth insights into the importance of various categories of job resources in social work and to obtain rich accounts of why they were rated as important. Besides, it was reasoned that in a social work setting, where actors are used to exchanging and reflecting, they might be willing to be candid in their discussion.

Participants in the focus groups were selected from, in total, twenty advice centers for pregnancy issues that belonged to a leading social organization in the state of Bavaria in Germany. The centers offer counseling services for pregnant women and families with children under the age of three. Social workers are the only professional group employed. They work as advisors and provide information and psycho-social counseling for all pregnancy or family-related issues, e.g., fertility, childlessness, abortion, social and financial help, prenatal diagnostics. Some of them also hold sexual education workshops. Each counseling center has one executive who is also a professional social worker and counselor.

Before starting the study, all of the organization's executives and employees were thoroughly informed about the research. An invitation to participate in the focus groups was then sent by e-mail to all of the social workers and executives of the organization. All participants responded to this invitation and voluntarily took part in the focus groups. Besides, all participants were promised that the results would be anonymized and that their participation would be treated confidentially. The sessions were characterized by extensive discussions, and each lasted an hour.

4.1.2. Study participants

Five employees participated in the first focus group with social workers, and six executives took part in the second focus group with social work executives. All of the participants held a university degree in social work. The participants had been working for the social organization for between one and eighteen years, which made it possible to record the perspectives of both very experienced actors and new employees. The group facilitator was an academic with in-depth social work experiences.

4.1.3. Discussion guideline

The discussion guideline for the focus groups was developed in line with the core questions regarding job resources and work engagement proposed by Hakanen and Roodt [42]. Participating social workers were asked to examine and discuss the aspects in their work that helped them to succeed in work tasks, even in stressful circumstances. They were requested to consider things that made them feel energetic, provided a sense of pride and purpose, and enabled them to enjoy what they were accomplishing. In other words, they were asked to recall and discuss all that contributed to a sense of engagement. Finally, they were requested to rank the identified job resources according to their importance for work engagement. The same topics were discussed with the executives, only that they were requested to evaluate them from the perspective of the subordinate employees as the focus of this study was counselor's work engagement.

4.1.4. Analytical strategy

Focus groups were recorded, the material was transcribed and anonymized, and thereafter analyzed by qualitative content analysis as proposed by Mayring [43]. During the analysis, categories were applied in a deductive way to the material. The categories used were adopted from Schaufeli [44], who, based on a comprehensive literature review, presented an array of 22 job resources, ranging from various social resources (e.g., role clarity) to work resources (e.g., task variety), to organizational resources (e.g., organizational justice), to developmental resources (e.g., performance feedback). To ensure that the application of categories was as controlled as possible, all categories were described, and coding rules were defined. After working through the focus groups' material, quantitative steps of analysis were integrated. First, the frequency with which a category occurred was recorded, as this is an additional indication of its relevance. Second, the frequency analysis was supplemented by the ranking of the job resources carried out in the focus groups.

4.2. Findings

The two focus group discussions univocally revealed that both *social job resources* and *structural job resources* were regarded to be key for work engagement. While social job resources relate to the supportive relationships an individual has at work, structural job resources mainly refer to job design aspects [45].

With respect to the first-mentioned main category of social job resources, the focus groups' participants listed subcategories such as support from colleagues, support from supervisors, recognition, and respect. However, particular importance as a key driver of work engagement was attributed to *team atmosphere*. Detailed analysis of the focus group material revealed that the key category 'team atmosphere' was connected with aspects such as mutual trust and understanding, constructive feedback, a fear-free environment, and collective willingness to help.

Regarding the latter group of job resources, i.e., the structural job resources, the participants named, e.g., involvement in the decision-making process, person-job-fit, availability of work equipment, or task variety. However, *work control* was regarded as decisively contributing to work engagement. With the key category 'work control', focus groups' participants referred to the level of influence and freedom in one's work, i.e., to aspects such as control over working time, the extent of influence on work-related decisions, influence on what one does at work, or influence on how one accomplishes work tasks.

4.3. Interim conclusions

The findings of this preparatory focus group study are generally in line with research on job resources which suggests that work engagement is dependent on different categories of job resources such as social and structural resources [44, 45]. Results further suggest that within each of these categories, *team atmosphere* and *work control* might be regarded as job resources that are particularly relevant to social workers. Finally, the results indicate that social workers' understanding of these two resources largely corresponds to the aspects that are typically also referred to in the literature [46, 47].

The results of this preparatory study must, of course, be handled prudently and carefully. Though focus groups allow for in-depth exploration of responses, caution must be exercised regarding the generalizability of results. Future research should replicate this focus group study in other social work settings and countries.

In conclusion, the purpose of this preparatory study as a precursor to the main study was to identify job resources that are particularly relevant in social work. Hence, in the subsequent quantitative main study, *team atmosphere* and *work control* were considered as those job resources potentially mediating the relationship between LMX and work engagement.

5. Method of the main study

5.1. Procedure

Subsequent to the preparatory study, an online survey among social workers was administered to gather the data needed to examine the hypothesized relationships between LMX, prioritized job resources, and work engagement. All social workers who worked as advisors in the twenty pregnancy advice centers of the social organization with which this study was carried out were eligible to participate. Social workers were asked to provide a self-assessment of their work engagement and the exchange relationship with their leader, as well as to rate the availability of those job resources that were categorized as pivotal in the previous focus groups. Before fielding the survey, all of the organization's executives and employees were thoroughly informed about the research. An invitation to participate in the survey was then sent by e-mail to the 90 eligible social workers of the organization. The invitation contained information about the aim and procedure of the study and also included the link to the survey. The questionnaires were filled out completely anonymously.

5.2. Study participants

The dataset for analyses comprised $N = 43$ employees in total, corresponding to a response rate of 48%. The response rate was in line with the level of participation that was expected based on meta-analyses of

response rates in organizational science [48]. The mean age of the participants was 45.4 years (SD 9.67). The study participants were not asked about their gender, as this question would have been problematic for male participants from an anonymity point of view due to the great dominance of female employees in the field under study. Regarding occupation, the mean length of employment within the focal organization was 10.8 years (SD 6.16). The duration of the working relationships between the social workers and their supervisors ranged from 0 to 25 years, with a mean of 9.2 years (SD 7.31). The participating employees worked between 12 and 40 h per week with an average of 26.0 h (SD 6.75) per week.

5.3. Measurement of main variables

We employed a structured questionnaire and drew on measures from prior research to collect primary data for the quantitative study.

To measure *work engagement*, the German version of the Utrecht Work Engagement Scale (UWES-9) was used. The scale is composed of three subscales for vigor, dedication, and absorption. These comprise three items each, all measured on a 7-point Likert scale with a range from 1 = never to 7 = always. The scale was considered appropriate for the present study because of its high internal consistency and test-retest reliability and discriminant, convergent, and construct validity in previous studies [4, 6, 49]. We also found high internal consistency of the scale ($\alpha = .90$).

Leader-member exchange was measured using the validated German version of the LMX7 scale that was developed by Schyns and Paul [50] based on the English original from Graen and Uhl-Bien [23]. The LMX7 scale describes the relationship between manager and employee with seven items that are rated on a 5-point Likert type scale. Prior research demonstrated very satisfying psychometrical properties of the scale [50]. The internal consistency of the scale was very satisfactory in our study, too ($\alpha = .94$).

Team atmosphere was found in the focus groups to be one of the two pivotal job resources in social work. In the quantitative study, team atmosphere was recorded using the team atmosphere scale developed by Zárraga and Bonache [46]. Active empathy, lenience of judgment, members' courage, mutual trust, and access to help in the work team were measured with ten items on a 7-point Likert type scale (ranging from 1 = totally disagree to 7 = totally agree). In previous research, the scale was attributed good validity and acceptable reliability ($\alpha = .85$) [46]. Since the scale items were only available in English, we translated them into the German language in accordance with the guidelines of the European Social Survey program for the translation of questionnaires [51]. Compared to previous research, we found a slightly lower but still acceptable internal consistency ($\alpha = .75$).

Work control emerged in the focus groups to be the second key job resource in social work. In the quantitative study, job control was measured with the *influence at work* and *degree of freedom at work* subscales of the Copenhagen Psychosocial Questionnaire (COPSOQ) [47]. The measure consisted of 14 questions that were to be answered on a 5-point Likert type scale (ranging from 1 = never to 5 = always). We applied this tool because the COPSOQ concept proved to be valid and reliable in prior studies [47]. We also found sufficient internal consistency of the scale ($\alpha = .83$).

Beyond the variables mentioned above, we also included control variables in our statistical analyses. We followed the literature's guidelines for using control variables, recommending a focused approach so that available degrees of freedom and statistical power are not unnecessarily lost [52, 53]. Hence, *age* (years) and *weekly working hours* (binary coded, <25 h/25+ hours) were incorporated as controls in the analyses, as it is well established that these factors may be related to the variables being investigated [6], potentially resulting in a 'mixing of effects'.

5.4. Analytical strategy

All statistical analyses were performed using IBM SPSS Statistics 24. We first calculated means and standard deviations, as well as Cronbach's

Table 1. Descriptive statistics, Pearson's correlations, and Cronbach's alphas of study variables.

Variables	M (range)	SD	Items	1	2	3	4	5	6
1. Work engagement	5.16 (1–7)	.88	9	<i>.90</i>					
2. Team atmosphere	5.63 (1–7)	.58	10	.40	<i>.75</i>				
3. Work control	3.49 (1–5)	.58	14	.25	.45	<i>.83</i>			
4. LMX	3.96 (1–5)	.79	7	.15	.51	.32	<i>.94</i>		
5. Age	45.44 (24–64)	9.67	1	-.04	.03	.17	-.06	–	
6. Weekly working hours ^a	.51 (0–1)	.51	1	-.11	-.13	-.18	-.02	-.33	–

Notes:
^a Dummy coded. All $|r| > .30$ are significant at $p < .05$, all $|r| > .38$, $p < .01$. Cronbach's alphas for multi-item measures are depicted in italics on the diagonal.

alpha coefficients for multi-item measures and bivariate correlations. To test the hypothesized relationships between *leader-member exchange*, the two key job resources *team atmosphere* and *work control*, and *work engagement*, we then used regression analyses with parallel mediation. Mediation analyses were conducted using Hayes' PROCESS Macro version 3.5, model 4 [54], which employs ordinary least squares regression and provides unstandardized path coefficients for the total, direct, and indirect effects. Confidence intervals and inferential statistics were computed using bootstrapping with 10'000 samples and heteroscedasticity consistent standard errors. Effects were considered significant if the p-value was $< .05$ or if bootstrap confidence intervals did not include zero.

6. Results of the main study

6.1. Descriptive statistics and correlations

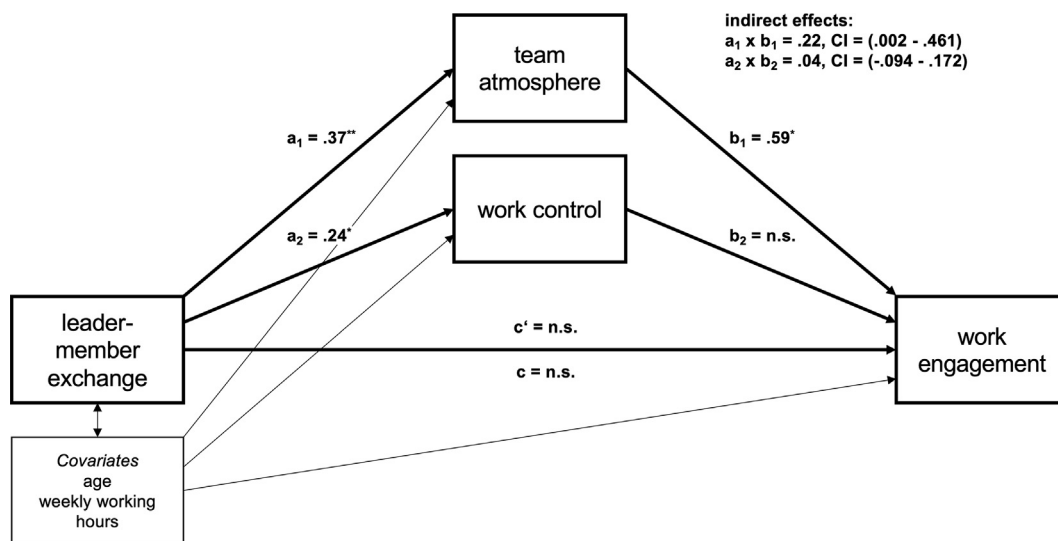
The means, standard deviations, Pearson's correlations, and Cronbach's alphas of the focal and control variables are reported in Table 1. Contrary to expectations, work engagement was not significantly related to LMX ($r = .15$, $p = .34$) and work control ($r = .25$, $p = .10$). As expected, work engagement related positively to team atmosphere ($r = .40$, $p < .01$), with the correlation coefficient indicating a moderate relation [55] between the variables. In addition, and as expected, LMX showed a strong correlation with team atmosphere ($r = .51$, $p < .01$) and a moderate correlation with work

control ($r = .32$, $p < .05$). Besides, team atmosphere and work control were positively related ($r = .45$, $p < .01$), with the correlation coefficient indicating a moderate relation.

6.2. Hypotheses testing

We assumed a positive association between LMX and work engagement in social work. Additionally, we predicted the key job resources team atmosphere and work control to mediate the relationship between LMX and work engagement of social workers. Figure 2 presents the findings of the parallel mediation analysis.

The parallel mediation model accounted for a substantial proportion of the variance in work engagement ($R^2 = .18$). LMX was positively related to team atmosphere ($a_1 = .37$, $p < .01$), which, in turn, was positively associated with work engagement ($b_1 = .59$, $p < .05$). Further, the analysis revealed a positive relationship between LMX and work control ($a_2 = .24$, $p < .05$), but no significant relationship between work control and work engagement ($b_2 = .16$, $p = .55$). As previously stated, the significance of the indirect effects was determined via bootstrapping [54], with 10'000 bootstrapped samples and a 95 percent confidence interval. The analysis revealed a positive, significant indirect effect of LMX on work engagement through team atmosphere of $a_1 \times b_1 = .22$ with a 95 percent confidence interval from .002 to .461, but no significant indirect effect on work engagement via work control ($a_2 \times b_2 = .04$, 95 percent confidence interval from -.094 to .172). The total effect of LMX on work engagement ($c = .16$, $p = .46$) and the residual direct effect of



Notes: * $p < .05$, ** $p < .01$, n.s. = not significant

Figure 2. Parallel mediation model.

LMX on work engagement ($c' = -.10, p = .67$) were also not significant. Therefore, results from our parallel mediation analysis with age and weekly working hours as covariates indicated that LMX was indirectly related to social workers' work engagement through its relationship with team atmosphere. However, work control did not mediate the relation between LMX and work engagement. Further, LMX did not directly promote work engagement but only indirectly via team atmosphere. Hence, we found partial support for our Hypotheses. Table 2 summarizes the results.

7. Discussion

7.1. Theoretical implications

The present study advances research on working environments in social work. While previous research typically has focused on negative aspects of these environments and associated adverse effects, we investigated the possibility of creating a positive working environment in social work organizations that fosters social workers' work engagement.

In this regard, and with respect to the role of leadership, our study indicated that social workers in high-quality leader-member exchange relationships work in more resourceful work environments. This finding is in line with the 'leadership and work engagement'-framework's theoretical proposition that positive leadership is apt to improve employees' resources situation [28] and with prior empirical studies [35, 56] in occupational fields other than social work, and thus substantiates the pivotal role of leadership for establishing a beneficial working environment also for the domain of social work. Our results further indicated that sound leadership relations are capable of positively impacting social job resources as well as structural job resources, since social workers in high-quality leader-member exchange relationships were found to experience a better team atmosphere and also higher levels of work control. Considering that we were only able to investigate this for one selected resource in each of these resource categories, further research is warranted in this regard, that examines the potential effects of good leader-member exchange relations on other social and structural job resources.

Second, we found high-quality leader-member exchange relationships not only to contribute to more resourceful work environments but also to higher work engagement through a better team atmosphere, which is characterized by aspects such as mutual trust and understanding, constructive feedback, a fear-free environment, and collective willingness to help. This finding supports the line of reasoning in prior research in other occupational fields than social work, that the availability of job resources is generally apt to foster work engagement [4, 30]. It also corroborates previous research in the social work domain which concluded that social job resources foster social workers' work engagement [36, 40]. Yet, we did not find a positive indirect effect of high-quality leader-member exchange relationships on work engagement through higher levels of work control. At first sight, this seems to deviate from the findings of several empirical studies in occupational fields other than social work that have demonstrated the motivating capacity of work control for work engagement (reviews can be found, e.g., at Christian

et al. [4] or Halbesleben [57]). However, prior investigations have found that the association between work control and work engagement varies substantially in strength, being sometimes rather weak [4] or even negative [58]. Hence, our study's finding could suggest that in social work social job resources (such as team atmosphere) could be more important for work engagement than structural resources (such as work-control). Future research could shed further light on this issue, for example, by analyzing more closely whether and how different dimensions of work control (e.g., regarding method, scheduling, time, or place of work) [59] relate to social workers' work engagement.

Third, and differently than expected, we did not find any evidence that high-quality leader-member exchange relationships foster work engagement directly. It seems to be the case that in social work, unlike in other work areas, in which studies [4] have found a direct influence of leader-member exchange relations on work engagement, beneficial leader-member relationships themselves do not act directly engagement-promoting for employees, but as an important enabler of resource-rich work environments. This result is nevertheless compatible with some other studies in the LMX domain which also showed only indirect effects of leader-member relationships on workplace outcomes [60, 61]. It could imply that pursuing beneficial LMX relationships may not be sufficient to foster engagement in social work, but that a necessary condition is that beneficial leader-member relationships must also have an impact on social job resources such as a better team atmosphere to unfold engaging effects. Since some previous studies have also suggested nonlinear relationships between LMX and workplace outcomes [62, 63], it could also be that there could be a nonlinear, U-shaped direct relationship between LMX and work engagement: social workers in low-quality relationships with their superiors could be particularly engaged to receive superiors' recognition, and social workers in exceptionally good relationships could also be particularly engaged. However, a post hoc analysis that we conducted and that included a quadratic term for LMX in the regression model did not provide any evidence for this kind of relationship.

Another possible explanation for the non-significant tests regarding a direct effect of LMX on work engagement and an indirect effect of LMX on work engagement through work control could be that we did not have sufficient power. In this respect, a post hoc power analysis with G-Power (V3.1) in terms of the joint significance approach indicated that our sample was sufficiently powered for detecting comparatively large indirect effects ($f^2 = .35, \alpha = .05, n = 43, \text{path a with 3 predictors, path b with 5 predictors, power (a x b) = .9324}$), but that larger sample size would have been required to achieve power of .80 for smaller effects ($f^2 = .15, \text{power (a x b) = .4855}$). Results of simulation studies also point in this direction [64]. Still, the fact remains that we did not find an obvious direct link between LMX and work engagement or an indirect link between LMX and work engagement through work control.

7.2. Practical implications

Additionally, this study has important implications for management practice. The identified positive relationship between team atmosphere as a social job resource and social workers' work engagement suggests that the design of resourceful working environments is a promising option for social organizations to nurture engagement and thereby enhance social workers' working performance, organizational citizenship behavior, and finally the quality of services provided to clients. Consequently, we advise practitioners to be attentive to and embrace this positive relationship and conduct systematic and regular assessments of a social organization's working environments in terms of their endowment with job resources in general and team atmosphere in particular. Further, we recommend implementing targeted work environment redesign initiatives, including, e.g., redesign workshops [65], in which current work environments could be rated and changes aimed at improving job resources and engagement could be developed. In addition to activities where the organization transforms the work environment, we

Table 2. Summary of hypothesized results.

Hypotheses	Supported
H1: A high quality of leader-member exchange directly fosters work engagement of employees in social work organizations.	No
H2: The relation between LMX and social workers' work engagement is mediated by particularly relevant job resources.	
Mediator: team atmosphere	Yes
Mediator: work control	No

Notes: Yes = the hypothesis was supported. No = the hypothesis was not supported.

recommend encouraging social workers to use opportunities to design their working environments themselves. One possibility in this regard could be initiating job crafting interventions to increase social workers' awareness regarding ways in which they can change the level of job resources themselves in order to experience more engagement [66]. Job crafting workshops could familiarize social workers with the concept of job crafting and enable them to set a personal crafting plan, and accompanying measures such as crafting logbooks and reflection meetings could permit them to keep track of and discuss improvements, problems, and solutions [66].

In addition, we highly recommend establishing, maintaining, and nurturing high-quality relationships between supervisors and social workers in social organizations. To do so, offering specifically tailored workshops and trainings for managers and employees in social organizations would seem to be beneficial. Since they often do not have a management education background, but come from social work, such workshops could make managers and employees more knowledgeable about leader-member exchange theory, provide an understanding of the value of LMX relationships, and illustrate how to improve them. Carefully planned trainings could also further strengthen managers' and employees' active listening capabilities and their competencies in exchanging mutual expectations, which are critical for building and maintaining beneficial relationships [67].

7.3. Limitations and future research

Like any empirical investigation, this study is not free of shortcomings. The first limitation results from its cross-sectional design. Though this research employed leader-member exchange relationships as a predictor variable and work engagement as a dependent variable, cross-sectional data in principle allow for reverse causation. Work engagement could very well have an influence on the quality of relationships between supervisors and subordinates. One could conceive, for instance, that highly engaged social workers eagerly take on role-making opportunities and thus work towards establishing high-quality relationships with their supervisors. Thus, while the directions of causality indicated in the present study are likely based on the theoretical reasoning offered, we must exercise caution in inferring causal, unidirectional relations. Future longitudinal or experimental studies may thus establish an even more solid foundation for the direction of the link between LMX and work engagement.

Another limitation is that all participants in the study were employed at in total twenty advice centers for pregnancy issues that belonged to one social organization in the state of Bavaria in Germany. Thus, researchers could scrutinize the suggested relationships (a) in the context of other governing bodies, (b) in areas of social work other than pregnancy counseling, and (c) in other countries to generalize the actual results further.

Third, while we relied on established approaches from past research, the study variables' measurement could be a potential limitation of our work. Particularly, this study's reliance on social workers' self-rated and hence subjective assessments of the quality of leader-member exchange relationships, job resources, and work engagement could be a limiting factor. For reasons of research economy, we had to refrain from incorporating measures that do not rely on self-reporting (e.g., supervisor ratings, peer ratings, or objective measures). The only exception to this was that we had the quality of the leader-member exchange relationships assessed by both employees and executives. Our analysis of the matched pairs of supervisors' and social workers' ratings found that they rated their leader-member exchange consistently. Nevertheless, researchers might validate our findings incorporating non-self-report measures [68] in future research efforts.

Fourth, as noted before, the sample size might have been so small that we did not have sufficient power in our tests to detect effects even if they were present. Hence, a larger study with more statistical power is warranted.

Finally, this study could only consider a limited number of potential confounders. Inadequate consideration of potential confounding variables may bias research findings and result in erroneous conclusions. Thus, it would be an advancement if future studies considered other potential confounders to exclude any alternative explanations for the observed relationships.

Declarations

Author contribution statement

Bettina Wagner: Conceived and designed the analyses; Collected the data; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Clemens Koob: Conceived and designed the analyses; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data included in article/supplementary material/referenced in article.

Declaration of interests statement

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Additional information

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