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Collaboration and service quality among health care professionals working with children and their families in Norwegian municipalities

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Abstract

The main objective of this thesis was to examine the importance of interprofessional collaboration and teamwork among different health and social care professionals on outcomes that are relevant for these professionals, their organizations, and service users. A lot of the research that has been conducted on interprofessional collaboration and teamwork has focused on service user outcomes in order to guarantee the best possible care. However, interprofessional collaboration and teamwork are also an integral part of the work of health and social care professionals, and these aspects can therefore be viewed as job resources that help these professionals conduct their work.

Four different studies, with different aims, participants, and methodology, were conducted to answer different parts of the overall research question. In the current thesis, interprofessional collaboration refers to collaboration between different professionals from different services, while teamwork refers to people working together within a group or team.

The first study had a longitudinal design and examined if a reorganization of child and family services into an integrated Child and Family Unit would lead to better interprofessional collaboration between the different services and increased service quality. The study also examined how the reorganization affected other important work-related outcomes, such as worker well-being (burnout and engagement) and organizational outcomes (e.g., turnover intention). The results of the study indicated that the reorganization led to positive developments in many variables, including interprofessional collaboration and perceived service quality.

The second study used cross-sectional data to examine whether the short version of the Team Climate Inventory is a valid instrument for assessing teamwork. The data was collected by Human Factors AS, a Norwegian management consultancy company. The results

supported the factor structure of the short version of the Team Climate Inventory and showed that it is a good, practical questionnaire to assess teamwork.

The third study used cross-sectional data and the Job Demands-Resources Model to examine the relationship between different job demands and resources (e.g., interprofessional collaboration and teamwork) in relation to worker well-being and organizational outcomes. The data was collected from professionals who work in child and family services that are organized into Family's Houses, family centers, or similar organizations. The results indicated that interprofessional collaboration and teamwork are job resources that are positively related to engagement and other work-related outcomes.

The fourth study was a meta-analysis that synthesized research about the relationship between interprofessional collaboration and teamwork and important work-related outcomes like worker well-being and organizational outcomes (e.g., service quality). The results indicated that interprofessional collaboration and teamwork are job resources that are positively related to worker well-being and organizational outcomes.

The findings from the four studies suggest that interprofessional collaboration and teamwork can be defined as job resources for professionals who work in the health and social care sector. Job resources are important because they lead to motivation and engagement, buffer the negative effects of job demands, and are a stepping stone in the creation of healthy workplaces and high-quality services.

List of papers

- I. Martinussen, M., **Kaiser, S.**, Adolfsen, F., Patras, J., & Richardsen, A. M. (2017). Reorganisation of healthcare services for children and families: Improving collaboration, service quality, and worker well-being. *Journal of Interprofessional Care*, 8, 487-496. <http://dx.doi.org/10.1080/13561820.2017.1316249>
- II. **Kaiser, S.**, Ekelund, B. Z., Patras, J., & Martinussen, M. (2016). Psychometric properties of the Norwegian short version of the Team Climate Inventory (TCI). *Scandinavian Journal of Organizational Psychology*, 8, 18-28.
- III. **Kaiser, S.**, Patras, J., Adolfsen, F., Richardsen, A., & Martinussen, M. (2018). Using the job demands-resources model to evaluate work-related outcomes among Norwegian health care workers. Manuscript submitted for publication.
- IV. **Kaiser, S.**, Patras, J., & Martinussen, M. (2018). Linking interprofessional work to outcomes for employees: A meta-analysis. *Research in Nursing & Health*, 41, 265-280. <https://doi.org/10.1002/nur.21858>

Introduction

Public health and care services in Norway

In Norway, health and social care is mostly organized and delivered by the state, regional health enterprises, and the municipalities. The state has a more managerial and administrative role; it shapes public health work by making political resolutions, guidelines, establishing general regulations and laws, and by setting financial conditions (Stamsø, 2017).

In general, health care in Norway is divided into primary and specialist systems. Each system has different laws, funding, and regulations. There are four regional health enterprises in Norway (Stamsø, 2017). They are owned by the state, and they are responsible for the specialist system, which includes, among others, psychiatric and somatic hospitals, and ambulatory services (§ 2-1 a.; Norwegian Ministry of Health and Care Services, LOV-1999-07-02-61).

The municipalities are responsible for the primary system. They are on the lowest governmental level and have to ensure that the people living within their municipalities get the necessary health and care services (§ 3-1.; Norwegian Ministry of Health and Care Services, LOV-2011-06-24-30). This warrants close proximity to the users, knowledge of local needs, and cost efficiency. In 2016 there were 428 municipalities in Norway (Stamsø, 2017). Municipalities are responsible for offering assistance in the event of accidents; providing services that deal with diagnosis and treatment; and social, psychosocial, and medical rehabilitation. They also offer health and social care services like nursing homes. The municipalities are also responsible for offering services that promote health and prevent illness to children, adolescents, and their families (§ 3-2.; Norwegian Ministry of Health and Care Services, LOV-2011-06-24-30).

Public health and social care services for children, adolescents, and their families in Norway

A number of public health and care services support children, adolescents, and their families in Norway. At the universal level, every municipality is required to provide pregnancy care, school health services, and health care stations for children and adolescents (§ 3-2.; Norwegian Ministry of Health and Care Services, LOV-2011-06-24-30). These services promote health and prevent illness; they target pregnant women, children, and adolescents (0 to 20 years of age); and are paid for by the municipality (§ 2-1.; Norwegian Ministry of Health and Care Services, FOR-2003-04-03-450). The pregnancy care and the health care stations for children and adolescents provide health care assessments, vaccinations, information, counselling, home visits, and rehabilitation for chronically ill or disabled individuals (§ 2-3.; Norwegian Ministry of Health and Care Services, FOR-2003-04-03-450).

Municipalities also provide pedagogical-psychological services for children and adolescents (§ 5-6.; Norwegian Ministry of Education and Research, LOV-1998-07-17-61), as well as child protection services (§ 2-1.; Norwegian Ministry of Children and Equality, LOV-1992-07-17-100). The pedagogical-psychological service is a counselling and expert service that offers interventions to selected groups to help with the development, learning and, well-being of kindergarteners, students, and adults with individual needs. This service is offered at the selective level. Pedagogical-psychological services assess children's challenges and needs, and offer recommendations of support to promote their learning and development. In addition, the service supports kindergarten and school personnel in developing learning and organizational environments (Norwegian Ministry of Education and Research, LOV-1998-07-17-61, LOV-2005-06-17-64). It is the only service located at both the municipal and the county level (§ 5-6.; Norwegian Ministry of Education and Research, LOV-1998-07-17-61).

Child protection services offer indicated interventions for families with particular needs. Its main function is to monitor the conditions in which children grow up and to initiate interventions that prevent neglect (§ 3-1.; Norwegian Ministry of Children and Equality, LOV-1992-07-17-100). Child protection services have the right and obligation to investigate the living situation of children and adolescents if there are reasonable grounds for concern (§ 4-3.; Norwegian Ministry of Children and Equality, LOV-1992-07-17-100). It is responsible for initiating interventions and measures if a child is at risk in order to contribute to positive change within the child or the family (§ 4-4.; Norwegian Ministry of Children and Equality, LOV-1992-07-17-100).

What all of these municipal services have in common is that they share responsibility for the care, health, and well-being of children, adolescents, and their families. However, they have different goals and missions and are financed differently. Moreover, they belong to different departments and ministries, and therefore have to deal with different legal frameworks (Norwegian Ministry of Health and Care Services, 2008-2009). This fragmentation of services that share an overarching goal can cause problems in cases where children, adolescents, and families have complex needs and receive help from multiple services (The Ombudsman for Children in Norway, 2017).

In 2012, the Coordination reform was implemented (Norwegian Ministry of Health and Care Services, 2008-2009). Better coordination between the different services in the primary system, and between the services in the primary and specialist systems was named as one of the most important areas of development in the health and care sector in Norway (Norwegian Ministry of Health and Care Services, 2008-2009). The goal of the Coordination reform was to improve patient care and reduce costs by making better use of the health and social care services chain, which would also lead to a more holistic approach when treating patients. Another aim was to strengthen the focus on prevention and health promotion in

communities. Due to the division of the health and social care services into primary and specialist systems, the proximity of the municipalities to the citizens, and the preventive work assigned to municipalities, the Coordination reform was meant to strengthen the role of the municipalities in order to achieve those goals. The Coordination reform explicitly states that health care stations for children and adolescents must use a holistic approach, including interdisciplinary work, and that good coordination between health and social care services and services from other sectors are essential. The reform does not give advice on how municipalities should cooperate, instead it states that the municipalities themselves will have to find appropriate forms of cooperation to ensure the best use of expertise and resources (Norwegian Ministry of Health and Care Services, 2008-2009).

The Coordination reform has led to several changes in the primary and specialist systems, such as different financing, and the establishment of cooperation agreements between municipalities and regional health enterprises. However, there is little information about how the reform has affected municipal services for children and their families (Norwegian Directorate of Health, 2014, 2015; Norwegian National Network for Implementing the Coordination Reform, 2015).

The Family's Houses model in Norway

The Family's Houses model is a service delivery model that supports interprofessional collaboration and a holistic approach when working with children and their families (Adolfson, Martinussen, Thyraug, & Vedeler, 2012). Its main aim is to strengthen the preventive mission of the different services that work with children and their families by providing an organizational framework to efficiently manage and use existing resources for both the employees and the families. The Family's Houses model is in line with the recommendations of the Coordination reform (Thyraug, Vedeler, Martinussen, & Adolfson,

2012b) and is an example put forth by the Norwegian Institute of Public Health of how to promote mental health and prevent illness (Norwegian Institute of Public Health 2011).

In a typical Family's House in Norway, services like pregnancy care, health care stations for children and adolescents, pedagogical-psychological services, and child protection services, are all located in one building. Many Family's Houses have interdisciplinary teams, i.e., teams of professionals from different services, that work together to support service users (Thyrhaug et al., 2012b). A complete Family's House also includes an open kindergarten; this is a low-threshold, universal service for parents with preschool aged children, staffed with preschool teachers or other professionals, that is meant to promote health among parents and their children. Parents can go to open kindergartens with their children during opening hours without being registered, and once there they can socialize with other parents and receive information regarding parenting and the child's well-being. Two user satisfaction surveys in different open kindergartens found that parents who visited were very satisfied with the service, the staff, the opportunity to socialize with other parents, and for the children to play with each other (Kaiser, Sætrum, Adolfsen, & Martinussen, 2016; Vedeler, 2012).

The aim of Family's Houses is to provide structures that increase cooperation between existing health and social services. Often the Family's Houses have one overall manager in addition to a manager for each service offered (Thyrhaug et al., 2012b). The close proximity of the different services makes it possible for professionals to have both formal and informal conversations and to get to know each other better. By combining services from the universal, selective, and indicative levels of prevention, barriers to treatment are reduced as families with increased need may access more targeted interventions.

Although Family's Houses have been identified as a model for organizing services, in practice there is great variability in the actual composition of Family's Houses. In 2012, there

were about 100 Family's Houses, family centers, or similar organizations in Norway (Gamst & Martinussen, 2012). Of those, about 24 were complete Family's Houses, with an open kindergarten, pregnancy care services, a health care station for children and adolescents, pedagogical-psychological services, and/or child protection services. Nineteen Family's Houses or family centers did not have an open kindergarten, and another 38 establishments were organized in a manner similar, but did not have an open kindergarten and did not use the name "Family's Houses" or "family centers" (Gamst & Martinussen, 2012).

The Norwegian Family's Houses model is based on that of Swedish family centers, and was first adapted to Norway as part of the Plan of Advancing Mental Healthcare. Within the framework of this plan, six municipalities received funding from the government to conduct a pilot project of the Family's Houses model from 2002 to 2004 (Norwegian Ministry of Health and Care Services, 1998). This pilot project was evaluated through qualitative interviews with the leaders and professionals of different services and with service users by the Regional Centre for Child and Youth Mental Health and Child Welfare - North. Based on the interviews, the report concluded that the project was a success, as it increased the accessibility of services, interprofessional collaboration, and user participation (Haugland, Rønning, & Lenschow, 2006). Another study conducted many years later among professionals ($N = 71$) working in the same six Family's Houses that participated in the initial pilot project found that the vast majority of employees (85%) agreed that the new Family's House Model improved informal interprofessional collaboration between the services and the opportunity to build a bigger professional network (83%). Seventy-one percent of the employees stated that the establishment of the Family's House led to a stronger focus on the mental health of children and adolescents (Thyrhaug, Vedeler, Martinussen, & Adolfsen, 2012a).

Family's Houses and family centers in other Nordic countries

A national mapping and evaluation of family centers in Sweden identified about 139 such centers in the country (Swedish Ministry of Health and Social Affairs, 2014). However, the evaluation was based on a rather small sample of family centers, and the report lacks a methods section including information about the actual sample size. A typical family center in Sweden includes maternity health care, child health care, open kindergarten, and social services. The report points out different areas that need to be developed to further support the national implementation of family centers. Because there is huge variability in the organizational models of Swedish family centers today, the report recommended that authorities define the services that should be included before an organization can call itself a “family center”. Furthermore, they pointed out the lack of studies that examine the effectiveness of family centers compared to traditional models. They stated that there are certain aspects of interprofessional collaboration that work well in family centers, such as professionals’ knowledge of each other's skills, increased trust in one another, and good interpersonal relationships. However, they stated that other aspects of interprofessional collaboration do not seem to work so well, such as resources available for interprofessional collaboration, a common understanding of roles, or shared responsibility. The report concluded that family centers do seem to put service users or parents in contact with the right professionals (Swedish Ministry of Health and Social Affairs, 2014).

Another report on family centers in Sweden underlined the importance of the shared location of the different services and of the time available for different professionals to collaborate in order to strengthen family centers and their aim to improve public health (Abrahamsson, Bing, & Löfström, 2009). Abrahamsson et al. (2009) also conducted a survey among service users of the open kindergarten and found that most parents went there so that their children could meet other children and adults, but also so that the parents could meet

other parents. Furthermore, over half part of the parents used the open kindergarten to exchange parenting experiences with other parents or to ask for advice from staff professionals. Models similar to that of Family's Houses or family centers also exist in other Nordic countries, including Finland, Denmark, and Greenland (Kekkonen, Montonen, & Viitala, 2012).

Interorganizational collaboration in health and social care services

There are a number of different terms that are used to describe collaboration for example teamwork, cooperation, coordination, networking, and relations but also for example interprofessional work, -practice, -collaboration and interorganizational-, interagency-, and intersectorial collaboration. These terms are confusing and sometimes used interchangeably, but can refer to different forms of collaboration (Cooper, Evans, & Pybis, 2016). However, there are no consistent definition of these terms in the research literature. For the purpose of this thesis, the terms "interprofessional work", "interprofessional collaboration", "teamwork" and "interorganizational collaboration" will be used. The term "interprofessional" may describe collaboration between different professionals while "interorganizational" refers to collaboration between professionals from different organizations. However, Cooper et al. (2016) writes that "'inter-' tends to have a more inclusive meaning, referring to collaborative activities across the wider network of professional relationships and structures" (p. 327). In the studies that comprise this thesis, the term interprofessional collaboration was used to describe collaboration between professionals from different services like the pregnancy care or health care stations for children and adolescents. These services can be described as being part of a "wider network" as they are part of the same organization, which would be the municipality. However, for the purpose of this thesis the term interorganizational collaboration will also be introduced. Based on Keyton, Ford, and Smith (2008), Karam, Brault, Van Durme, and Macq (2018) define interorganizational collaboration "as the set of

processes in which healthcare professionals representing multiple organizations engage when working interdependently on patient care” (p. 71). Policies like the Coordination reform aim at promoting better coordination not just between the services in the primary health care system, but also between the services in the primary and specialist systems (Norwegian Ministry of Health and Care Services, 2008-2009). As such, the services of the primary health care system not only have to collaborate with each other but they have also to collaborate with organizations on other levels, for example child and adolescent mental health clinics from the specialist system, or the Norwegian Labour and Welfare Administration (NAV).

A review of outcomes for children and young people’s mental health stated that interorganizational collaboration was found, by professionals and service users, to have a positive impact on many outcomes and was generally related to better service quality and patient care (Cooper et al., 2016). However, the review also identified studies that reported a negative relationship between interorganizational collaboration and different outcomes for example with role overload and burnout among the professionals (Cooper et al., 2016). Another review outlined not just the advantages of interagency collaboration for the users (e.g., better accessible services, prevention and early intervention, faster response time, and more adequate referrals), but also for the professionals (such as increased well-being and professional development), and for the organizations (e.g., efficiency savings and positive interorganizational relations) (Atkinson, Jones, & Lamont, 2007). On the other hand, there are also negative impacts on the organization such as increased demands that are placed on the organization due to for example an increase in referral rates due to earlier identification of children with mental health problems (Atkinson et al., 2007).

Karam et al. (2018) identified in a recent review, similarities and differences between interprofessional and interorganizational collaboration. Most of the factors that they identified as important for promoting good collaboration were similar between the two constructs like

“communication, trust, respect, mutual acquaintanceship, power, shared goals, consensus, patient-centredness, and task characteristics” (p. 73). However, the review also identified elements that were different or rather specific to interprofessional or interorganizational collaboration. Specific to interprofessional collaboration were “the individual’s role, team identity, leadership, and outcomes (p. 79). Specific to interorganizational collaboration were the degree of formalization and professional role clarification. As such, formalization of collaboration through agreements, policies, and procedures and the clarification of the professional role was more important to interorganizational collaboration as stated by Karam et al. (2018).

D'Amour, Goulet, Labadie, Martin-Rodriguez, and Pineault (2008) presents the Four-Dimensional Model of Collaboration that applies to interprofessional as well as to interorganizational collaboration. It was developed based on two previously published articles (D'Amour, Goulet, Pineault, & Labadie, 2004; D'Amour, Sicotte, & Lévy, 1999). The model assumes that, on the one hand, collaboration is desired by the professionals in order to provide better services. On the other hand, the professionals want to preserve their interests and autonomy, and the two sides of collaboration have to be negotiated. The four dimensions of collaboration that are interrelated to each other are governance, shared goals and vision, formalization, and internalization. Governance refers to the leadership and their support, guidance, and directions related to collaboration. Shared goals and vision refers to the shared understanding between collaborators of a common goal and vision. Formalization refers to documented procedures or interorganizational agreements that clarify responsibilities. Internalization describes the social processes between the professionals, their trust and knowledge of different values, and competences. Furthermore, D'Amour et al. (2008) presents three different levels or stages of collaboration from active collaboration, to developing collaboration, and potential collaboration, that suggest that collaboration develops over time.

Active collaboration is characterized by established and maintained collaboration, with shared goals and trust. Developing collaboration is characterized by an ongoing negotiation of formalization, goals, and relationship. Potential collaboration refers to non-existing collaboration or collaboration that has been interrupted because of conflicts (D'Amour et al., 2008).

In addition to the four dimensions that are described in the model, there are structural factors like policies, finances and other resources that influence collaboration but that are not further described by D'Amour et al. (2008). However, other factors that determine and influence interorganizational collaboration are outlined by Kozuch and Sienkiewicz-Malyjurek (2016). They divide these factors into five groups (“factors of external environments, factors related to organization characteristics, factors related to people characteristics, relational factors and instruments of inter-organizational collaboration” [p. 112]). Among the factors from the external environment were governmental policies, legal regulations, culture, and local social and economic conditions.

Facilitators and challenges to interorganizational collaboration

A detailed description about influencing factors of interorganizational collaboration can be found in a review conducted by Atkinson et al. (2007). The report categorizes these factors into four groups: (1) working relationships, (2) multi-agency processes, (3) resources for multi-agency work, and (4) management and governance. However, specific facilitating and inhibiting factors of interorganizational collaboration in children and young people’s mental health services are presented in a systematic review conducted by Cooper et al. (2016). Among the six most important facilitating factors were good communication among professionals/ services, joint training, good understanding across professionals/ services, mutual valuing, respect and trust, senior management support, and protocols on interagency collaboration (Cooper et al., 2016 #337). Among the six most important barriers of

collaboration were inadequate resourcing, poor communication among professionals/ services, lack of valuing, respect, and trust, differing perspectives/ cultures across professionals/ services, poor understanding across professionals/ services, and confidentiality issues (Cooper et al., 2016 #338). Confidentiality issues refer to the necessity of information sharing across services on the one side, and to protect the personal confidentiality of the client, on the other side (Richardson & Asthana, 2006).

Interprofessional collaboration and teamwork in health and social care services

Interprofessional collaboration and teamwork are related terms and describe varying intensities of working relationships between at least two people who work together toward a common goal (Reeves, Lewin, Espin, & Zwarenstein, 2010a). Interprofessional collaboration can be defined as a process that includes two or more professionals who work together toward a common goal; in a collegial undertaking; with trust and respect; and with shared responsibilities, decision-making, and health care philosophy (D'Amour, Ferrada-Videla, Rodriguez, & Beaulieu, 2005, p. 42). A comparable definition has been proposed by Reeves et al. (2010a), who defines interprofessional collaboration as “a type of interprofessional work which involves different health and social care professions who regularly come together to solve problems or provide services” (p. 8). Teamwork could be defined similarly. The two concepts share many key dimensions, which include common goals, trust and respect, and task interdependence (D'Amour et al., 2005; Reeves, Lewin, Espin, & Zwarenstein, 2010b). Sometimes the terms are used interchangeably (Petri, 2010; Xyrichis & Lowton, 2008); sometimes they are kept separate (Fewster-Thuente & Velsor-Friedrich, 2008; Reeves, Xyrichis, & Zwarenstein, 2018). Reeves et al. (2010a) provided the following definition: “Interprofessional teamwork is a type of work which involves different health and/or social professions who share a team identity and work closely together in an integrated and interdependent manner to solve problems and deliver services” (p. 8). While interprofessional

collaboration can be described as a partnership, teamwork is a more intense partnership between team members that they share in addition to a team identity (Reeves et al., 2010a). As discussed previously in this thesis, there is no consistent definition of interprofessional collaboration and teamwork (Karam et al., 2018). In the studies that comprise this thesis, the term interprofessional collaboration was used to assess collaboration between professionals from different services, while the term teamwork was used to assess teamwork within a team or work group. The term interprofessional work was used in Paper IV (the meta-analysis) to refer collectively to teamwork, collaboration, and cooperation. Xyrichis, Reeves, and Zwarenstein (2018) stated that the term interprofessional work “is a heterogeneous construct, and as such it can be conceptualized in different ways” (p. 416).

An individual’s professional role, personal characteristics, and history of collaboration, and the structural characteristics of the workplace, are factors that influence one’s ability to develop interprofessional collaboration and teamwork (Bronstein, 2003). The professional role is characterized by values, ethics, and viewpoints that have been adopted through professional socialization. Different professionals are exposed to different socialization processes and varying professional cultures, languages, and norms that may affect interprofessional collaboration. Personal characteristics that may affect collaboration describe aspects of the collaborators that lie outside of their professional role, such as personality characteristics, respect, communication style, and an open attitude to collaboration. In addition, one’s personal history of collaboration, i.e., previous experiences made when collaborating, may affect current collaborations. Structural characteristics refer to the availability of resources for collaboration, such as time, space, and support for collaboration through the leadership, organization, and administration (Bronstein, 2003).

Other aspects that influence interprofessional collaboration or teamwork include structural characteristics, like co-location of services (Myors, Schmied, Johnson, & Cleary,

2013; Schmied et al., 2010; Xyrichis & Lowton, 2008) and team size and composition (Xyrichis & Lowton, 2008). While co-location does not automatically lead to better interprofessional collaboration, most literature agrees that close geographic proximity is an important contributor to improve formal and informal communication (Myors et al., 2013; Xyrichis & Lowton, 2008) and increases timely referrals between services and professionals (Schmied et al., 2010). In addition, smaller teams and teams with professionals from a greater variety of occupations were found to be more effective (Xyrichis & Lowton, 2008).

In the quantitative literature related to health and social care, and based on the findings of the meta-analysis (paper IV), interprofessional collaboration and teamwork are usually examined in the context of care delivery, in order to guarantee the best possible outcomes for service users. Studies that examine the importance of collaboration and teamwork in the health and social care sector are often conducted in hospitals and focus on the physical health of patients. In general, three types of studies have been conducted: 1) studies that examine the relationship between interprofessional collaboration or teamwork and different outcomes, 2) studies that compare collaborative care models to treatment as usual, and 3) studies that examine the influence of specific interventions that aim at improving interprofessional collaboration or teamwork on different outcomes.

For the latter two points there are mixed results. For example, three meta-analyses reported a positive effect for collaboratively delivered care compared to treatment as usual in the treatment of depression (Ekers et al., 2013; Sighinolfi et al., 2014; Thota et al., 2012). Results of interventions that aimed to promote interprofessional collaboration or teamwork have been partly inconclusive, but gave a positive outlook on different patient outcomes as found by four reviews (Husebø & Akerjordet, 2016; Martin, Ummenhofer, Manser, & Spirig, 2010; Reeves, Pelone, Harrison, Goldman, & Zwarenstein, 2017; Sun, Marshall, Sykes, Maruthappu, & Shalhoub, 2018). The interventions examined varied, and included things like

teamwork training for nurses and physicians (Sun et al., 2018) and introducing interprofessional rounds or meetings, and their impact on patient outcomes (Reeves et al., 2017).

For the first point, studies have usually found significant relationships in the expected direction between interprofessional collaboration or teamwork and patient outcomes. Some studies have shown significant negative associations between interprofessional collaboration and unfavorable/adverse patient outcomes for infections (Boev & Xia, 2015; Virtanen et al., 2009) and readmission or death (Baggs, Ryan, Phelps, Richeson, & Johnson, 1992; Baggs et al., 1999). Positive relationships have been observed between teamwork and diabetes management, access to care, continuity of care, and healthcare team effectiveness (Bower, Campbell, Bojke, & Sibbald, 2003; Campbell et al., 2001). Some studies also found relationships in unexpected directions, which may be explained by greater patient needs or more complicated cases, resulting in a higher need for interprofessional collaboration or teamwork (Schraagen et al., 2011; Tschannen & Kalisch, 2009). Tschannen and Kalisch (2009) found that increased nurse-physician collaboration was associated with a longer hospital stay. However, they also found that the nurses who reported a higher level of interprofessional collaboration were those caring for elderly patients with a higher acuity level. They concluded that collaboratively determined care may have prevented complications that could have otherwise resulted in negative patient outcomes. Schraagen et al. (2011) found that teamwork was positively related to postoperative morbidity. They concluded that teamwork is adaptive, and that when situations become more difficult, the participating actors rely more on teamwork, but the difficulty of the case may contribute to negative outcomes.

Few studies have examined the relationship between interprofessional collaboration or teamwork and user-rated outcomes (Larrabee et al., 2004; Proudfoot et al., 2007; Shannon, Mitchell, & Cain, 2002). Larrabee et al. (2004) examined nurses and matched their survey

data to those of their patients. They reported small and positive correlations between nurse-assessed nurse-physician collaboration and patient satisfaction, and between patient-perceived quality of nursing care, and patients' quality of life. A moderate, positive relationship with patients' self-reported health status was also reported. Shannon et al. (2002) found non-significant correlations between patient-assessed service quality/patient satisfaction and nurses' or physicians' ratings of collaboration. Proudfoot et al. (2007) found that team climate was positively associated with patients' overall satisfaction with care.

Given the importance that interprofessional collaboration and teamwork have in patient care, it can also be assumed that they constitute job resources that help professionals conduct their work. Job resources are aspects of the work that support goal achievement, buffer the negative effects of job demands, or motivate and lead to learning and development (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

A meta-analysis found a positive, moderately strong relationship (mean $r = .37$) between nurse-physician collaboration and job satisfaction (Zangaro & Soeken, 2007). A review found a positive relationship between post-licensure interventions that aimed at promoting collaboration and job satisfaction (Suter et al., 2012). The studies included in their syntheses attributed this result to improved workplace culture, role clarity, collaboration, and improved patient care. Another review found two studies that reported a positive relationship between team-orientated interventions and a decrease in turnover (Lartey, Cummings, & Profetto-McGrath, 2014). This implies that interprofessional collaboration and teamwork are also related to important outcomes for workers, not only to patient outcomes. This in turn supports the idea that interprofessional collaboration and teamwork are important job resources.

The Job Demands-Resources Model

The Job Demands-Resources Model is a well-established, widely used model in organizational psychology that describes the relationship between job characteristics (job demands and job resources), worker well-being (e.g., burnout and engagement), and organizational outcomes (Bakker & Demerouti, 2016). The model was inspired by two job stress models: the Job Strain Model (Karasek, 1979) and the Effort-Reward Imbalance Model (Siegrist, 1996). In accordance to the model from Karasek (1979), psychological strain is defined as being a result of high demands and low decision latitude, i.e., the degree of decision-making authority at an individual level. In the model from Siegrist (1996), stress is the result of an imbalance between the effort an individual worker puts in (high input) and the degree of reward he receives for his work (low reward). The Job Demands-Resources Model extends these two models by using a greater variety and different combinations of job demands, job resources, and outcome variables (Bakker & Demerouti, 2016). Furthermore, its focus is not solely on stress or strain, but on both strain (e.g., burnout) and the positive part of worker well-being (e.g., engagement). Burnout is a syndrome that is characterized by high levels of exhaustion and cynicism, and low levels of professional efficacy. People feel tired of their work, distance themselves from the job, and perceive themselves as less efficient when working (Maslach, Schaufeli, & Leiter, 2001). Engagement, on the other hand, is “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (Schaufeli et al., 2002, p. 74). An engaged employee has a high energy level, is enthusiastic, and fully engrossed in their work (Bakker & Demerouti, 2008).

The Job Demands-Resources Model was first introduced by Demerouti et al. (2001), who stated that job characteristics can be categorized as either job demands or job resources. Job demands were defined as being “physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain

physiological and psychological costs (e.g., exhaustion)” (Demerouti et al., 2001, p. 501). Job resources, on the other hand, were defined as “physical, social, or organizational aspects of the job that may do any of the following: (a) be functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; (c) stimulate personal growth and development” (Demerouti et al., 2001, p. 501). Job demands were found to be primarily positively associated with exhaustion, the main dimension of burnout, while job resources were primarily negatively related to disengagement i.e., cynicism (Demerouti et al., 2001).

Instead of disengagement, different variables have been examined as mediators in the relationship between job resources and outcomes such as organizational commitment (Bakker, Demerouti, de Boer, & Schaufeli, 2003) or engagement (Hakanen, Bakker, & Schaufeli, 2006; Hakanen, Schaufeli, & Ahola, 2008; Schaufeli & Bakker, 2004; Schaufeli, Bakker, & Van Rhenen, 2009). Furthermore, in later published articles, the model was extended to predict different outcomes, such as absenteeism (Bakker et al., 2003; Schaufeli et al., 2009), job performance (Bakker, Demerouti, & Verbeke, 2004), ill health (Hakanen et al., 2006), and organizational commitment (Hakanen et al., 2006; Hakanen et al., 2008).

The Job Demands-Resources Model has several propositions. One of these propositions is that job demands and job resources initiate two different processes. A high level of job demands leads to a health-impairment process, strain, and negative outcomes; job resources, on the other hand, lead to a motivational process, higher motivation, and positive outcomes (Bakker & Demerouti, 2016; Bakker et al., 2003; Bakker et al., 2004; Demerouti et al., 2001; Schaufeli et al., 2009). Furthermore, job resources buffer the negative effects of job demands on burnout, and job resources are especially important when job demands are high, because they lead to motivation and learning (Bakker & Demerouti, 2016). Another proposition is that employees have personal resources, such as self-efficacy or optimism, that

can help them cope with job demands (Bakker, 2015). In addition, Bakker (2015) describes two processes that are called loss cycle and gain cycle. In the loss cycle, job demands lead to exhaustion and to self-undermining behaviors and this in turn to more job demands. Self-undermining includes behavior “that creates obstacles that may harm performance, including making mistakes, avoidance, and conflicts with clients or colleagues” (Bakker, 2015, p. 725). In the gain cycle, on the other hand, job resources lead to engagement, job crafting behavior, and high performance. Job crafting are “the actions employees take to shape, mold, and redefine their jobs” (Wrzesniewski & Dutton, 2001, p. 180). It can be defined as “the proactive behaviors that employees engage in to change the content of their tasks and relational boundaries” (Bakker, 2015, p. 725; Wrzesniewski & Dutton, 2001). It can be that employees try to establish new relations and collaboration in order to solve a problem. In this case their job crafting behavior leads to new job resources and this in turn to more engagement and better performance (Bakker, 2015; Tims & Bakker, 2009; Tims, Bakker, & Derks, 2013).

The Job Demands-Resources Model and interprofessional collaboration and teamwork

As written earlier, the Job Demands-Resources Model states that job characteristics can be classified as job resources or job demands. However, research suggests that job demands can be further distinguished into challenge job demands and hindrance job demands, which in turn have different relationships to different variables (Lepine, Podsakoff, & Lepine, 2005). Challenge job demands may be perceived as stressful but create generally positive feelings and are associated with personal growth, achievement, and with positive outcomes (Cavanaugh, Boswell, Roehling, & Boudreau, 2000; Podsakoff, Lepine, & Lepine, 2007). Hindrance job demands, on the other hand, are defined as “excessive or undesirable constraints that interfere with or hinder an individual’s ability to achieve valued goals” (Cavanaugh et al., 2000, p. 67) and are therefore related to negative outcomes. According to Lepine et al. (2005),

who conducted a meta-analysis that categorized job demands into challenges and hindrances, examples of challenge job demands are time urgency and workload and examples of hindrance job demands interpersonal conflict and resource inadequacy (Lepine et al., 2005). However, research points out that cognitive appraisal of what is a challenge- or a hindrance job demand can also differ between different professions. Bakker and Sanz-Vergel (2013) found for example that nurses perceive work pressure as a hindrance job demand. They underline the limitation that dividing job demands into challenges and hindrances is “based on logic and assumptions” (p. 76) as stated by Webster, Beehr, and Christiansen (2010). Webster et al. (2010) point furthermore out that appraisals are affected by item wording in a questionnaire and that for example a large amount of work can be perceived as a challenge while when adding the word “deadline” to it the statement may be perceived as a hindrance.

The Job Demands-Resources Model has been used in at least three meta-analyses (Crawford, LePine, & Rich, 2010; Halbesleben, 2010; Nahrgang, Morgeson, & Hofmann, 2011). However, interprofessional collaboration and teamwork were not examined in these meta-analyses, and have also not been mentioned as a job resource or a job demand in an overview presented by Schaufeli and Taris (2014).

One could for example argue that interprofessional collaboration and teamwork are job demands, that could be appraised as a challenge demand or as a hindrance demand. As such interprofessional collaboration and teamwork can be difficult, and may result in a higher level of conflict, both personal and task related. In this case interprofessional collaboration and teamwork can be appraised as a hindrance demand that hinders goal achievement and is related to negative outcomes. On the other hand, interprofessional collaboration and teamwork is generally desired by the professionals (Thyrhaug et al., 2012a) but demanding, as there can be a lack of resources such as organizational support, time or space which makes working together challenging. In this case, interprofessional collaboration and teamwork can

be appraised as challenging and is related to positive outcomes (Cavanaugh et al., 2000; Podsakoff et al., 2007).

In the articles that comprise the thesis, interprofessional collaboration and teamwork are categorized as job resources. Job resources were defined as “aspects of the job that are (a) “functional in achieving work goals; (b) reduce job demands at the associated physiological and psychological costs; (c) stimulate personal growth and development” (Demerouti et al., 2001, p. 501). Ideally, interprofessional collaboration and teamwork are not just supposed to lead to better user outcomes but are also a help for the professionals to conduct their work (i.e., they are functional in achieving work goals). The professionals are specialists and experts in their field who work together to achieve a common goal. Ideally, this relationship is characterized by mutual trust and respect, where the professionals come together and learn from each other (i.e., the relationship stimulates personal growth and development). Furthermore, interprofessional collaboration and teamwork are characterized by a certain amount of task interdependence, where the professionals divide the tasks in accordance to qualification, experience, competence, and responsibility. When working together towards a common goal this should, ideally lead to a relief of strain and work (i.e., it should reduce job demands). Furthermore, and based on previous research, Schaufeli and Taris (2014) categorized related variables such as innovative climate, team cohesion, and team harmony as job resources.

A critical reflection of the Job Demands-Resources Model

Although the Job Demands-Resources Model is a well-established and widely used model in organizational psychology, there are several issues that have to be taken into consideration when using it. First of all, some researchers label it as a heuristic model, which implies that it is rather a way of thinking than a theory (Bakker & Demerouti, 2016; Schaufeli & Taris, 2014). This can be due to its flexibility in terms of which variables that are included

in the model. This flexibility has advantages and disadvantages. On the one hand, it allows one to study the model in different research milieu, on the other hand, one could argue that there is not one theory behind the model but many. As such there is not only a variation in the variables that constitute job demands and job resources, its mediators, and outcome variables but it includes also the study of for example additional moderators in the model or simplified versions of the model. For example Schaufeli (2015) extended the model including engaging leadership as a mediator. In addition, leadership was categorized as a job resource previously (Schaufeli & Taris, 2014). Similarly, other researchers have only examined some parts of the model i.e., the relationship between job resources, job demands, and engagement without taking into account burnout or other outcome variables (Hakanen, Bakker, & Demerouti, 2005). However, Schaufeli and Taris (2014) state that the Job Demands-Resources Models “broad scope and flexibility presumably accounts for its current proliferation in both research and practice” (p. 44). Furthermore, the model is easy to understand and plausible. At the same time, it is theoretically embedded and comprehensive. Being able to use a wide variety of variables is a clear advantage to previously developed models, because the Job Demands-Resources Model can be adapted to reflect the complex work of health and social care professionals more accurately than less complex models.

Another critical point of the Job Demands-Resources Model is the categorization of job characteristics. As written earlier, the categorization of job characteristics into job resources and job demands, and here especially into challenge- or hindrance demands, is not given but has to be made. This categorization is often merely based on assumptions and not on objective facts (Webster et al., 2010). Interprofessional collaboration and teamwork are examples of job characteristics where the classification can be controversial.

The Job Demands-Resources Model and the current thesis

The Job Demands-Resources Model was the guiding model in the studies that comprise the thesis. It was used to choose the variables that were examined, to investigate their relationship, and to evaluate a reorganization of child and family health and social services. As such the aim of the current thesis was to verify the expected outcomes based on the model.

The Job Demands-Resources Model was furthermore used to communicate the results to the participating services. The data for two of the four articles that comprise the thesis was gathered through employee surveys conducted in Family's Houses, family centers, or other child and family services with a similar organization. The participating services or municipalities received feedback about the results in the form of a report and, in some cases, in the form of an oral presentation.

In the studies that comprise the thesis, the relationship between job demands, job resources, and organizational outcomes were mediated by burnout and engagement (Figure 1). Job demands were expected to be positively related to burnout, and burnout to be negatively related to organizational outcomes, while job resources were expected to be positively related to engagement, and engagement positively related to organizational outcomes. Job demands included perceived workload, work conflict, and work-family conflict, and were considered as hindrance demands (Cavanaugh et al., 2000). Job resources included collaboration with professionals from other services, teamwork within the team or workgroup, autonomy in the workplace, social support from colleagues and the boss, and views on leadership (Schaufeli & Taris, 2014). The organizational outcome variables used in the thesis were job satisfaction, turnover intention, and service quality (Figure 1).

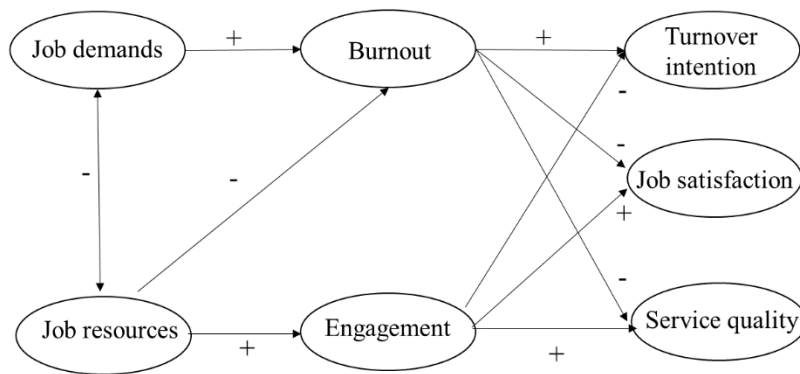


Figure 1. The Job Demands-Resources Model.

Service quality in the health and social care sector in Norway

Most of the efforts that have been described so far, from legislation and the Coordination reform to the implementation of Family’s Houses and interprofessional collaboration, are made to ensure that people get the best possible care and have access to high-quality services. The Norwegian health and social care services are required to work actively on quality improvement (Norwegian Ministry of Health and Care Services, LOV-2011-06-24-30, § 4-2.).

The Norwegian Directorate of Health wrote, “Services of good quality are effective, safe and secure, involve users and give them influence, are coordinated and characterized by continuity, utilize resources in a good way, are available and distributed fairly” (Norwegian Directorate for Health and Social Affairs, 2005, p. 2). The Directorate also described a way in which to measure these six features (Norwegian Directorate of Health, 2018). Efficacy of services can be measured by things like the degree to which the desired outcome is achieved; safety can be measured by determining if treatment was delivered correctly, and user involvement by the degree to which the user was informed and participated in decision-making (Norwegian Directorate of Health, 2018).

Methods to assess service quality include quality indicators, user satisfaction surveys, self- or third-party evaluations, and supervision or inspections (Norwegian Ministry of Health and Care Services, 2012). Quality indicators are defined as indirect measures or indicators, “which say something about the quality of the area that is being measured” (Norwegian Directorate of Health, 2018, p. 12). While the Norwegian Directorate of Health (2018) is responsible for developing and communicating national quality indicators for health and social care services, the municipalities are responsible for offering, developing, and organizing high-quality services (Norwegian Directorate for Health and Social Affairs, 2005). Quality indicators can be used for political decision-making, and to provide general information about service quality to the population and its leaders, who in turn can use it in their quality improvement efforts. In general, a quality indicator has to be meaningful, scientifically justified, helpful, feasible, and published regularly. The use of multiple indicators is appropriate and necessary to evaluate overall quality (Norwegian Directorate of Health, 2018).

Quality can be assessed based on structural, process, and outcome indicators. Structural quality refers to the setting in which care is offered and describes not only the organizational structure but also material and human resources. Process quality refers to the actual delivery of services and includes indicators that provide information regarding the professionals who carry out the work and the patients who receive it. Outcome quality refers to the result of the treatment or intervention and comprises indicators that describe the service users’ health status, knowledge, behavior, or satisfaction (Donabedian, 1988; Norwegian Directorate of Health, 2018). In addition to the aforementioned types of quality, there is product quality, which describes important properties of the service for the users, such as the proportion of canceled visits by the service (Agenda Kaupang, 2014).

A survey of 186 municipalities found that quality indicators were used in 112 municipalities in order to improve their services (Agenda Kaupang, 2014). Quality indicators were most often used in compulsory education (93%), nursing and care (83%), kindergartens (77%), social services (65%), municipal health care (62%), and child welfare (55%); these indicators were used less often in services like culture (38%), or waste and renovation (28%). They also found that smaller municipalities were less likely to use quality indicators than bigger municipalities, and they concluded that smaller municipalities have fewer resources available for the development and management of quality indicators. Examples of product quality indicators in municipal health and social care services included opening hours for health care stations for children and adolescents, percentage of pregnant women receiving pregnancy care from the midwife, and proportion of vaccinated 2-year-olds. Examples of product quality indicators in child welfare services included the percentage of users with individual action plans, number of complaints, and the percentage of cases with an overly long processing time. Examples of outcome indicators in municipal health care services were children with obesity and, for child welfare, the proportion of investigations which led to interventions (Agenda Kaupang, 2014, pp. 42-44).

Interviews with representatives from eight municipalities in Norway were conducted to examine their experiences with the use of quality indicators (Agenda Kaupang, 2014). All in all, the introduction of quality indicators proved useful for underlining the municipalities' obligations toward users, but it was difficult to find good indicators for health and social care services (Agenda Kaupang, 2014). The validity and usefulness of quality indicators might be debatable (Norwegian Ministry of Health and Care Services, 2012). For example, an increase in the number of investigations that lead to interventions by the child welfare service may be considered both a good and a bad sign; a good sign if it means that more children in need of

help are identified, and a bad sign if it means that a higher percentage of children are living in poor conditions.

In addition to the use of quality indicators, user satisfaction surveys are a useful tool to assess the user's experience of their involvement, service coordination, availability of services, and to some extent, the effectiveness of services. At the center of all efforts stands the user or patient, and they should be treated with care, consideration, respect, and in a non-discriminatory way (Norwegian Directorate for Health and Social Affairs, 2005). From the user's perspective, service quality can be defined as the extent to which their expectations match the actual received service. The patient's expectations, in turn, include the "result of the treatment, absence of unwanted events or injuries, waiting time, geographical proximity to the services, options, information, possibility of participation, the behavior of the health and care personnel, other matters related to service" (Norwegian Ministry of Health and Care Services, 2012, p. 48).

Other methods to assess service quality are self- or third-party evaluations or audits (Norwegian Ministry of Health and Care Services, 2012). Employee surveys can also be considered a form of self-evaluation to assess service quality, as quality also depends on the service delivered by the individual professional. Employees' evaluation of important aspects of the workplace like leadership, work conflicts, or autonomy, provide information about workplace quality, which is also relevant for service users. Therefore, the services that participated in the survey were informed of the results in form of a report, and in some cases also in form of a presentation, in order to apply the results to their quality improvement work.

In the articles that comprise this thesis, service quality was assessed through employee surveys using three items (Rafferty, Ball, & Aiken, 2001); therefore, service quality is a subjective measure of the provider's satisfaction with the care they deliver. From the

professionals' perspectives, service quality can be defined as the extent to which their expectations about how care is delivered and which care should be delivered match the actual delivered service. The frontline workers are those who deliver the service and are in contact with the users. They know or have an understanding of what the users or patients want and what support and help they should ideally receive. They also know what the users actually receive. Therefore, assessing the professional opinion of the employees is a good method to evaluate service quality.

Interprofessional collaboration and service quality in municipal services for children, adolescents, and their families (the SKO-study)

This thesis is part of an ongoing evaluation of Family's Houses in Norway called the SKO-study, which stands for "Samhandling" (collaboration), "Kvalitet" (quality) and "Oppvekst" (childhood) (Jakobsen, Martinussen, & Bellika Hansen, 2018, June 25.). The SKO-study is a longitudinal study that conducts employee and user satisfaction surveys at Family's Houses or family centers, as well as services with a different organizational model. At present, 31 municipalities are participating in the study, and most of them are Family's Houses, family centers, or similar organizations. Services included in the SKO-study are pregnancy care, health care stations for children and adolescents, pedagogical-psychological services, child protection services, and open kindergarten. Variables examined in the employee survey are related to the Job Demands-Resources Model and include job demands such as work conflict and work-family conflict, job resources such as collaboration and teamwork, burnout and engagement, job satisfaction, turnover intention, and service quality. Variables examined in the user satisfaction surveys include parents' satisfaction with the information they received, the opportunity for user participation, parents' satisfaction with health care personnel, the accessibility of services, and the coordination between services. In addition, there is a general assessment of overall satisfaction with the service parents received.

The aim of the SKO-study is to examine factors related to service quality in municipal health care services for children and their families. More concretely, the SKO-study aims to determine 1) which organizational factors are related to service quality 2) how satisfied parents are with the service they receive, 3) how important interprofessional collaboration and teamwork are to service quality, 4) which factors contribute to engagement and job satisfaction and to stress and burnout, and 5) whether job demands, job resources, engagement and burnout, as assessed by employees, predict the users and professionals evaluation of service quality (Jakobsen et al., 2018, June 25.).

In addition to this quantitative part of the SKO-study, there is also a qualitative aspect that examines low-threshold services, such as the open kindergarten offered in Family's Houses or family centers (Skjesol, 2017a, 2017b). One study conducted observations and interviews in five different open kindergartens and found that the service was a good arena for integration because of its diverse composition of users and the common activities that lead to a corporate feeling (Skjesol, 2017a). Another study conducted interviews with professionals and users in three different Family's Houses or family centers and found that co-location of the different services was perceived as an advantage by the parents, as they were able to combine visits with multiple services, for example the health care station and the open kindergarten. Furthermore, some professionals experienced easy access and a connection to other services, while others described their contact as more incidental (Skjesol, 2017b).

Thesis aims

The overall research objective of this thesis was to investigate the importance of interprofessional collaboration and teamwork between different health and social care professionals working in child and family services. As a whole, the four papers that make up this thesis provide an overview of the relationship of interprofessional collaboration and teamwork with worker well-being and service quality. The aims of the thesis were 1) to

examine how interprofessional collaboration and teamwork may be measured, 2) to explore how they may be improved, and 3) to examine how they are related to individual and organizational outcomes.

Paper I is an evaluation of a reorganization, inspired by the Family's House Model, of different public child and family health and social care services into an integrated Child and Family Unit in order to increase interprofessional collaboration and service quality. The main research question was if the reorganization led to better collaboration between the services and increased service quality. Another question was how the reorganization affected other work-related variables. Furthermore, we wanted to examine if job demands and job resources predicted worker burnout (exhaustion), engagement, job satisfaction, and service quality.

Paper II is a validation study of the Norwegian short version of the Team Climate Inventory (TCI). The purpose was to examine if the Norwegian short version of the TCI is a reliable and valid questionnaire to assess team climate among professionals who work together toward a common goal.

Paper III examined how work-related variables (e.g., collaboration, burnout, engagement, job satisfaction, turnover intention, and perceived service quality) are interrelated using the Job Demands-Resources Model. The study sample consisted of professionals working in child and family services that were organized as Family's Houses, family centers, or similar establishments where multiple services were co-located. Furthermore, we were interested in examining the importance of interprofessional collaboration and teamwork as job resources compared to other job resources such as autonomy, social support, and leadership.

Paper IV is a meta-analysis that synthesizes research findings about the relationship between interprofessional work (teamwork, collaboration, and cooperation) and autonomy,

burnout, engagement, job satisfaction, and service quality in the health and social care sector. We wanted to examine how interprofessional work is related to variables that are linked to the Job Demands-Resources Model, and to examine possible moderators to the relationship.

Summary of the papers

Paper I

Martinussen, M., Kaiser, S., Adolfsen, F., Patras, J., & Richardsen, A. M. (2017). Reorganisation of healthcare services for children and families: Improving collaboration, service quality, and worker well-being. *Journal of Interprofessional Care*, 8, 487-496.
<http://dx.doi.org/10.1080/13561820.2017.1316249>

Objectives

The main objective of this study was to evaluate the reorganization, inspired by the Family's House Model, of different public child and family health and social care services into a new, integrated Child and Family Unit. The primary aim of the reorganization was to increase collaboration between services and professionals by integrating and co-locating the services at one site, and to increase service quality. The reorganization included services like pregnancy care, the school health service, the health care station for children and adolescents, the pedagogical-psychological service and other services like physiotherapy, and occupational therapy in addition to the establishment of an interprofessional team and a low-threshold reception. Emphasis was also put on strengthening the leadership and on close collaboration between the leaders of the different services. In addition, several initiatives were taken to strengthen the organizational climate, such as, joint meetings for all professionals and leaders with both an educational and a social program. Work-related outcomes related to the Job Demands-Resources Model, such as collaboration, autonomy, burnout, engagement, and service quality were evaluated before (T₁), during (T₂), and after (T₃) the reorganization.

Furthermore, job demands and job resources were examined as possible predictors for burnout (exhaustion), engagement, job satisfaction, and service quality.

Sample and data collection

This longitudinal study was carried out in a relatively large municipality in southern Norway. At T₁, the different health care services were not integrated. The study sample at T₁ comprised all health and social care workers and administrative staff working in the services that were to be included in the new Child and Family Unit (T₁ N = 100, response rate = 83%). The sample at T₂ and T₃ comprised all employees working at the new Child and Family Unit (T₂ N = 87, response rate = 81% and T₃ N = 122, response rate = 81%, respectively).

Measures

Several different scales were used to gather the data. Demographic variables and workplace characteristics included age, sex, marital status, education, occupation, working hours, and work experience.

Job demands included perceived workload, work conflict, and work-family conflict. Perceived workload was assessed with a scale from the Total Workload Questionnaire (Mårdberg, Lundberg, & Frankenhaeuser, 1991), which was translated and adapted to Norwegian conditions (Østlyngen, Storjord, Stellander, & Martinussen, 2003). Work conflict and work-family conflict were measured with four questions from McKeen and Burke (1991).

Job resources included autonomy in the workplace, social support from colleagues and superiors, collaboration with professionals from other services, and views on leadership. Autonomy was assessed with a scale derived from the Total Workload Questionnaire, social support with eight questions from Himle, Jayaratne, and Thyness (1991), collaboration with eight questions that were used in a previously conducted study (Martinussen, Adolfsen, Lauritzen, & Richardsen, 2012), and leadership was assessed using seven questions that were

adapted from Shipton and colleagues' Leadership Scale (Shipton, Armstrong, West, & Dawson, 2008).

Burnout, i.e., exhaustion, cynicism, and professional efficacy, was assessed with the Norwegian version of the Maslach Burnout Inventory-General Survey (Richardson & Martinussen, 2005).

Engagement, i.e., vigor, dedication, and absorption, was assessed with the Norwegian short version of the Utrecht Work Engagement Scale (Nerstad, Richardson, & Martinussen, 2010).

Job satisfaction was assessed with six questions from the Total Workload Questionnaire. Service quality was assessed using three items, of which two were adapted from Rafferty et al. (2001).

Statistical analyses

One-way analysis of variance (ANOVA) was used to test for differences in the scores of the outcome variables over the three time points (T₁, T₂, T₃). Moderated hierarchical regression analyses were used to predict burnout (exhaustion), engagement, job satisfaction, and service quality. Three blocks of independent variables were entered (step 1 work experience, step 2 job demands, step 3 job resources) before the interaction terms (workload x collaboration, work conflict x collaboration, and work-family conflict x collaboration) were entered in step 4.

Results

Most of the employees were female (at T₃ 93%), between 41-50 years old (at T₃ 32%), worked full-time (at T₃ 61%) and were either nurses (at T₃ 29%) or pedagogues, counsellors, or teachers (at T₃ 23%).

The one-way ANOVAs and post hoc analyses indicated significant changes from T₁ to T₂ for three of the 11 variables (work conflict, collaboration, and leadership), and from T₁ to T₃ for four of these variables (work conflict, leadership, collaboration, and service quality). For the latter relationships, Hedges' g was small to medium for service quality and work conflict, and large for collaboration and leadership, indicating a positive development.

In addition, the proportion of employees who reported improvement or significant improvement in the quality of services in the past year increased at each time period: 27% at T₁, 48% at T₂, and 62% at T₃.

The moderated hierarchical regression analyses found that job demands were particularly associated with burnout (exhaustion), while both job demands and job resources were associated with engagement, job satisfaction, and service quality. Collaboration was a significant predictor of engagement and job satisfaction. Furthermore, of the four analyses, there was one significant interaction term: workload and collaboration were significantly associated with service quality. Simple slope tests showed that a negative relationship between workload and service quality was present when the level of collaboration was low, whereas the relationship was not significant when the level of collaboration was high.

Paper II

Kaiser, S., Ekelund, B. Z., Patras, J., & Martinussen, M. (2016). Psychometric properties of the Norwegian short version of the Team Climate Inventory (TCI). *Scandinavian Journal of Organizational Psychology*, 8, 18-28.

Objectives

The full version TCI is a 38-item questionnaire that assesses team climate for innovativeness. The short version of the TCI consists of 14 items that are distributed on the same four factors as the full version. The overall aim of Paper II was to examine the

psychometric properties of the Norwegian short version of the TCI. This included an examination of the internal consistency (Cronbach's alpha and individual and group level reliability) and factorial validity or factor structure of this instrument. We also examined whether the structural components of the Norwegian short version of the TCI were consistent across public and private sector employees.

Sample and data collection

The sample for this paper consisted of 1380 employees clustered within 177 teams working in the private ($n = 657$) and public sector ($n = 723$) in Norway. The employees were working in different institutions (e.g., telephone company, bank, oil and gas company, home for the elderly, Norwegian Postal Service, museum, highway authority). The data was aggregated through commercial assessments done by Human Factors AS or by organizations supervised by Human Factors. Human Factors is a consultant company located in Oslo, which focuses on assessments of teams and individuals for feedback and development purposes. No demographic characteristics were assessed in order to keep the answers anonymous.

Measures

The participants completed the full version of the TCI in addition to six items measuring social desirability. Only the 14 items that comprise the short version of the TCI were used in the analyses. The 14 items were distributed on four factors: (A) vision (4 items, e.g., How far are you in agreement with the team's objectives?), (B) participative safety (4 items, e.g., We have a "we are in it together" attitude.), (C) task orientation (3 items, e.g., Do members of the team build on each other's ideas in order to achieve the best possible outcome?), and (D) support for innovation (3 items, e.g., People in the team cooperate in order to help develop and apply new ideas.). Items were rated on a five-point scale with different response categories for example from 1 (*strongly disagree*) to 5 (*strongly agree*).

Statistical analyses

Chronbach's alpha and the individual-level and group-level reliability were calculated. Multilevel confirmatory factor analysis was done in Mplus to test the factorial validity of the short version of the TCI. The analyses were done for the total sample and separately for public and private sector employees. In model 1, all parameters were estimated freely to examine if the factor structure fit the sample (M1: configural model). Different fit indices with defined cut-off values were used to evaluate model fit. The χ^2 /degrees of freedom ratio should be ≤ 5 (Hooper, Coughlan, & Mullen, 2008), the root mean square error of approximation (RMSEA) $< .06$ or $< .07$ (Hooper et al., 2008; Steiger, 2007), and the Tucker Lewis index (TLI) and the comparative fit index (CFI) $> .90$ or about $.95$ (Hooper et al., 2008; Hu & Bentler, 1999).

Additional constrains were added to each model (M2: equal factor loadings, M3: equal factor covariances, and M4: equal factor variances), and the results of the analyses were compared to the previous results by examining the difference in the χ^2 and the CFI to evaluate measurement invariance.

A multilevel, multiple-group comparison between public and private sector employees was conducted. In the first model, these two groups were combined and analyzed together and all parameters were estimated freely (MG1: configural model). In the next model, measurement invariance of the between-factor loadings and intercepts was tested (MG2: equal factor loadings + intercepts on between level), allowing within-structure to vary across groups. Model MG2 was then compared to MG1. If model fit did not significantly worsen, the factor loadings in the within level would have been constrained across groups in the next step.

Results

Cronbach's alpha was .86 for the total score of the short form of the TCI . The individual-level reliability was .73 and the group-level reliability was .81. Cronbach's alpha for the four scales ranged between .66 and .76; the individual-level reliability ranged between .46 and .65, and the range of the group-level reliability lay between .66 and .81.

The fit indices for M1: configural model for the two groups combined were acceptable ($\chi^2/\text{degrees of freedom ratio} = 3.38$, RMSEA = .042, TLI = .91, CFI = .933). This indicates that the original four-factor model was supported.

A multi-group comparison between private and public sector employees was done to test for measurement invariance. The first model with no constraints (MG1: configural model), in which the factor structure was the same across groups and all parameters were freely estimated, revealed acceptable fit ($\chi^2/\text{degrees of freedom ratio} = 2.60$, RMSEA = .048, TLI = .89, and CFI = .913), indicating support for the four-factor model across groups. The comparison of this model to the second one with equal factor loadings and intercepts on the between level revealed a significant deterioration of model fit as indicated by χ^2 ($\Delta\chi^2 = 182.58$, $\Delta\text{df} = 25$, $p < .001$) and the difference in CFI ($\Delta\text{CFI} = .03$), indicating that the factor loadings and intercepts on the between level are different for the two groups.

Paper III

Kaiser, S., Patras, J., Adolfsen, F., Richardsen, A., & Martinussen, M. (2018). Using the job demands-resources model to evaluate work-related outcomes among Norwegian health care workers. Manuscript submitted for publication.

Objectives

The main aim of this paper was to use the Job Demands-Resources Model to evaluate work-related outcomes (e.g., burnout, engagement, job satisfaction, turnover intention, and

perceived service quality) among Norwegian health and social care workers and to examine the importance of interprofessional collaboration and teamwork as job resources.

Sample and data collection

The study sample for this paper consisted of 489 health and social care workers and administrative employees (response rate about 56%) that worked at different child and family health and social care services in 21 municipalities in all regions of Norway. The services were organized as Family's Houses, family centers, or as similar organizations where multiple services were co-located. It was a cross-sectional sample, and municipalities were recruited as part of an ongoing longitudinal study that assesses collaboration and different work-related outcomes such as burnout, engagement, and service quality.

Measures

This paper used many of the same instruments described in Paper I, in addition to the Norwegian short version of the TCI (see validation of the TCI in Paper II). More specifically, we assessed job demands (workload, work conflict, and work-family conflict), job resources (autonomy, social support, interprofessional collaboration, leadership, and team climate), worker well-being (emotional exhaustion, which is the core dimension of burnout, and engagement), and organizational outcomes (turnover intention, job satisfaction, and service quality). For a more complete description of these measures, see the summary of measures for Papers I and II.

Statistical analyses

A multilevel structural equation model analysis was done in Mplus, using the same fit indices and cut-off values described in Paper II.

Results

The fit indices of the multilevel structural equation model analysis were acceptable ($\chi^2/\text{degrees of freedom ratio} = 1.54$, RMSEA = .033, TLI = .92, CFI = .92). All coefficients were significant at $p < .001$, except for the paths between job demands and engagement ($p = .030$), between burnout and engagement ($p = .463$), and between engagement and service quality ($p = .004$). Job demands were positively related to burnout, and burnout was positively related to turnover intention and negatively related to job satisfaction and service quality. Job resources were positively related to engagement, and engagement was negatively related to turnover intention and positively related to job satisfaction and service quality. Autonomy, social support, and leadership had the highest loadings on the job resources factor, followed by team climate and interprofessional collaboration.

Paper IV

Kaiser, S., Patras, J., & Martinussen, M. (2018). Linking interprofessional work to outcomes for employees: A meta-analysis. *Research in Nursing & Health*, 41, 265-280.
<https://doi.org/10.1002/nur.21858>

Objectives

The main aim of this meta-analysis was to synthesize research findings about the relationship of interprofessional work (teamwork, collaboration, and cooperation) with job stress, autonomy, burnout, engagement, job satisfaction, turnover intention, and perceived service quality as assessed by employees in the health and social care sector. Another aim was to examine variation between studies and the impact of moderating variables such as demographic characteristics (e.g., age or work experience), profession (nurse versus non-nurse samples), or institution (hospital versus non-hospital samples) on the different outcomes.

Inclusion criteria and literature search

To be included in the meta-analyses, articles had to be written in English or German; had to report the relationship between different types of interprofessional work (including interprofessional collaboration, teamwork, and cooperation); the relationship between health or social care professionals or institutions; and they had to specify outcome variables and use statistics that could be applied in meta-analysis calculations. Studies that focused on the social aspects between employees (e.g., social support by colleagues or group cohesion) rather than on how employees work together were excluded from the analyses. All studies meeting the search criteria prior to March 2016 in PsychInfo, Embase, and Medline and prior to June 2017 in CINAHL were examined.

Outcome and moderator variables

In this meta-analysis, we were interested in the relationship (correlations) between interprofessional work and job stress, autonomy, burnout, engagement, job satisfaction, turnover intention, and perceived service quality. These variables are defined below.

Interprofessional work was viewed as a continuum from teamwork, to collaboration, to cooperation, where teamwork describes the closest and most intense work relationship, collaboration characterizes less intense work relationships, and cooperation is characterized by having fewer meetings and less communication than the others (Reeves et al., 2010a).

Job stress was defined as “the amount of stress ... [workers] perceive in relationship to their jobs” (Shader, Broome, Broome, West, & Nash, 2001, p. 213). It is typically experienced when job demands exceed the available resources (Frankenhaeuser, 1991).

Autonomy was defined as “the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out” (Hackman & Oldham, 1976, p. 258).

Burnout was defined as a psychological syndrome characterized by a high level of emotional exhaustion and depersonalization and a low level of professional accomplishment (Maslach et al., 2001).

Engagement was defined as a psychological state that consists of three components: dedication, vigor, and absorption. Engagement is characterized by a high energy level, enthusiasm, willingness to put effort into work, and the ability to focus and fully concentrate on work (Schaufeli, 2013).

Job satisfaction was defined as a “pleasurable emotional state resulting from the appraisal of one’s job as achieving or facilitating the achievement of one’s job values” (Locke, 1969, p. 316).

Turnover intention was defined as the employees’ intention to leave the organization, not the profession.

Perceived service quality was defined as a subjective measure of the employee’s perception and evaluation of the quality of care or service they provide.

In addition, we examined the influence of different continuous (e.g., age, work experience) and categorical (e.g., institution: hospital versus non-hospital, profession: nurse versus non-nurse sample) moderator variables on the effect sizes. Another categorical moderator variable was called assessment of interprofessional work. This was done in order to examine the influence of separate concepts, i.e., teamwork, collaboration, and cooperation, on the effect sizes. An additional category, called nurse-physician collaboration, was made because many articles reported information on the working relationship between nurses and physicians.

Statistical analyses

The software Comprehensive Meta-analysis V3 (Borenstein, Hedges, Higgins, & Rothstein, 2007) was used to perform the meta-analysis, and a random effects model was chosen to estimate the mean effect sizes (correlations) and confidence intervals. Mixed-effects analyses were used in moderator analyses with categorical variables and a random effects model for continuous moderators using meta-regression analyses.

Results

After applying inclusion criteria, 45 articles reporting results for 53 independent samples were included in the meta-analysis. Most studies were conducted in the USA ($K = 18$), and the total sample size was 42 354 employees. Most samples consisted of nurses ($K = 39$) working at hospitals ($K = 42$). Most participants were female (82%, $K = 35$), about 39 years old ($SD = 5.53$, $K = 43$), worked full-time (74%, $K = 19$), and had an overall work experience of about 14 years ($SD = 5.01$, $K = 32$).

The highest correlations were found between interprofessional work and perceived service quality (mean $r = .46$), autonomy (mean $r = .38$), job satisfaction (mean $r = .36$), and engagement (mean $r = .33$). The strongest negative correlations were found between interprofessional work and emotional exhaustion (mean $r = -.22$), turnover intention (mean $r = -.21$), depersonalization (mean $r = -.17$), and job stress (mean $r = -.13$). All correlations were significant.

Of the 17 categorical moderator analyses, five were significant. Three of those five significant analyses were found using the moderator assessment of interprofessional work. Teamwork showed higher negative mean correlations than nurse-physician collaboration with emotional exhaustion ($Q_B = 15.72$, $p < .001$), depersonalization ($Q_B = 17.83$, $p < .001$), and turnover intention ($Q_B = 9.43$, $p = .002$).

Ethical considerations

In paper I, no NSD approval was obtained because anonymous data was collected that did not allow the identification of individuals. The study for paper III was approved by the Data Protection Official for Research, NSD-Norwegian Centre for Research Data. Paper I and III did not need approval from REK-Regional Committees for Medical and Health Research Ethics as they were not aiming at generating new knowledge about health and diseases (REK-Regional Committees for Medical and Health Research Ethics 2019, January 21.). According to REK these studies were classified as research on the work environment and were not considered medical or health research. Paper II and IV were a psychometric evaluation study and a meta-analysis, respectively, where no ethical approval from REK is needed. Furthermore, for paper II no NSD approval was obtained because we received anonymized data.

Although the questionnaire used in paper I and III had been used previously and no negative effects had been reported (Martinussen et al., 2012), one cannot exclude that answering questions about work conflict, work-family conflict, social support, or burnout is potential distressing for the participants. However, the emotional impact the questions may have is difficult to foresee but is likely to be minor and could for example lead to negative moods such as irritability or sadness. On the other hand, it could also have a positive effect for the employees to express their feelings and thoughts about work. Furthermore, the different studies used standardized scales that are often used in a Norwegian context as well as internationally.

The participating employees of paper I and III received detailed information emphasizing that participation was voluntary and that not participating would not be connected to any negative consequences. Furthermore, the municipalities were offered feedback on the results in the form of written reports and oral presentations. The Regional

Centre for Child and Youth Mental Health and Child Welfare - North offered short courses in line with the expressed interests in the municipalities with topics such as leadership, collaboration, child mental health, and the use of evidence based interventions and assessment instruments. If needed, additional support in form of individual counselling was also offered to the municipalities. The analyses were conducted at group level and no information that could identify individuals was presented. Services and individuals could contact the research team with comments and questions.

Discussion

Interprofessional collaboration and teamwork have long been assumed to have beneficial outcomes for clients and professionals. The overall aim of this thesis was to investigate the importance of interprofessional collaboration and teamwork between different health and social care professionals. This thesis adds to the existing knowledge by expanding the research to primary services, which have a strong focus on child and adolescent mental health and well-being. The discussion will first address the four papers and then include a general discussion of the three research questions. The aims were 1) to examine how interprofessional collaboration and teamwork may be measured, 2) to explore how they may be improved, and 3) to examine the relationship between them and individual and organizational outcomes.

Discussion of main findings in Paper I

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

The main aim of the reorganization was to increase collaboration and service quality. The reorganization seemed to have favorable effects on many work-related outcomes. From T₁ to T₃ the variable work conflict went down, while the ratings for leadership,

interprofessional collaboration, and service quality improved. In addition, the proportion of employees who reported improvement or significant improvement in service quality compared to the previous year increased from 27% at T₁, to 48% at T₂, and was 62% at T₃. The co-location and integration of child and family services can therefore be deemed a success.

One aim of the Coordination reform was to increase collaboration between services (Norwegian Ministry of Health and Care Services, 2008-2009). Based on the findings of Paper I, it seems that this is an important, promising approach to improving public health work. Increased interprofessional collaboration might influence not only formal and informal communication (Myors et al., 2013; Thyryhaug et al., 2012a; Xyrichis & Lowton, 2008), but also other aspects of interprofessional collaboration such as the exchange of assistance between professionals and the knowledge professionals have about the different services. This might in turn lead to better child and family services.

In line with the Job Demands-Resources Model, job demands were particularly associated with exhaustion, while job resources were particularly related to increased engagement and job satisfaction. The association between service quality and job demands and job resources was about equally strong (in absolute values). These findings are in line with other research (Lizano & Mor Barak, 2012; Martinussen et al., 2012; Schaufeli et al., 2009) and underline the importance of providing employees with the job resources necessary to cope with work and maintain motivation.

Interprofessional collaboration was an important predictor for worker well-being, i.e., engagement and job satisfaction, and moderated the relationship between workload and service quality, supporting the importance of promoting interprofessional collaboration in health and social care services. The significant interaction between workload and

interprofessional collaboration indicated that interprofessional collaboration had a buffering impact on the negative effect that workload had on service quality. Other studies have also reported a buffering impact of job resources (e.g., autonomy or social support) on job demands (e.g., work pressure) and burnout (Bakker & Demerouti, 2014). These findings provide evidence that interprofessional collaboration is indeed a job resource for employees in the health and social care sector.

Limitations

One strength of this study was its longitudinal design, which made it possible to evaluate trends in the outcome variables over time (Sedgwick, 2014). As in other quasi-experimental studies, changes that were contemporaneous with the reorganization cannot be ruled out, but we are not aware of other changes in the municipality that coincided with the reorganization that may explain the results. However, the organizational changes that happened during and after the reorganization were complex and it is therefore difficult to attribute the observed changes to a specific element. The co-location of services may not be the only reason for improvement in the outcome variables as the reorganization also focused on strengthening the leadership and on close collaboration between the leaders of the different services. However, we do not know if and how exactly the leadership in the different services changed during or after the reorganization. We only know that the new established Child and Family Unit appointed one new overall leader in addition to the different leaders of the single services. Furthermore, several initiatives were taken to strengthen the organizational climate initiated by the new leader, which may also have contributed to the observed changes. It is also difficult to say how interdependent the task between the professionals from the different services were or are, however, the study indicated that the reorganization lead to better interprofessional collaboration. Also, the number of employees who participated in the study over the three measurement points was $N = 100$ at T₁, $N = 87$ at T₂, and $N = 122$ at T₃. It

cannot be ruled out that the increase in staff from T_1 to T_3 was related to, for example, the improved evaluation of service quality. The findings were also solely based on employees' evaluations; it would have been desirable to supplement them with other sources such as user satisfaction surveys or more objective quality indicators. Furthermore, it is not just difficult to reorganizing services but also to maintain change over time. Ideally there should have been a follow-up study after several years to examine if the changes were stable over a longer time period. Theory and research from Implementation Science (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004) suggest that effort is needed to maintain changes over time and that many organizational and personal factors influence the diffusion of an innovation in service organizations. Even though the response rate was high, with over 80% participation over the three measurement points, the total sample size was relatively small. Nevertheless, it was sufficient to run the relatively complex regression analyses. The survey was conducted anonymously, and it was not possible to match the responses over the three time points. It could therefore also be that the ANOVA did not detect changes which were in fact there. This could be due to the lower statistical power of one-way ANOVA compared to repeated-measures ANOVA.

Discussion of main findings in Paper II

Psychometric properties of the Norwegian short version of the Team Climate Inventory (TCI)

The aim of this study was to examine the reliability and factorial validity of the Norwegian short version of the TCI, and to test for measurement invariance across groups for the short version of the TCI in a Norwegian sample using multilevel confirmatory factor analysis.

Chronbach's alpha values for the total score of the short version of the TCI and the individual- and group-level reliability estimates were adequate to good using the guidelines

published by the European Federation of Psychologists' Associations (2013). However, the reliability coefficients for some of the four scales were low ($< .70$), especially for individual-level reliability. The implications of inadequate estimates on the individual level and sufficient estimates on the group level are unknown. In general, a lack of reliability leads to an increase in the standard error of analyses (Bonito, Ruppel, & Keyton, 2012).

The study reported in Paper II is, to my knowledge, the first to examine the between- and within-factor structures of the short version of the Norwegian TCI using multilevel confirmatory factor analysis (Kivimaki & Elovainio, 1999; Loo & Loewen, 2002; Strating & Nieboer, 2009). The fit indices for the unrestricted model indicated good model fit for the original four-factor model in the total sample. Thus, the results indicated that the factor structure and item pattern are the same across within-factor and between-factor levels.

When testing for measurement invariance between employees in the private and public sector, the configural model revealed acceptable results, indicating that the factorial structure (e.g., number of factors and item pattern) of the short version of the Norwegian TCI fits the data for both groups (Byrne, 2009). However, comparing public and private sector employees may require a level of caution, because there were significant differences between the configural model and the model with the fixed factor loadings and intercepts at the between-factor level.

Limitations

A strong point of the study was the use of a different sample that was not exclusively comprised of health and social care professionals. A limitation might be that the participants filled in the full version of the TCI and not the short version. Another possible limitation of the study might be that the data was over 10 years old. However it is difficult to know how exactly this may have influenced the results. It is unlikely that it influenced for example the

factor structure of the TCI. Also team, task, and sample may vary over time but this has probably a bigger impact on mean scores than on inter-correlations or on the factor structure.

Discussion of main findings in Paper III

Using the Job Demands-Resources Model to evaluate work-related outcomes among Norwegian health care workers

The aim of the current study was to use the Job Demands-Resources Model to examine predictors of worker well-being (burnout and engagement) and organizational outcomes (turnover intention, job satisfaction, and service quality). The fit indices of the multilevel structural equation model were acceptable, providing evidence for the theoretical relationship between the variables as postulated by the model. In addition, the relationships between the variables were in line with the theory, underlining the importance of providing employees with enough job resources and keeping job demands low to maintain worker well-being and organizational outcomes.

The standardized beta coefficients of the different job resources were lowest for interprofessional collaboration and teamwork compared to the other job resources like autonomy, but the coefficients were still significant. This finding indicates that interprofessional collaboration and teamwork should be considered as job resources for health and social care providers working with children and their families in Norwegian municipalities.

Limitations

Limitations of the study were the cross-sectional design, the use of only one sample, and the reliance on self-reported measures. The study focused on associations, and because of its cross-sectional nature, it is not possible to make causal conclusions. It would have been desirable to supplement employee data in the model with data from other sources, such as

user satisfactions surveys or objective indicators that measure service quality. However, if we had done this, it is uncertain that the model would have detected the same relationships. The use of self-reported measures only may have caused self-reporting and other common method biases (Donaldson & Grant-Vallone, 2002). Self-reporting bias refers to an individual's tendency to answer in a socially desirable manner, i.e., to over-report appropriate and to under-report inappropriate behavior. Common method biases refer to inflated parameter estimates due to shared method variance, that is, using one source of data versus multiple sources (Donaldson & Grant-Vallone, 2002). Furthermore, we did not examine how personal resources (e.g., optimism or self-efficacy) might influence the relationship between the variables (Bakker & Demerouti, 2016; Mastenbroek, Jaarsma, Scherpbier, van Beukelen, & Demerouti, 2014).

Discussion of main findings in Paper IV

Linking interprofessional work to outcomes for employees: A meta-analysis

The main aim of the current study was to estimate the mean correlations between interprofessional work (i.e., teamwork, collaboration, and cooperation) and important work characteristics, worker well-being, and organizational outcomes.

The mean correlations were weak to moderately strong and in the expected directions, suggesting that interprofessional work is a job resource that is linked to many work-related variables. At the center of all collaborative efforts stands the patient, or user, of the different services, and the aim of interprofessional work is to increase the quality of care. It is therefore not surprising that the strongest correlation was found between interprofessional work and perceived service quality as assessed by employees.

The second strongest correlation was found between interprofessional work and autonomy. This could point to a synergistic effect between the two variables rather than a

conflict (Rafferty et al., 2001), where employees who work autonomously consult more often with their colleagues or vice versa.

The third strongest correlation was found between interprofessional work and job satisfaction. These results are in line with previous findings (Zangaro & Soeken, 2007). Job satisfaction is important because it is related to the employee's intention to stay in the job (Kim & Kao, 2014; Lu, 2012 #13197). Furthermore, a meta-analysis found small and moderately strong correlations between employee satisfaction and customer satisfaction and between customer-rated service quality, respectively (Brown & Lam, 2008).

Interprofessional work was also used as a moderator consisting of four categories: teamwork, collaboration, nurse-physician collaboration, and cooperation. Teamwork had a stronger negative mean correlation to emotional exhaustion, depersonalization, and turnover intention compared to nurse-physician collaboration, suggesting a more protective function of teamwork for burnout and turnover.

Limitations

A strong point of the study was the systematic and comprehensive literature search that was conducted. However, because the majority of included studies examined nurses working in hospitals, the generalizability of the findings to other health or social care professionals (e.g., social or child protection workers) working in other institutions is questionable. The included studies had cross-sectional designs, and the data was based on questionnaires completed by employees. This may result in a common method bias in the individual articles, as described in the limitations section of Paper III, and in inflated mean correlations (Donaldson & Grant-Vallone, 2002). Furthermore, the moderator analyses were based on a rather small number of studies, which might lead to unreliable estimates and a low statistical power for detecting moderators.

General discussion and future directions

Measuring interprofessional collaboration and teamwork

An important part of any research project is the measurement of important constructs. There is great variety in instruments, with varying evidence of validity when it comes to measuring interprofessional collaboration and teamwork (Thannhauser, Russell-Mayhew, & Scott, 2010; Valentine, Nembhard, & Edmondson, 2015). Thannhauser et al. (2010) identified 23 instruments for assessing interprofessional collaboration and education, but concluded that there is a very limited selection of tools with good psychometric properties. Thannhauser (2010) further stated that there are few instruments that can be used among a variety of different professionals and with professionals working in the health and social care sector. Valentine et al. (2015) identified 39 instruments for assessing teamwork and concluded that only 10 of those satisfied the minimum criteria for the psychometric properties they applied in the review. Among the 39 instruments were teamwork measures and measures that assess other dimensions of teamwork, such as cooperation and collaboration. Thannhauser et al. (2010) assumed that one reason for the great variety in low-quality measuring instruments was the “lack of consistent vocabulary used in the field” (p. 340) of interprofessional collaboration. Their article focuses on assessing interprofessional collaboration and education, but similar to this is the lack of consistent terms for collaboration, teamwork, and related constructs. Sometimes the terms are used interchangeably (Petri, 2010; Xyrichis & Lowton, 2008); sometimes they are kept separate (Fewster-Thuente & Velsor-Friedrich, 2008; Reeves et al., 2018).

In this thesis, two instruments were used to assess different aspects of interprofessional work. The term interprofessional work was used in the meta-analysis (Paper IV) to refer to teamwork, collaboration, and cooperation. The scale for assessing interprofessional collaboration presented in Paper III was used to assess collaboration

between professionals from different services, while the term teamwork was used to assess teamwork within the team or work group.

The validity of the short version of the Norwegian TCI to assess teamwork was evaluated in Paper II. The results indicated that the factor structure of the short version of the TCI was supported, and that it is a practical questionnaire to assess teamwork. However, we decided to use the total score of the short version of the Norwegian TCI, because of marginal reliability values for some of the subscales. Future studies should examine the reliability estimates when participants complete the short version of the TCI instead of the long version. If the reliability values remain low, efforts should be made to improve the reliability of the short version by adding more items to the subscales (i.e., by conducting a new item reduction of the full version). To further validate the factor structure, it may be interesting to examine whether the different subscales predict different outcomes differentially (e.g., service quality).

Paper III presented a measure for assessing collaboration between professionals from different child and family services. In an earlier published study, an exploratory factor analysis indicated one factor, and Cronbach's alpha was .75 for the scale (Martinussen et al., 2012). Similar Cronbach's alpha values were found in Papers I and III (.79 and .78, respectively), indicating adequate internal consistency for this measure (EFPA, 2013). Furthermore, collaboration and teamwork were positively and moderately correlated, as found in Paper III, indicating that the two concepts are related but not identical. Furthermore, the correlations between teamwork and worker well-being were stronger than for collaboration as found in Papers III and IV. This may be explained by the fact that teamwork is a closer or more intense form for interprofessional work than collaboration, as described in the introduction. The results suggest that both scales are useful tools to assess collaboration and teamwork in different settings, including model testing and the evaluation of changes in an organization.

Improving interprofessional collaboration

Paper I examined how interprofessional collaboration changed through a reorganization of child and family services. The majority of studies conducted so far examined more specific interventions for improving collaboration, not large-scale reorganizations (Husebø & Akerjordet, 2016; Martin et al., 2010; Reeves et al., 2017; Sun et al., 2018). The reorganization we examined was inspired by the Family's House Model. Paper I provides evidence that co-locating child and family services is an important step in improving interprofessional collaborative efforts and service quality. Interprofessional collaboration between services can be challenging, and the development of Family's Houses does not guarantee success. However, co-locating services provides foundational structures that can support the development of interprofessional collaboration. Overall, this thesis and the literature show that co-location and improved interprofessional collaboration is an advantage for the professionals and promotes better child and family services. The Family's House Model is therefore a good example of how to promote mental health and prevention at the municipal level (Norwegian Institute of Public Health 2011).

There are different factors that influence interprofessional collaboration and teamwork (e.g., the professional role, personal and structural characteristics) (Bronstein, 2003). The meta-analysis (Paper IV) found that interprofessional work is negatively related to job stress and positively related to autonomy. Job stress is typically experienced when job demands exceed available resources (Frankenhaeuser, 1991). Factors that contribute to job stress are high workload, staff shortages, and the implementation of new technologies (Zangaro & Soeken, 2007). Autonomy is "the degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the work and in determining the procedures to be used in carrying it out" (Hackman & Oldham, 1976, p. 258). This study

underlines the importance of reducing job stress and promoting autonomy at work to improve collaboration and teamwork.

Interprofessional collaboration, teamwork, individual, and organizational outcomes

The Job Demands-Resources Model was the guiding model in Papers I, III, and IV. The relationships between interprofessional collaboration and teamwork and the individual (e.g., burnout and engagement) and organizational outcomes (job satisfaction, turnover intention, and service quality) were in the expected directions. Overall, the findings of the different studies provide evidence that interprofessional collaboration and teamwork are job resources for employees working in the health and social care sector. Therefore, interprofessional collaboration and teamwork are not only important for the patients and to improve the quality of services, but also for employees' well-being.

It could be that the relationships between the different variables are more complex than what we were able to study in this project or than the Job Demands-Resources Model proposes. There may be other factors that influence service quality, like leadership, the use of evidence-based interventions, or structural factors (e.g., how services are organized). Leadership was examined as a job resource in the current thesis. It could be that leadership facilitates collaboration, and that it should be studied as a moderator instead of as a job resource (Martin-Rodriguez, Beaulieu, D'Amour, & Ferrada-Videla, 2005). Schaufeli (2015) found that engaging leadership had an indirect impact on worker well-being through job demands and job resources, and a direct impact on commitment and performance in a study of the Dutch workforce.

Another factor that may affect interprofessional collaboration, teamwork, and the variables in the Job Demands-Resources Model is personality characteristics, which were not examined in the current thesis. Martinussen et al. (2011) found that Type A behavior

predicted burnout and engagement after controlling for different job demands and job resources. Bakker et al. (2010) found that neuroticism was related to health impairment and extraversion to organizational commitment. A recent meta-analysis indicated that all of the personality traits from the Five-factor model, except neuroticism, were significantly related to job-crafting behavior which in turn were related to engagement (Rudolph, Lavigne, Katz, & Zacher, 2017).

Van den Broeck, De Cuyper, De Witte, and Vansteenkiste (2010) extended the Job Demands-Resources Model; they proposed that the category job demands is more heterogeneous and categorized it further into job hindrances and job challenges. Job hindrances were found to be related to a health-impairing process that is connected to burnout, while job challenges were related to the motivational process and connected to engagement, not burnout. In the current thesis, we did not examine challenges; only job hindrances. Future research should include measures that assess possible job challenges in addition to job hindrances and job resources.

Implications for practice

The findings of this study have several implications for practice. The results of paper I may guide future reorganizations of services that work with children, adolescents, and their families in other municipalities in Norway. The main component of the reorganization was the co-location of the different services. Co-location of services has also been found to be a facilitating factor of collaboration in a review conducted by Cooper et al. (2016), which examined specific facilitating and inhibiting factors of interorganizational collaboration in children and young people's mental health services.

In addition to the co-location, the reorganization also put focus on strengthening the leadership. This was done by employing an overall leader for the Child and Family Unit. In

addition, initiatives to strengthen the organizational climate were made such as joint meetings for all professionals and leaders with both an educational and a social program. Senior management support for collaboration and joint meetings have also been found to be facilitating factors of collaboration by Cooper et al. (2016).

A major reorganization including physical co-location of services requires a lot of resources and it is doubtful that all municipalities will be able to do so. However, in general there are a large number of factors that can improve or hinder interprofessional collaboration (Atkinson et al., 2007), such as focusing on the individual working relationship such as role clarity, an understanding of each other's responsibilities, trust and respect. While other factors are more complex or more difficult to implement and lie on the organizational level (e.g., funding, communication systems, journal systems, legal frameworks). If an organization aims at improving interprofessional collaboration there are many ways to do so. An organization may start with assessing possible challenges to interprofessional collaboration by conducting an employee survey. The scale that measure interprofessional collaboration and that was introduced in paper III assesses a number of barriers and facilitators of collaboration and can provide pointers to potential challenges that need to be addressed.

The TCI assesses team climate for innovativeness. Some may argue that this may not be an important factor to measure in health and social care teams. However, innovation is important in today's health and social care in order to solve the challenges that professionals, leaders, and organizations are confronted with. Organizations and professionals do not just have to deal with maintaining and managing the organization on a day to day basis, but are also confronted with new, unforeseeable tasks or assignments from for example the health authorities. Innovation is important in order to master these challenges. The short version of the TCI is a practical instrument with good scientific grounding that can be used in employee surveys in organizations.

The practical implications of the Job Demands-Resources Model for organizations, management, and leaders are comprehensive. On a very basic level, it is not just important to keep job demands on a low level, especially hindrance demands, but it may be even more important to increase job resources. Job resources are important because they are a stepping stone in the creation of healthy workplaces. Healthy workplaces are those that focus on the needs of the worker, promote well-being and health, and protect workers from health hazards, including an unmanageable level of job demands (Goetzel et al., 2018; Schill, 2017). In accordance with the Job Demands-Resources Model these workplaces benefit from the efforts to promote engagement and positive outcomes not just the professionals. The Job Demands-Resources Model can be used by the organization to conduct and help focus organizational employee surveys by identifying relevant domains. The model may easily be adapted to the local context where additional demands and resources may be added. Employee surveys can indicate possible factors that have to be addressed in the workplace. Two recent evaluations have also indicated that interventions aimed at increasing job crafting behavior among health care professionals have been promising (Gordon et al., 2018). This may be another possibility to a more traditional approach to job redesign were employees were trained in job crafting behavior, which in turn had a positive impact on employee well-being and exhaustion as well as on work performance (Gordon et al., 2018).

Limitations

The users of the services stand at the center of collaborative efforts. Although it is assumed that patients and users will indirectly benefit from employees that are engaged and satisfied with their job, future studies should examine the importance of interprofessional collaboration and teamwork for users of public health and care services by conducting user satisfaction surveys. A lot of research is being conducted at hospitals and has a cross-sectional

design. More studies examining other services and professionals are needed, in addition to longitudinal studies that examine possible causal relationships between the variables.

Furthermore, the current thesis did not discuss how patients or service users could participate or be included in interprofessional collaboration and teamwork. D'Amour et al. (2005) wrote “the literature does not provide a serious attempt to determine how patients could be integrated into the health care team, despite the fact that patients are recognized as the ultimate justification for providing collaborative care” (p. 116). The concept of shared decision-making usually focuses on the work between a patient and a clinician in a medical setting, but it is also relevant to collaboration between professionals or teamwork and the integration of users of public health and care services (Slade, 2017). Shared decision-making can be defined as “a process in which clinicians and patients work together to clarify treatment, management or self-management support goals, sharing information about options and preferred outcomes with the aim of reaching mutual agreement on the best course of action” (Coulter & Collins, 2011, p. 2). Future studies should illustrate or examine how the users of public health and social care services are or could be integrated into interprofessional collaboration and teamwork (D’Ambruso et al., 2016).

Conclusions

Professionals in the health and social care sectors have demanding jobs. They are expected to be qualified and to update their knowledge accordingly, work in a patient-centered way, communicate well, collaborate, and document what they are doing (Boerebach et al., 2014). Job resources are important because they lead to motivation and engagement, buffer the negative effects of job demands, and are a stepping stone in the creation of healthy workplaces. The results of this thesis and the literature point out that interprofessional collaboration and teamwork are job resources that have a positive relationship with important, work-related outcomes. Factors that promote and enhance collaboration and teamwork are

important. Current efforts to increase collaboration and teamwork should focus on the training of new professionals but also on professionals that are already in the job. It is also important that organizations support collaboration by providing resources and systems that promote collaboration. Co-locating child and family services may be one possibility to increase interprofessional collaboration and service quality. Implementing collaborative efforts will among others depend on local needs, policy, and available resources.

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