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ORIGINAL ARTICLE

## Reorganisation of healthcare services for children and families: Improving collaboration, service quality, and worker well-being

Monica Martinussen <sup>a</sup>, Sabine Kaiser <sup>a</sup>, Frode Adolfsen<sup>a</sup>, Joshua Patras <sup>a</sup>, and Astrid M. Richardsen<sup>b</sup>

<sup>a</sup>Regional Centre for Child and Youth Mental Health and Child Welfare (RKBU-North), Faculty of Health Sciences, UiT–The Arctic University of Norway, Tromsø, Norway; <sup>b</sup>Department of Leadership and Organizational Behavior, BI Norwegian Business School, Oslo, Norway

### ABSTRACT

This study is an evaluation of a reorganisation of different services for children and their families in a Norwegian municipality. The main aim of the reorganisation was to improve interprofessional collaboration through integrating different social services for children and their parents. The evaluation was guided by the Job Demands-Resources Model with a focus on social and healthcare workers' experiences of their work, including job demands and resources, service quality, and well-being at work. The survey of the employees was conducted at three measurement points: before (T<sub>1</sub>) and after (T<sub>2</sub>, T<sub>3</sub>) the reorganisation took place, and included between 87 and 122 employees. A secondary aim was to examine the impact of different job resources and job demands on well-being (burnout, engagement, job satisfaction), and service quality. A one-way ANOVA indicated a positive development on many scales, such as collaboration, work conflict, leadership, and perceived service quality, especially from T<sub>1</sub> to T<sub>2</sub>. No changes were detected in burnout, engagement, or job satisfaction over time. Moderated regression analyses (at T<sub>3</sub>) indicated that job demands were particularly associated with burnout, and job resources with engagement and job satisfaction. Perceived service quality was predicted by both job demands and resources, in addition to the interaction between workload and collaboration. The reorganisation seems to have contributed to a positive development in how collaboration, work conflict, leadership, and service quality were evaluated, but that other changes are needed to increase worker well-being. The value of the study rests on the findings that support co-locating and merging services for children and their families, and that collaboration is an important resource for healthcare professionals.

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Burnout; engagement; interprofessional collaboration; service quality

### Introduction

Norway has over 440 municipalities, which are responsible for providing health and care services to children and their families. Many municipalities have relatively few inhabitants with less than 4000 people, located over a large geographical area. The municipalities are free to organise child and family services as separate services, in family centres, or by adopting other organisational models (Adolfsen, Martinussen, Thyraug, & Vedeler, 2012). In recent government documents and plans, however, there is a clear requirement that health services to the public should be well coordinated and delivered at the lowest possible level (Ministry of Health and Care Services, 2008).

In one of the larger municipalities in southern Norway (about 60000 inhabitants), a comprehensive survey of services offered to children, adolescents, and their parents was conducted. Based on the results from the survey and an analysis of local needs, the decision was made to reorganise, integrate, and collocate some of the different services into a larger Child and Family Unit. The reorganisation was inspired by the Family Centres Model, as it has been developed in Sweden and Norway (Adolfsen et al., 2012;

Bing, 2005). Family centres aim at promoting collaboration between municipal healthcare services to facilitate prevention and early intervention, in addition to providing easily accessible services in the local community. To facilitate collaboration, services offered to children and their families are often collocated to combine low-threshold and universal services with selective and indicated interventions (Adolfsen et al., 2012).

Today, the Child and Family Unit is responsible for children and young people between the ages of zero to 24 years and their families. The unit contains four sections comprising various services that are located in one building and some services decentralised in the municipality. There is one leader for the whole Child and Family Unit in addition to leaders for the different sections. The Preventive Child Section includes maternity- and child, youth healthcare services, home start, physiotherapy, and occupational therapy. The schoolchildren and youth section contains the school healthcare services, the youth support team, and a youth club. The Pedagogical Section includes the pedagogical–psychological service and speech therapy, and the Intervention Section provides interventions for children with mental health problems or disabilities and family counselling.

In addition to this reorganisation, two different low-threshold preventive initiatives were implemented. One included a reception service where parents and other care-takers could come or call without an appointment for general advice regarding children, or to receive more information about where additional help could be found. The second initiative included local interprofessional teams that met in schools and kindergartens with parents to discuss an emerging problem related to their child's psychosocial development, made plans for how the problem should be handled, and decided if more help from additional services in the Child and Family Unit was needed. The interprofessional teams included professionals from the local school or kindergarten in addition to representatives from the different services in the Child and Family unit, such as healthcare, child protection and pedagogical-psychological services.

### **Collaboration and service quality**

Good collaboration between professionals and services can be linked to beneficial consequences for users of health services, such as better health outcomes and increased user satisfaction (Larrabee et al., 2004; Shipton, Armstrong, West, & Dawson, 2008). Studies from hospitals have shown that a lack of cooperation and poor communication between professions has negative consequences for the patients (Fewster-Thuente & Velsor-Friedrich, 2008), including increased risk of hospital infections (Boev & Xia, 2015; Virtanen et al., 2009), while successful cooperation is associated with improved quality of care (Cheng, Bartram, Karimi, & Leggat, 2013; Co, Ferris, Marino, Homer, & Perrin, 2003; Hamric & Blackhall, 2007; Rafferty, Ball, & Aiken, 2001; van Bogaert, Kowalski, Weeks, van Heusden, & Clarke, 2013). Similarly, a Norwegian study of children and adolescents with mental health problems showed that lack of collaboration between agencies was strongly related to uncovered healthcare needs (Anderson & Ose, 2007). Good cooperation between services and between different professionals is not just important for families who receive help but also for those who deliver services. Increased collaboration may also constitute a job resource for the employees, which makes it easier for them to exchange knowledge and experiences as well as receive support from other colleagues (Corrigan, Holmes, & Luchins, 1995; Glisson & Green, 2011; Glisson & Hemmelgarn, 1998; Onyett, 2011). Successful collaboration may also buffer the negative effects of stressful working conditions frequently found in health and care professions (Bakker, Demrouti, & Sanz-Vergel, 2014; Onyett, 2011), and increase work satisfaction (Heponiemi, Aalto, Puttonen, Vanska, & Elovainio, 2014).

### **Professionals' well-being and service quality**

Healthcare service professionals are vital to the quality of care provided at the municipal level, and their work may have an important impact on the health and well-being of the families that live there. Working with children and families may be rewarding, but also challenging and demanding (Heponiemi et al., 2014; Onyett, 2011; Walsh & Walsh, 2001); this may lead to both positive and negative emotions towards the job.

Work satisfaction was defined by Locke (1976, p. 1304) as "... a pleasurable or positive emotional state resulting from the appraisal of one's job or job's experiences". Job satisfaction has been linked with improved work performance in a meta-analysis of over 300 samples with a mean corrected correlation of .30 (Judge, Thoresen, Bono, & Patton, 2001). Based on this meta-analysis and review, the authors suggested a causal reciprocal relationship between the constructs, with different variables as mediators and moderators of the relationship (Judge et al., 2001). This model and the findings suggest that there is not a perfect one-to-one relationship between emotions towards work and work performance. A review based on community mental health teams indicated that a lack of resources and a high workload was linked to both burnout and reduced job satisfaction, and that many experienced both high levels of stress and burnout, and at the same time a sense of accomplishment and job satisfaction (Onyett, 2011), indicating a complex relationship between the constructs.

Healthcare workers and other professionals, who provide care to others, are a vulnerable group for the development of burnout (Bakker et al., 2014; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Jourdain & Chênevert, 2010; Martinussen, Borgen, & Richardsen, 2011; Onyett, 2011; Richardsen & Martinussen, 2004). Burnout is a psychological phenomenon that occurs due to chronic interpersonal and job-related stress (Maslach, Jackson, & Leiter, 1996; Maslach, Schaufeli, & Leiter, 2001). Burnout consists of three dimensions: Exhaustion, cynicism, and lack of professional efficacy. The most important dimension is the experience of exhaustion, a feeling of being strained, and drained of physical and emotional resources. This in turn causes individuals to distance themselves from work and gradually develop a cynical and impersonal attitude towards work and clients (Maslach et al., 2001; Schaufeli, Leiter, & Maslach, 2009). Finally, reduced professional efficacy refers to a decline in successful achievement at work (Maslach et al., 2001).

Burnout is related to many individual outcomes such as physical health problems and mortality rates (Kakiashvili, Leszek, & Rutkowski, 2013; Martinussen et al., 2011), as well as depression (Ahola et al., 2005). Burnout is also related to organisational outcomes such as turnover intentions (Alarcon, 2011; Lee & Ashforth, 1996; Schaufeli & Bakker, 2004) and increased absenteeism (Davey, Cummings, Newburn-Cook, & Lo, 2009). Burnout has also been linked to objective performance indicators and customer satisfaction (Taris, 2011), where a positive correlation has been found between burnout and increased medical errors among surgeons (Shanafelt et al., 2010), and a negative correlation has been found between burnout and working safely (Nahrgang, Morgeson, & Hofmann, 2011).

Job engagement is a related but separate construct from burnout and represents a relatively permanent positive emotional state characterised by vigour, dedication, and absorption (Schaufeli, Bakker, & Salanova, 2006). Vigour is described as a high energy level, endurance, and willingness to work hard. Dedication is a feeling of inspiration, pride, challenge, a strong identification with work, and the feeling

that what one does is important. Finally, absorption is characterised by the ability to concentrate and being so absorbed in work-related tasks that one does not notice distractions or the passage of time. Engagement is connected to lower mortality rates in hospital studies, proactive behaviour, higher success rates in organisations (Bargagliotti, 2012; Harter, Schmidt, & Hayes, 2002), and to employee work performance and well-being (Bakker & Demerouti, 2008; Christian, Garza, & Slaughter, 2011; Halbesleben, 2010), positive service climate (Salanova, Agut, & Peiró, 2005), and to working safely (Nahrgang et al., 2011).

The Job Demands-Resources Model (JD-R) outlines how job demands and job resources are related to burnout and engagement, respectively, and how burnout and engagement influence organisational outcomes such as service quality (Bakker et al., 2014; Demerouti et al., 2001; Schaufeli & Taris, 2014). Job demands are defined as physical, psychological, social, or organisational aspects of the job that require sustained effort (Demerouti et al., 2001; Schaufeli & Bakker, 2004). Examples of job demands are staff having too little time to accomplish tasks, too many clients or clients with complex needs, or interpersonal conflicts in the workplace. Job resources are physical, psychological, social, or organisational aspects of the job that may support goal achievement, stimulate growth, learning, and development (Demerouti et al., 2001; Schaufeli & Bakker, 2004). Examples of job resources can be supported received from colleagues and leaders, autonomy to do one's job, and supervisor coaching.

While job demands have been found to predict burnout, job resources have not only been found to contribute to greater job engagement but also to mitigate the negative impact of job demands on burnout, especially when demands are high. Which job resources or job demands that are of importance, however, depend on specific work characteristics (Demerouti & Bakker, 2011).

Many resources and demands, such as workload, work conflict, autonomy, leadership and social support, have been identified as possible predictors of burnout, engagement, and job satisfaction (Alarcon, 2011; Crawford, LePine, & Rich, 2010; Halbesleben, 2010; Lee & Ashforth, 1996; Lizano & Mor Barak, 2015; Martinussen, Adolfsen, Lauritzen, & Richardsen, 2012; Schaufeli, 2015) and may thus be important to monitor when reorganising services.

## Methods

The main purpose of this survey was to study the social and healthcare workers' experience of their work before, during, and after a reorganisation of different healthcare services for children and their families in a large municipality in southern Norway. We chose to focus on the staff and their experiences because they were of great importance to the quality of services offered.

One important goal of the project was to improve inter-professional collaboration; therefore, we were interested in how the employees evaluated collaboration before and after the reorganisation. We expected that the reorganised unit where the different services had been merged would improve the employees' assessment of collaboration and of the quality of services offered. We did not have a clear expectation about

other aspects and work-related emotions, as a reorganisation process may lead to improvements, but also an increased workload and potential conflicts (Greenglass & Burke, 2000).

Another aim of the study was to examine the impact of different job resources and job demands on worker well-being (burnout, engagement, job satisfaction) and perceived service quality. In line with the JD-R model (Demerouti et al., 2001), and previous research (Alarcon, 2011; Christian et al., 2011; Crawford et al., 2010; Halbesleben, 2010; Lee & Ashforth, 1996; Martinussen et al., 2011, 2012), we expected job demands to be positively correlated with burnout, and job resources to be positively correlated with engagement, perceived job satisfaction, and service quality. Previous studies and reviews (Bakker, Demerouti, & Euwema, 2005; Demerouti & Bakker, 2011) have suggested that job resources may have a buffering effect on the negative effects of job demands on job strain, including burnout. Important resources may differ between organisations and jobs; therefore, we wanted to examine whether collaboration (a job resource) would moderate the relationship between job demands and worker well-being, and between job demands and service quality.

## Participants and procedure

The self-completion questionnaires and information letters were distributed to all employees working in a service that was going to be integrated into the new Child and Family Unit in a large municipality in southern Norway including health professionals, pedagogical-, and administrative staff. The questionnaires were distributed at three different time points, once before the re-organisation took place in November 2010 ( $T_1$ ) and twice after the re-organisation was completed in May 2011 ( $T_2$ ) and May 2012 ( $T_3$ ). At  $T_1$ , the Child and Family Unit was not yet established. Questionnaires were sent to the services that were going to be included in the new Child and Family Unit. At  $T_2$  and  $T_3$ , the questionnaires were distributed to all employees working in the Child and Family Unit. To preserve the anonymity of the participants, no id numbers were added to the questionnaires. The completed forms were returned in stamped and addressed envelopes to the University of Tromsø. Participation in the study was voluntary and anonymous. The Child and Family Unit received a presentation of the results and a written report at the end of the study.

## Measures

The questionnaire included several scales, and Cronbach's alpha was calculated to evaluate the internal consistency of the different scales. Values from .70 are considered adequate, .80 or above good, and from .90 excellent (European Federation of Psychologists' Associations, 2013).

### Demographic variables and aspects of the workplace

The survey included demographic variables (e.g. age group, gender, marital status) and questions about education, occupation, and working hours (hours per week and part- or full-time position). In addition, we asked how many years the staff had been working in the current occupation (Work Experience).

### Job demands

Perceived workload/time pressure was assessed with a scale derived from the Total Workload Questionnaire (TWQ; Mårdberg, Lundberg, & Frankenhaeuser, 1990). The TWQ includes several scales to assess factors related to both paid and unpaid work. In this study, three scales related to paid work were included (workload, autonomy and job satisfaction). The factor structure and psychometric properties of the Norwegian version of the TWQ have been supported in previous studies (Martinussen et al., 2012; Østlyngen, Storjord, Stellander, & Martinussen, 2003). The scale for assessing workload/time pressure included eight items (e.g. “How stressful is your job?” or “Do you feel that you have too much to do?”), measured from 1 (*not at all*) to 7 (*to a very large extent*). The degree of work conflict and work-family conflict was measured with four questions from McKeen and Burke (1991) (e.g. “I often experience conflicts with other colleagues at work” or “I often feel a conflict between my work and my family roles or other obligations”). The questions for assessing different types of work conflict and work-family conflict have been used in several Norwegian studies with adequate reliability and moderate to high correlations with outcomes such as burnout (Martinussen & Richardsen, 2006; Martinussen et al., 2011). Cronbach’s alpha at T<sub>3</sub> was good for workload/time pressure ( $\alpha = .84$ ), excellent for work-family conflict ( $\alpha = .92$ ), and adequate for work conflict ( $\alpha = .79$ ).

### Job resources

Autonomy in the workplace was measured by a scale obtained from the TWQ (Østlyngen et al., 2003). The scale included seven items (e.g. “To what extent do you have direct influence on what you do in your job?” or “To what extent can you, on your own initiative, realise your own ideas in your job?”). Social support was mapped using eight questions from Himle, Jayaratne, and Thyness (1991). The questions included support, help, and recognition from colleagues and boss and were answered on a four-point scale from 1 (*absolutely not true*) to 5 (*true*). The scale has been used in previous studies of stress and burnout in Norway with good internal consistency (Martinussen et al., 2011; Martinussen, Richardsen, & Burke, 2007). Cronbach’s alpha was good for both autonomy and social support ( $\alpha = .80$  and  $\alpha = .86$ , respectively) at T<sub>3</sub>.

### Experience of collaboration

A total of eight items assessing aspects of collaboration with professionals from other services were formulated in a previous study conducted in a community setting (Martinussen et al., 2012). Exploratory factor analyses indicated one factor and a low correlation with social support, suggesting little overlap between the constructs (Martinussen et al., 2012). Examples of questions were “It is easy to get help from other services working with children/young people and their families” and “Collaboration is difficult because of a lack of resources”. All questions were answered on a five-point scale from 1 (*not at all*) to 5 (*to a very large extent*). Cronbach’s alpha for the scale was adequate ( $\alpha = .79$ ) at T<sub>3</sub>.

### Views on leadership

To assess the employees’ perception of their leader, seven questions were adapted from the Shipton and colleagues’

Leadership Scale (Shipton et al., 2008) (e.g. “Proposes new and creative ideas for improving services” and “Takes account of both service requirements and staff needs when implementing changes”). The questions were answered on a five-point scale from 1 (*not at all*) to 5 (*to a very large extent*). An exploratory factor analysis based on the current sample (T<sub>3</sub>) indicated a one-factor solution explaining a total of 69% of the variance. Cronbach’s alpha for the scale was excellent ( $\alpha = .92$ ) at T<sub>3</sub>.

### Burnout

The Norwegian version of the Maslach Burnout Inventory (GS) was used to assess burnout (Maslach et al., 1996). The original three-factor structure has been supported in confirmatory factor analyses across different occupational groups in Norway (Richardsen & Martinussen, 2005). The instrument consists of three dimensions: exhaustion, cynicism, and professional efficacy. The scales range from 0 (*never*) to 6 (*every day*). Only the core dimension exhaustion was used for the analysis, which consists of five items (e.g. “I feel emotionally drained by my work” or “I feel exhausted by the end of the workday”). Internal consistency was excellent for exhaustion ( $\alpha = .91$ ) at T<sub>3</sub>.

### Engagement

To measure engagement the short version of the Utrecht Work Engagement Scale (UWES-9) was used (Schaufeli et al., 2006). The factor structure and psychometric properties of the Norwegian version have been examined in a study of ten occupations indicating support for the factor structure and acceptable internal consistencies (Nerstad, Richardsen, & Martinussen, 2010). The UWES-9 consists of three scales: vigour, dedication, and absorption. The nine-item total score was used in this study. The questions (e.g. “At my work, I feel bursting with energy”, “I am proud of the work that I do” or “I am immersed in my work”) were rated on a scale from 0 (*never*) to 6 (*every day*). Cronbach’s alpha for the scale was excellent ( $\alpha = .91$ ) at T<sub>3</sub>.

### Job satisfaction

Job satisfaction was assessed using a scale of six questions (e.g. “How satisfied are you with your current job?”), also taken from the TWQ (Østlyngen et al., 2003). Cronbach’s alpha was adequate for the Job Satisfaction Scale ( $\alpha = .78$ ) at T<sub>3</sub>.

### Service quality

Perceived service quality was assessed using three items. Two questions originally developed to assess quality of care in a hospital setting were used in the present study (Rafferty et al., 2001). These questions have previously been adapted for municipal services for children and have been used in a study assessing differences between municipalities in service quality (Martinussen et al., 2012). An example question is, “The quality of the services offered by our service to children and their families are: 1 = *very bad*, 2 = *bad*, 3 = *neither good nor bad*, 4 = *good*, or 5 = *very good*”. A third question was added in the current study “I do believe that the users experience our services as...” with response alternatives from 1 (*very bad*) to 5 (*very good*). An exploratory factor analyses

based on the current sample indicated a one-factor solution, and the Cronbach's alpha was good ( $\alpha = .80$ ) at  $T_3$ . Participants were also asked whether they had experienced any changes in the quality of services in the past year on a scale from 1 (*significant deterioration*) to 5 (*significant improvements*), also inspired by an original item developed by Rafferty and colleagues (2001).

### Statistical analyses

The statistical analyses were performed with the Statistical Package for Social Sciences (SPSS 22). The analyses included the calculation of descriptive statistics and the regression diagnostics, such as the examination of the distribution of the data, outliers, influential data points of the residual variance, and correlations. One-way ANOVAs were conducted to test for differences in the scores of the outcome variables over time ( $T_1$ ,  $T_2$ , and  $T_3$ ). Due to the design of the study, it was not possible to link individuals over time to use repeated measures ANOVA. Effect sizes (standardised mean differences) were calculated as Hedges'  $g$ . Values of  $g = 0.20$ ,  $g = 0.50$ , and of  $g = 0.80$  indicate small, medium, and large effect sizes, respectively (Cohen, 1988). The prediction of worker well-being and service quality was examined using moderated regression analyses. All continuous independent variables were centred, and the dependent variables were left un-centred as recommend by Aiken and West (1991). The interaction terms were entered in the last step of the regression analyses, after three blocks of independent variables had been entered, including work experience (in years) in step 1, then job demands in step 2 (workload, work conflict, and work-family conflict), and job resources in step 3 (autonomy, social support, leadership and collaboration). Interaction effects were further explored using plots and simple slope testing, as suggested by Aiken and West (1991). Individual interaction effects were only explored if the last step involving interaction effects resulted in a significant increase in explained variance ( $R^2$ ). Age and gender were not included in the regression analyses as almost all participants were women and age was highly correlated with years of work experience included in step 1.

## Results

### Descriptive statistics

The number of participants were  $n = 100$  at  $T_1$ ,  $n = 87$  at  $T_2$ , and  $n = 122$  at  $T_3$ . The response rates were 83% at  $T_1$ , 81% at  $T_2$ , and 81% at  $T_3$ . Most of the 122 employees that answered the questionnaire at the third measurement point were women (93%). Further sample characteristics are presented in Table 1. The mean number of working hours per week was 36.80 ( $SD = 5.56$ ), and the mean number of years in the current occupation was 9.31 ( $SD = 8.30$ ).

### Development over time

The results from the ANOVA, as well as the means, standard deviations, and effects sizes, are presented in Table 2. Testing

**Table 1.** Sample characteristics ( $N = 115-121$ ;  $T_3$ ).

Variable	<i>N</i>	(%)
Gender		
Women	113	(93)
Men	8	(7)
Age		
Younger than 30 years	10	(8)
31–40 years	32	(26)
41–50 years	39	(32)
51–60 years	29	(24)
Older than 60 years	11	(9)
Marital status		
Married/cohabitation	101	(86)
Single	16	(14)
Children		
Living with children < 18 years	73	(67)
No children living at home	36	(33)
Full/part-time		
Full-time	74	(61)
Part-time	43	(36)
Sick leave	3	(3)
Leave of absence	1	(1)
Profession		
Nurse	33	(29)
Pedagogue/counsellor/teacher	26	(23)
Child protection worker/social worker	17	(15)
Physiotherapist/speech therapist/occupational therapist	10	(9)
Psychologist	5	(4)
Midwife	3	(3)
Other	18	(16)

for differences in the scores over the three measurement points revealed significant differences for collaboration, work conflict, service quality, and leadership, whereas no significant differences were found for the remaining variables including burnout and engagement (Table 2). Post hoc analyses (Bonferroni corrections) indicated significant changes from  $T_1$  to  $T_3$  for all four variables (collaboration, work conflict, service quality, and leadership), and from  $T_1$  to  $T_2$  for three variables (collaboration, work conflict, and leadership). Hedges'  $g$  was small to medium for service quality and work conflict, and large for collaboration and leadership for differences between  $T_1$  and  $T_3$  according to Cohen's criteria (1988).

The participant's evaluation whether they had experienced any change in the quality of services in the past year showed an improvement. The proportion who had entered an *improvement* or *significant improvement* increased from 27% ( $MT_1 = 3.20$ ,  $SDT_1 = 0.68$ ), to 48% ( $MT_2 = 3.49$ ,  $SDT_2 = 0.66$ ), to 62% ( $MT_3 = 3.66$ ,  $SDT_3 = 0.67$ ). The differences in mean scores were significant  $F(2, 285) = 12.18$ ,  $p < .001$ , and follow-up analyses (Bonferroni corrections) indicated significant changes between  $T_1$  and  $T_2$  ( $p = .017$ ,  $g = -0.43$ ) and between  $T_1$  and  $T_3$  ( $p < .001$ ,  $g = -0.68$ ).

### Predictors of burnout, engagement, job satisfaction, and service quality

Bivariate correlations are presented in Table 3. The results of the moderated multiple regression analyses are presented in Table 4.

Overall, the model explained a large proportion of the variance in exhaustion and job satisfaction (57% and 59%), followed by engagement (40%) and perceived service quality (42%). Step 1, which included work experience, explained a significant part of the variance in exhaustion (5%) and job satisfaction (6%), but was non-significant for the remaining

**Table 2.** One-way ANOVA results for the three time points for all study variables.

Variables	T <sub>1</sub> (N = 97–99)		T <sub>2</sub> (N = 84–87)		T <sub>3</sub> (N = 120–122)		F	p	Hedges' g	
	M	SD	M	SD	M	SD			T <sub>1</sub> vs. T <sub>2</sub> <sup>a</sup>	T <sub>1</sub> vs. T <sub>3</sub> <sup>a</sup>
Job demands										
Workload	4.47	1.05	4.48	1.09	4.28	1.05	1.21	.30	–0.01	0.18
Work conflict	1.99	1.23	1.49	0.71	1.60	0.90	6.92	.001	0.48*	0.37*
W-Fam. confl.	3.10	1.65	3.08	1.72	3.25	1.87	0.29	.75	0.01	–0.08
Job resources										
Autonomy	5.25	0.83	5.10	0.80	5.25	0.77	1.09	.34	0.18	0.00
Social support	3.17	0.54	3.21	0.49	3.24	0.56	0.47	.63	–0.08	–0.13
Leadership	3.07	0.85	3.62	0.57	3.62	0.66	19.98	<.001	–0.75**	–0.73**
Collaboration	3.03	0.43	3.39	0.40	3.44	0.43	28.83	<.001	–0.86**	–0.95**
Outcomes										
Exhaustion	1.80	1.14	1.70	1.21	1.79	1.38	0.19	.83	0.08	0.01
Engagement	4.34	0.91	4.47	0.83	4.34	0.97	0.61	.54	–0.15	0.00
Job satisfaction	5.53	0.73	5.51	0.75	5.39	0.78	1.05	.35	0.03	0.18
Service quality	3.96	0.49	4.11	0.39	4.11	0.44	3.73	.03	–0.33	–0.32*

<sup>a</sup>Post hoc analyses (Bonferroni corrections) indicated significant differences at \* $p < .05$  and \*\* $p < .01$  level.

**Table 3.** Bivariate correlations based on T<sub>3</sub> data (N = 118 to 122).

Variables	1	2	3	4	5	6	7	8	9	10	11
Demographics											
1. Work exper.	–										
Job demands											
2. Workload	.11	–									
3. Work conflict	.17	.20*	–								
4. W-family conf.	.01	.63**	.30**	–							
Job resources											
5. Autonomy	.09	–.56**	–.23**	–.39**	–						
6. Social support	.07	–.23*	–.48**	–.28**	.45**	–					
7. Leadership	.09	–.13	–.49**	–.20*	.41**	.49**	–				
8. Collaboration	–.04	–.32**	–.18	–.33**	.41**	.28**	.48**	–			
Outcome variables											
9. Exhaustion	.21*	.60**	.34**	.62**	–.50**	–.31**	–.35**	–.42**	–		
10. Engagement	.13	–.28**	–.16	–.36**	.53**	.35**	.33**	.44**	–.47**	–	
11. Job satisfact.	.24**	–.23**	–.27**	–.24**	.60**	.58**	.50**	.47**	–.45**	.65**	–
12. Service quality	–.11	–.34**	–.24**	–.08	.40**	.38**	.38**	.28**	–.29**	.19*	.32**

\* $p < .05$ . \*\* $p < .01$  (two-tailed).

**Table 4.** Hierarchical multiple regression analyses results for the prediction of exhaustion, engagement, job satisfaction, and service quality (based on T<sub>3</sub> data).

Predictor	Exhaustion		Engagement		Job satisfaction		Service quality	
	$\Delta R^2$	<i>b</i>	$\Delta R^2$	<i>b</i>	$\Delta R^2$	<i>b</i>	$\Delta R^2$	<i>b</i>
Step 1: Demographics	.05**		.02		.06**		.01	
Work experience		.04**		.01		.01*		–.00
Step 2: Job demands	.45***		.14***		.14***		.17***	
Workload		.28*		.15		.09		–.13**
Work conflict		.01		.08		.03		–.02
Work-family conflict		.26**		–.10		.01		.06**
Step 3: Job resources	.06**		.22***		.38***		.15***	
Autonomy		–.24		.49**		.37***		.05
Social support		–.04		.24		.52***		.16*
Leadership		–.32		–.05		.07		.15*
Collaboration		–.34		.60**		.40**		.05
Step 4: Interactions	.01		.02		.02		.09**	
Workload × coll.		–.18		–.29		–.18		.28***
Work confl. × coll.		–.10		.30		.21		–.16
Work-fam conf. × coll.		–.04		.09		–.01		–.04
Total R <sup>2</sup>	.57***		.40***		.59***		.42***	
<i>n</i>	118		118		118		116	

Note. All beta coefficients (unstandardised) were from the final model with all steps included. \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

dependent variables. Both step 2 (job demands) and step 3 (job resources) added a significant amount of predicted variance to the outcome variables. While job demands were especially associated with exhaustion and job resources especially with engagement and job satisfaction, both job demands and job resources contributed to the prediction of perceived service quality. To examine the moderating effect of collaboration on worker well-being and service quality, the three interaction terms were added in the last step of the

regression analysis. This step was significant for the prediction of service quality, explaining an additional 9% of the variance, but it was not significant for exhaustion, engagement, or job satisfaction. The relationship between workload and service quality was plotted (Figure 1) for three levels of collaboration (one standard deviation above the mean, at the mean, and one standard deviation below the mean). In addition, simple slope tests were performed for the significant two-way interaction effects, and the corresponding

coefficients are displayed in Figure 1. The figure indicates that the relationship between workload and service quality depends on the level of collaboration, where a negative relationship between workload and service quality is present when the level of collaboration is low ( $b = -0.25$ ,  $CI_{95} [-0.36, -0.15]$ ), whereas the relationship is non-significant when the level of collaboration is high ( $b = -0.01$ ,  $CI_{95} [-0.12, 0.11]$ ).

## Discussion

This study examined how social- and healthcare workers working in municipal healthcare services for children experienced their work before and after a reorganisation process. The overall aim of the reorganisation was to establish better and more coordinated services.

As presented above, there was a positive development on many outcome variables throughout the three measure points, and especially from  $T_1$  to  $T_2$ . While the employees' assessment of collaboration and leadership increased significantly, the variable work conflict decreased significantly during this period. In addition, the employees' evaluation of the quality of the services (service quality) increased significantly from  $T_1$  to  $T_3$ . Furthermore, the participants' evaluation of change in the quality of services in the past year showed a significant improvement. The proportion of employees who had entered an *improvement* or *significant improvement* increased from 27% at  $T_1$ , to 48% at  $T_2$ , and to 62% at  $T_3$ .

On the other hand, the levels of burnout, engagement, autonomy, workload, work-family conflict, social support, and job satisfaction were stable throughout the three measurement time points. Compared to Norwegian norms, the sample scored higher on engagement and lower on cynicism, whereas the level of exhaustion and efficacy was at approximately normative levels (Nerstad et al., 2010; Richardsen &

Martinussen, 2005). This indicates that the reorganisation was successful in improving some of the main goals including increasing service quality and collaboration.

The bivariate correlations (Table 3) indicated that collaboration was linked to all outcome variables in the expected direction, with medium to high correlations with exhaustion, engagement, job satisfaction, and service quality. These findings indicated that collaboration may indeed be a resource for both the well-being of healthcare workers, and for their experiences of service quality. These findings are in line with findings from other studies primarily based on hospital settings (Cheng et al., 2013; Corrigan et al., 1995; Glisson & Green, 2011; Onyett, 2011; van Bogaert et al., 2013). Positive collaboration between services may influence the exchange of knowledge and assistance between professionals, which in turn may benefit the families seeking help, and increase individual well-being at work.

In line with the Job Demands-Resources Model (Demerouti et al., 2001; Schaufeli & Bakker, 2004), we expected that job demands would be particularly associated with exhaustion, and job resources with increased engagement and job satisfaction. Exhaustion, the core dimension of burnout, was mostly predicted by job demands, which explained a total of 45% of the variance. Work-family conflict and workload were significant individual predictors. Job resources predicted only a small part of the variance (6%), and none of the individual predictors were significant. This is also in line with previous findings from meta-analyses, where the most important predictors of burnout were workload and role conflict (Alarcon, 2011; Lee & Ashforth, 1996; Lizano & Mor Barak, 2012). Many of the participants in our study were women (93%), and most of them had a family and children of their own, resulting in both paid and unpaid care work and the possibilities for a negative spill over between home and work, and a large total workload. The importance of work-family conflict as a predictor of burnout has been confirmed in

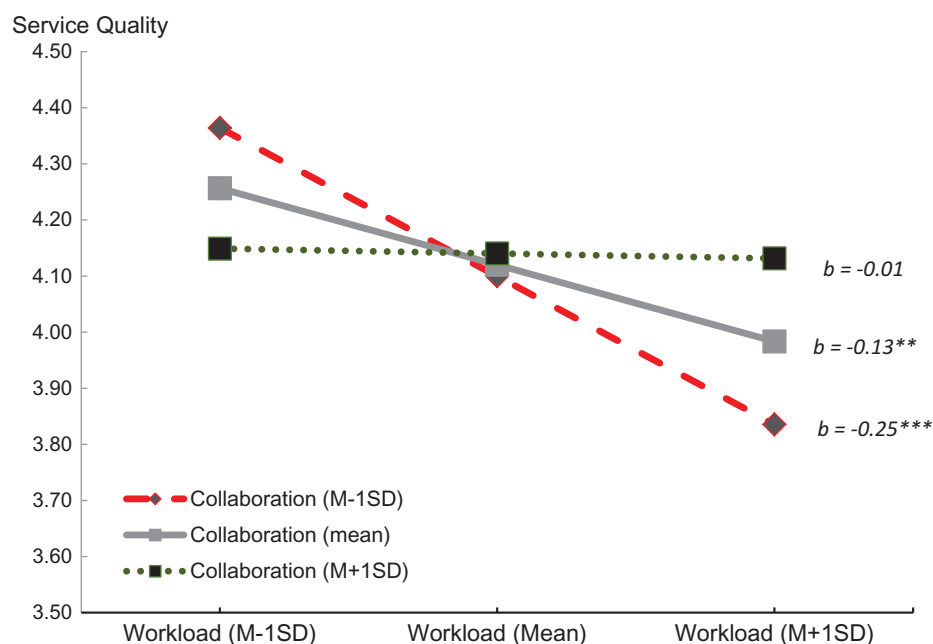


Figure 1. Interaction of collaboration and workload on service quality.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



studies of physiotherapists and other healthcare workers in Norway (Martinussen et al., 2011, 2012), and in a longitudinal study of US child welfare workers (Lizano & Mor Barak, 2015). These findings underline the importance of adapting the workplace, recognising that most workers have both paid and unpaid work and need to manage both a family and a professional role. This may include flexible working hours and a supportive organisational culture as indicated in a review of work-family studies (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005).

Engagement and job satisfaction were primarily predicted by job resources (22% and 38%, respectively), where autonomy and collaboration were significant predictors of both outcomes. These findings are in line with the JD-R model (Demerouti et al., 2001) and previous findings specifying that engagement is primarily related to an access to resources (Halbesleben, 2010; Martinussen et al., 2011). Few studies have so far examined collaboration as a possible resource, but as indicated by our findings, it may be important for professionals who depend on other services and colleagues in order to provide high-quality care. Social support, which may be seen as a related construct, has been examined in recent meta-analyses (Christian et al., 2011; Halbesleben, 2010) where medium high correlations with engagement were estimated. In our regression model, social support was only significant when predicting job satisfaction and not engagement; this result may indicate that the social aspects of work are important to the overall appraisal of satisfaction at work, but not for engagement. The interaction terms between collaboration and job demands were not significant for any of the indicators of employee well-being, which means that there is a positive relationship between collaboration and engagement and job satisfaction, respectively, but no support for collaboration buffering the negative effects of demands as we hypothesised.

Job demands and job resources seem to be equally important in the prediction of service quality as they do for predicting the interaction between collaboration and workload. Of the individual predictors, work family conflict, social support, and leadership were significantly and positively related to service quality. The significant interaction between workload and collaboration indicated a more complex relationship between these variables and service quality, that is, the negative association between workload and service quality was stronger when there was a low level of collaboration. In other words, collaboration had a buffering effect on the negative impact of workload on service quality. The buffering effects of job resources have previously been examined relative to job strain and especially to burnout (Bakker et al., 2014; Demerouti & Bakker, 2011), but may also be important for service quality as indicated by the findings in this study.

One limitation of this study is that quality of services was evaluated based on the ratings of those who provided the services rather than user ratings or other objective data. Future studies may include both user satisfaction studies in addition to public statistics on the municipality level related to the health and well-being of children and adolescents. To ensure anonymity of the participants, the

results of individual employees were not matched over the three time points; therefore, we conducted a one-way ANOVA rather than a repeated measures analysis. Conducting a one-way ANOVA is a conservative method to examine changes, leading to a loss of information, lower power, and to reduced accuracy in identifying real changes over time. Some positive findings were detected on important scales, but we cannot completely rule out other explanations for the observed changes. There were no other changes in the working conditions in the municipality at the same time when the reorganisation took place, making alternative explanations less likely. One strength of the study is that the response rates were high at all measurement points (> 80%) compared to average response rates in similar studies (approximately 50%) (van Horn, Green, & Martinussen, 2009) which implies that most of the participants were the same on all three time points. Another limitation was the total sample size, which was relatively small in relation to the complex regression model. The findings from the moderated regression analyses should therefore be further examined in larger samples of healthcare workers.

### Concluding comments

An important aspect of the reorganisation of the different healthcare services was to promote good collaboration between the services. The results from this study indicate that the reorganisation led to a positive development in how collaboration and the quality of services offered to children and families were evaluated by the staff. Studies that also consider the relationship between more collaboration between services and users' health and well-being are needed. These findings suggest that the Norwegian government initiative to require better collaboration between different health services in the community might be an important strategic and promising approach to improve public health work. Many municipalities might be unable to organise their services by themselves because they do not have the same resources as the municipality from the current study. The government should therefore develop recommendations or guidelines and provide support with implementation of reorganisational models. Furthermore, the results from both this and other studies (Demerouti, Bakker, de Jonge, Janssen, & Schaufeli, 2001) indicate that it is important to provide the employees with relevant job resources to cope at work and to maintain motivation and involvement. It is also important to monitor the workload of staff to prevent conflicts and to increase the compatibility between different roles employees must master at work and at home. Collaboration was an important predictor for worker well-being, and moderated the relationship between workload and service quality, supporting the importance of promoting good collaboration in healthcare services. Future studies should include more objective indicators of service quality, and further test the moderating effect of collaboration in larger samples.

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## Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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## ORCID

Monica Martinussen  <http://orcid.org/0000-0002-0937-1479>

Sabine Kaiser  <http://orcid.org/0000-0002-2081-7734>

Joshua Patras  <http://orcid.org/0000-0001-5233-6188>

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