

The Relationships Between Work Stressors and Organizational Performance in Long-Term Care for Elderly Residents

Laura Pekkarinen

Academic Dissertation



Research Report 171

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Helsinki, December 2007

Laura Pekkarinen

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ABSTRACT

Laura Pekkarinen. The Relationships Between Work Stressors and Organizational Performance in Long-Term Care for Elderly Residents. STAKES, Research Report 171. Helsinki, Finland 2007. ISBN 978-951-33-2053-9

This study investigates the relationships between work stressors and organizational performance in institutional long-term care. Organizational performance was defined as the quality of care provided by long-term care units, and is measured by various clinical quality indicators, such as the use of restraints and psychotropic drugs in the unit, the prevalence of pressure ulcers in the unit, and also the employees' perceptions of the quality of care. The unit's structural factors and resident characteristics were examined as antecedents to both the employees' appraisals of work stressors and the quality of care they provide to the elderly residents. In addition, unit specialization was analyzed in relation to work stressors in terms of time pressure and role conflicts, and to other psychosocial factors (i.e. team climate and organizational commitment). The study was completed by an investigation into the associations of work stressors—such as job demands or time pressure, role ambiguity, resident-related stress, and procedural injustice—to organizational performance. Also the moderating effect of job control in the job demands–organizational performance relationship was examined.

The study encompasses work carried out in two research projects coordinated by the National Research and Development Centre for Welfare and Health (STAKES). Data were first drawn in 1999 from 107 residential-home and health-center inpatient units in which 1194 nursing employees responded to a survey questionnaire on their working conditions and the quality of care (response rate 63%). In addition, the study used data that were drawn in 2002 from 91 residential-home and health-center inpatient units that provided information on their unit resident characteristics, and the quality of care as measured by the Resident Assessment Instrument (RAI). In these units, 977 nursing employees completed a questionnaire on their working conditions (response rate 67%). Longitudinal data were also used on those units that provided data from the year 2001 (66 units, N = 724). All data included information on the unit's structural characteristics as reported by the unit head nurses.

The results showed that large unit size or lower staffing levels were not consistently related to work stressors, whereas the impairments in residents' physical functioning in particular initiated stressful working conditions for employees. However, unit specialization into dementia and psychiatric residents was found to buffer the effects that the resident characteristics had on employee appraisals of work stressors, in that a high proportion of behavioral problems was related to less time pressure and role conflicts for employees in specialized units. Unit

specialization was also related to improved team climates and the organizational commitment of employees.

Work stressors associated with problems in care quality. Time pressure explained most of the differences between units in how the employees perceived the quality of physical and psychosocial care they provide for the residents. A high level of job demands in the unit was also found to be related to some increases in all clinical quality problems. High job control buffered the effects of job demands on the quality of care in terms of the use of restraints on elderly residents. Physical restraint and especially antipsychotic drug use were less prevalent in units that combined both high job demands and high control for employees. In contrast, in high strain units where heavy job demands coincided with a lack of control for employees, quality was poor in terms of the frequent use of physical restraints. In addition, procedural injustice was related to the frequent use of antianxiety of hypnotic drugs for elderly residents.

The findings provided support for the job demands–control theory of Karasek and Theorell (1990), and the theory of organizational justice (Lind & Tyler, 1988), suggesting that it is often the level of job control that determines whether exposure to a stressor will have negative or positive consequences, and that the experienced procedural justice may influence employees' organizational performance. In addition, the differences in how resident characteristics were related to work stressors between organizational settings were explained using the goal setting theory (Locke & Latham, 1990). The relationships between work stressors and the quality of care in the context of long-term care for the elderly residents may also be interpreted from a relational viewpoint that emphasizes the importance of coping in the psychological stress process (Lazarus & Folkman, 1984). Unit specialization into dementia and psychiatric residents may have helped employees to cope with residents' behavioral problems with less associated time pressure and role conflicts. Also, job control and procedural justice may have improved employees' abilities to cope when caring for the elderly residents, resulting in better organizational performance.

Key Words: social and health care services, personnel, nursing working conditions, stress, management, elderly, long-term institutional care, quality of care, organization, resident characteristics, RAI

TIIVISTELMÄ

Laura Pekkarinen. The Relationships Between Work Stressors and Organisational Performance in Long-Term Care for Elderly Residents [Työn stressitekijöiden ja hoidon laadun väliset yhteydet vanhusten pitkäaikaisessa laitoshoidossa]. Stakes, Research Report 171. Helsinki, Finland 2007. ISBN 978-951-33-2053-9

Tutkimuksessa selvitetään työntekijöiden kokemien stressitekijöiden ja työsuorituksen välisiä yhteyksiä vanhusten pitkäaikaisessa laitoshoidossa. Työsuorituksena tarkastellaan sekä hoitohenkilöstön omia kokemuksia hoidon laadusta että osastoilla annetun kliinisen hoidon laatua. Kliinisen hoidon laatua mitattiin esimerkiksi vanhusten liikkumista estävien apuvälineiden ja psykenlääkkeiden käyttöä sekä painehaavojen esiintyvyyttä kuvaavien laatuindikaattoreiden avulla. Tutkimuksessa selvitetään ensin osastojen rakenteellisten tekijöiden – kuten osaston koon ja henkilöstömitoituksen – sekä osastolla hoidettavien vanhusten fyysisen ja kognitiivisen toimintakyvyn ja käytösoireiden yhteyttä työn stressitekijöihin. Näiden lisäksi tarkastellaan sitä, onko osastojen erikoistuminen dementia- ja psykiatriapotilaiden hoitoon yhteydessä työntekijöiden hoitotyössä kokemaan kiireeseen ja rooliristiriitoihin. Erikoistumista tutkitaan myös yhteydessä työryhmien ilmaisiin ja työntekijöiden organisaatioon sitoutumiseen. Tutkimuksessa selvitetään laajasti hoidon laadun yhteyksiä erilaisiin stressitekijöihin, kuten työntekijöiden kokemuksiin kiireestä tai työn vaatimuksista, rooliepäselvyyksistä, asiakastyön raskavuudesta ja päätöksenteon epäoikeudenmukaisuudesta. Lisäksi tutkitaan, vähentävätkö hoitohenkilöstön vaikutusmahdollisuudet kiireen tai työn vaatimusten haitallisia vaikutuksia hoidon laatuun.

Tutkimus toteutettiin Sosiaali- ja terveystieteiden tutkimus- ja kehittämiskeskuksessa (Stakes) osana kahta laajaa tutkimushanketta, jotka käsitelivät vanhusten laitoshoidon työoloja ja hoidon tuloksellisuutta. Ensimmäiseen tutkimukseen osallistui 107 vanhainkoti- tai terveyskeskusosastoa, joissa 1194 (63 %) hoitotyöntekijää vastasi työoloja ja hoidon laatua koskevaan kyselyyn vuonna 1999. Toisen tutkimushankkeen kyselyyn vastasi 977 (67 %) hoitajaa 91 osastolta vanhainkodeissa ja terveyskeskuksissa vuonna 2002. Kyselyaineisto yhdistettiin osastotasolla asukkaiden toimintakykyä ja hoidon laatua selvittävien RAI (Resident Assessment Instrument) -kokonaisarviointien tietoihin. Lisäksi tutkimuksessa käytettiin pitkittäisaineistoa 66 osastolta, joilla RAI -arvioinnit oli kerätty myös edeltävänä vuonna 2001 (N = 724). Kyselytutkimuksissa kerättiin lisäksi osastonhoitajilta tietoja osastojen rakenteellisista tekijöistä.

Tutkimustulokset osoittivat, että hoitotyöntekijät kokivat eniten kiirettä ja rooliristiriitoja silloin, kun hoidettavien asukkaiden fyysinen toimintakyky oli heikko. Osastojen rakenteellisilla tekijöillä, kuten osaston koolla tai henkilöstömitoituksella, ei tässä tutkimuksessa ollut selkeää yhteyttä työn kuormittavuuteen.

Sen sijaan osastojen erikoistuminen oli yhteydessä työn stressitekijöihin siten, että dementia- ja psykiatriapotilaisiin erikoistuneilla osastoilla käytösoireisten asukkaiden hoitaminen oli yhteydessä vähäisempään kiireeseen ja rooliristiriitoihin. Osaston erikoistuminen oli yhteydessä myös työryhmien parempaan ilmapiiriin ja organisaatioon sitoutumiseen.

Työn stressitekijät olivat yhteydessä hoidon laatuun. Kiire selitti suuren osan osastojen välisistä eroista tarkasteltaessa hoitajien kokemuksia hoidon vastaavuudesta asukkaiden fyysisiin ja psykososiaalisiin tarpeisiin. Kohtuuttomat työn vaatimukset olivat yhteydessä myös moniin kliinisiin laatuongelmiin, kuten painehaavojen esiintyvyyteen. Työn vaatimusten yhteys hoidon laatuun oli usein kuitenkin riippuvainen siitä, oliko hoitajilla mahdollisuus vaikuttaa työhönsä. Liikkumista estäviä apuvälineitä käytettiin eniten osastoilla, joilla työntekijät kokivat työnsä kiireiseksi ja yksipuoliseksi eikä heillä ollut mahdollisuuksia vaikuttaa työhönsä. Vastaavasti osastoilla, joilla hoitajilla oli mahdollisuuksia vaikuttaa työhönsä ja käyttää siinä monipuolisesti taitojaan ja kykyjään, vanhusten liikkumista rajoitettiin vähemmän. Näillä osastoilla myös antipsykoottisia lääkkeitä käytettiin asukkailla keskimääräistä vähemmän. Tutkimuksessa havaittiin lisäksi, että päätöksenteon oikeudenmukaisuus on yhteydessä osastojen rauhoittavien ja unilääkkeiden käytön määrään.

Tutkimustulokset tukivat Karasekin ja Theorellin (1990) mallia työn vaatimusten ja vaikutusmahdollisuuksien suhteesta, jonka mukaan työntekijöiden vaikutusmahdollisuudet määrittelevät pitkälti sen, miten kiire tai työn vaatimukset vaikuttavat työsuoritukseen. Tulokset tukivat myös organisaation oikeudenmukaisuuden teorian oletuksia siitä, että työntekijöiden kokemukset organisaation päätöksenteon oikeudenmukaisuudesta ovat yhteydessä työssä suoriutumiseen (Lind & Tyler, 1988). Tavoitteen asettamisen teorian avulla selitettiin sitä, miksi käytösoireisten asukkaiden hoitaminen oli yhteydessä vähäisempään kiireeseen ja rooliristiriitoihin erikoistuneilla osastoilla (Locke & Latham, 1990). Työn stressitekijöiden ja hoidon laadun välisiä yhteyksiä tulkittiin stressiprosessina, jossa keskeisenä on yksilön pyrkimys hallita ympäröiviä stressitekijöitä erilaisin selviytymiskeinoin (coping), esimerkiksi omalla käyttäytymisellään (Lazarus & Folkman, 1984). Vanhusten laitoshoidossa työntekijöiden selviytymiskeinot saattavat stressitilanteessa ilmetä hoidon laatuongelmina. Tutkimustulosten mukaan työntekijöiden selviytymistä hoitotyössä edesauttaa osaltaan osaston erikoistuminen, minkä lisäksi työntekijöiden vaikutusmahdollisuudet työhönsä ja oikeudenmukaiset päätöksentekotavat ovat yhteydessä parempaan hoidon laatuun osastoilla.

Avainsanat: sosiaali- ja terveydenhuollon henkilöstö, työolot, hoitotyö, stressi, johtaminen, ikääntyneet, pitkäaikainen laitoshoido, hoidon laatu, organisaatio, asiakasrakenne, RAI-järjestelmä

SAMMANDRAG

Laura Pekkarinen. The Relationships Between Work Stressors and Organisational Performance in Long-Term Care for Elderly Residents [Sambandet mellan stressfaktorer i arbetet och vårdkvaliteten vid långvarig institutionsvård för äldre]. Stakes, Research Report 171. Helsinki, Finland 2007. ISBN 978-951-33-2053-9

I undersökningen utreds sambandet mellan stressfaktorer i arbetet och de anställdas arbetsprestationer vid långvarig institutionsvård för äldre. Som arbetsprestation analyseras både vårdpersonalens egna erfarenheter av vårdkvaliteten och kvaliteten på den kliniska vården som getts på avdelningarna. Kvaliteten på den kliniska vården mättes exempelvis med hjälp av kvalitetsindikatorer som beskriver användningen av psykofarmaka och hjälpmedel som begränsar de äldres rörlighet samt förekomsten av liggsår. I undersökningen utreds först sambandet mellan strukturella faktorer på avdelningarna – såsom avdelningens storlek och personaldimensionering – samt den fysiska och kognitiva funktionsförmågan jämte beteendestörningar hos de äldre som vårdas på avdelningen. Därtill analyseras huruvida avdelningarnas specialisering på vård av demens- och psykiatripatienter har samband med den brådska och de rollkonflikter som de anställda upplever i vårdarbetet. Specialiseringen undersöks också i samband med atmosfären i arbetsgrupperna och de anställdas engagemang i organisationen. I undersökningen analyseras ingående vårdkvalitetens samband med olika stressfaktorer, såsom de anställdas erfarenheter av brådska eller arbetskrav, oklara roller, tröttsamt kundarbete och orättvisa i beslutsfattandet. Dessutom undersöks huruvida vårdpersonalens påverkansmöjligheter minskar de negativa effekterna av brådskan eller arbetskraven på vårdkvaliteten.

Undersökningen genomfördes vid Forsknings- och utvecklingscentralen för social- och hälsovården (Stakes) som en del av två omfattande forskningsprojekt som behandlade arbetsmiljön vid institutionsvård för äldre och vårdutfallet. I den första undersökningen år 1999 deltog 107 avdelningar vid ålderdomshem eller hälsovårdscentraler, varvid 1 194 (63 %) vårdanställda svarade på en enkät om arbetsmiljön och vårdkvaliteten. På enkäten inom ramen för det andra forskningsprojektet år 2002 svarade 977 (67 %) vårdare på 91 avdelningar vid ålderdomshem och hälsovårdscentraler. Enkätmaterialen förenades på avdelningsnivå med de uppgifter om klienternas funktionsförmåga och vårdkvaliteten som erhållits utifrån RAI-bedömningar (Resident Assessment Instrument). Därtill användes i undersökningen longitudinellt material från 66 avdelningar, där RAI-bedömningar också insamlats året innan, dvs. år 2001 (N = 724). I enkäterna insamlades också avdelningsföreståndarna uppgifter om strukturella faktorer på avdelningarna.

Undersökningens resultat visade att vårdpersonalen upplevde mest brådska och rollkonflikter när klienternas fysiska funktionsförmåga var svag. I denna undersökning framkom inget klart samband mellan de strukturella faktorerna på av-

delningarna, såsom avdelningens storlek eller personaldimensionering, och belastningen i arbetet. Däremot visade sig avdelningarnas specialisering på demens- och psykiatripatienter bidra till att minska effekterna av stressfaktorer i arbetet sålunda att vården av klienter med beteendestörningar var relaterad med mindre stress och rollkonflikter. Avdelningens specialisering hade också samband med en bättre atmosfär i arbetsgrupperna och de anställdas engagemang i organisationen.

Stressfaktorerna i arbetet hade samband med vårdkvaliteten. Vid analysen av vårdarnas erfarenheter av huruvida vården motsvarar klienternas fysiska och psykosociala behov förklarade brådskan en stor del av skillnaderna mellan avdelningarna. Oskäliga krav i arbetet hade också samband med många kliniska kvalitetsproblem, såsom förekomsten av trycksår. Sambandet mellan arbetskraven och vårdkvaliteten var emellertid ofta beroende av i vilken mån vårdarna hade möjlighet att inverka på sitt arbete. Redskap som hindrar rörligheten användes mest på sådana avdelningar där de anställda upplevde sitt arbete som brådskande och ensidigt och de inte hade möjlighet att inverka på sitt arbete. På motsvarande sätt hindrades de äldres rörlighet i mindre omfattning på sådana avdelningar där vårdarna hade möjlighet att inverka på sitt arbete och att mångsidigt använda sina kunskaper och färdigheter. På dessa avdelningar användes också antipsykotiska läkemedel mindre än i genomsnitt. I undersökningen framkom därtill att ett rättvist beslutsfattande har samband med användningen av lugnande och sömnmedicin på avdelningarna.

Forskningsresultaten stöder Karaseks och Theorells (1990) modell om förhållandet mellan arbetskraven och påverkansmöjligheterna, enligt vilken de anställdas påverkansmöjligheter i stor utsträckning definierar hur brådskan eller arbetskraven inverkar på arbetsprestationen. Resultaten stödde också antagandena enligt teorin om en rättvis organisation att de anställdas erfarenheter av ett rättvist beslutsfattande i organisationen har samband med prestationerna i arbetet (Lind & Tyler, 1988). Med hjälp av målsättningsteorin förklarade man varför vården av klienter med beteendestörningar hade samband med mindre brådskan och rollkonflikter på de specialiserade avdelningarna (Locke & Latham, 1990). Sambandet mellan stressfaktorerna i arbetet och vårdkvaliteten tolkades som en stressprocess, där det centrala är individens strävan efter att hantera stressfaktorer i omgivningen med olika copingmetoder, t.ex. genom sitt eget beteende (Lazarus & Folkman, 1984). Vid institutionsvård för äldre kan de anställdas copingmetoder i en stresssituation uppdagas som vårdrelaterade kvalitetsproblem. Enligt forskningsresultaten främjar specialiseringen för sin del de anställdas förmåga att reda sig i vårdarbetet, varpå därtill de anställdas påverkansmöjligheter i arbetet och rättvisa beslutsmetoder har samband med en bättre vårdkvalitet på avdelningarna.

Nyckelord: personal inom social- och hälsovården, arbetsmiljö, vårdarbete, stress, ledning, äldre, långvarig institutionsvård, vårdkvalitet, organisation, klientel, RAI-systemet

LIST OF ORIGINAL ARTICLES

The results of this study have been published in the following original articles that are referred to by Roman numerals (I–V). Permissions to reprint the original articles have been granted by: the GSA (I), John Wiley & Sons Inc. (II), Rainer Hampp Verlag (III), and Lippincott Williams & Wilkins (IV).

- I Pekkarinen, L., Sinervo, T., Perälä, M-L., & Elovainio, M. 2004. Work stressors and the quality of life in long-term care units. *The Gerontologist*, 44, 633–643.
- II Pekkarinen, L., Sinervo, T., Elovainio, M., Noro, A., Finne-Soveri, H., & Leskinen, E. 2006. Resident care needs and work stressors in special care units versus non-specialized long-term care units. *Research in Nursing & Health*, 29, 465–476.
- III Pekkarinen, L., Sinervo, T., Elovainio, M., Noro, A., & Finne-Soveri, H. 2007. Nursing turnover intentions in relation to the contextual factors, team climate and organisational commitment in long-term care units. In Richter, P., Peiró, J. M., & Schaufeli, W. B. (Eds.). *Psychosocial resources in health care systems*. Organizational Psychology and Health Care, Vol. 5, 39–49. München, Mering: Rainer Hampp Verlag.
- IV Pekkarinen, L., Elovainio, M., Sinervo, T., Finne-Soveri H., & Noro, A. 2006. Nursing working conditions in relation to restraint practices in long-term care units. *Medical Care*, 44, 1114–1120.
- V Pekkarinen, L., Sinervo, T., Elovainio, M., Noro, A., & Finne-Soveri, H. 2007. Do nurse time pressure and unfair management increase the prevalence of drug use and pressure ulcers in long-term care units? *Submitted manuscript*.

Introduction

The relative growth of the aging population and their related health problems have expanded the need for multiple forms of long-term care services. In Finland, the focus has shifted from institutional care to home care and sheltered housing facilities that provide services for elderly people who are often independent in their activities of daily living and have some symptoms of dementia (Official Statistics of Finland, 2007). The oldest and frailest persons are most often admitted to long-term care facilities such as residential homes and health-center inpatient units because of their functional decline at the mean age of 82 years (Official Statistics of Finland, 2007). Approximately half of the residents in long-term care facilities are dependent in their daily activities, and an estimated 60% have been diagnosed with some form of dementia (Official Statistics of Finland, 2007). Every third resident exhibits behavioral problems such as wandering or resistance to care (Noro, Finne-Soveri, Björkgren, & Vähäkangas, 2005).

Despite the increasing severity of residents' physical and cognitive impairments, there have been few improvements in the level of staffing in residential homes and health-center inpatient units (Official Statistics of Finland, 2007; Voutilainen, 2007). On average, there have been some 0.60 nursing employees caring for each elderly person residing in long-term care facilities (J. Laine, 2005). However, staffing is often reported to be lower especially on weekends, when the average staffing level has been 0.35 (J. Laine, 2005). The staffing levels fall below the nationally recommended staffing level of 0.80 (Voutilainen, 2007). The structural and resident characteristics initiate potentially stressful working conditions (i.e. work stressors) for nursing employees in long-term care facilities. Employees have reported more work stressors in residential homes and health-center inpatient units than in other social and health care settings (M. Laine et al., 2006). As a result, employees are deeply concerned about their limited ability to provide good quality care for their residents (M. Laine et al., 2006). Quality problems have been detected, for example, in terms of the frequent use of psychotropic drugs among the long-term care residents (Noro et al., 2005).

The most common stressor is heavy job demands, which is further exacerbated by reduced possibilities for employees to influence their work (M. Laine et al., 2006). Poor management procedures have also been found to be common in long-term care facilities (M. Laine et al., 2006). These stressors have been shown

to predict various health problems (for reviews, see Belkic, Landsbergis, Schnall, & Baker, 2004; Colquitt, Conlon, Wesson, Porter, & Ng, 2001; De Lange, Taris, Kompier, Houtman, & Bongers, 2003; Kivimäki et al., 2006; Schnall, Landsbergis, & Baker, 1994; Theorell & Karasek, 1996; Van der Doef & Maes, 1999; see also Kivimäki et al., 2005). However, little is known about the influence of work stressors on the organizational performance, in terms of the quality of care provided by nursing employees. Long-term care facilities provide a context in which to study the quality of care that is derived from the complex associations between the structural and resident characteristics, and the psychosocial working conditions as experienced by the employees.

Framework for nursing care quality

Nurses are the primary providers of daily care for patients, and their role extends over medical care delivery to include components such as social and environmental support for the patients. This was first noted by Florence Nightingale, who as early as 1860 emphasized the multifaceted role of nurses in care delivery (Nightingale, 1860). The relationship between the nurse and patient is also scrutinized in many nursing models providing nurses with a conceptual framework for assessing and planning their work (for example, see Orem, 2005; Roper, Logan, & Tierney, 2002). The provision of not only medical and nursing care, but also social and environmental support for the residents has made quality of care a multidimensional concept that is difficult to capture in the long-term care organizations (Davis, 1991; Zimmerman, 2003). Quality can be defined as a continuous effort by the care providers to meet “the needs and expectations of the patients” across a wide variety of health care settings (Laffel & Blumenthal, 1989). Donabedian (1980; 1988) has disentangled the quality of care in his now-classic framework of structure, process, and outcome that considers care quality to combine components that relate to the organizational characteristics, care delivery processes, and the effects that these have on patient outcomes. Donabedian (1980; 1988) further emphasized the importance of assessing the care process that covers the things done to and for the patients by the care providers, as an antecedent of patient outcomes. Because patients’ care needs and their communication form the basis for care delivery, it is not only the technical performance or effectiveness of the care providers, but also the interaction between them and the patients that largely determines the quality of care (Donabedian, 1988). A prerequisite for good care processes is the nurses’ ability to detect the individual care needs of residents and to respond to those needs in an individualized pattern; good care is manifested, for example, in the appropriate use of psychotropic drugs or physical restraints, or in the low prevalence of pressure ulcers among the residents in the unit. Good care

processes may also become apparent in nurses' own perceptions of the adequacy of care they provide for the elderly residents.

Despite the labor-intensive nature of care work, research has often overlooked the affects and behaviors of nursing employees as mediators between structure and resident outcomes. Psychosocial factors such as communication, coordination, or leadership, and their effects on climate or culture have often been ignored as determinants of care quality (Sheridan, White, & Fairchild, 1992; Zinn & Mor, 1998). In addition, only a few investigators have examined the influence that the employees' experience of work stress might have on the care processes and outcomes (Hannan, Norman, & Redfern, 2001). Therefore, the current research literature provides limited tools for understanding the ways in which psychosocial factors such as work stressors or leadership issues might affect the quality of care (Cohen-Mansfield, 1995). Theoretical explanations can be sought from the theories of organizational psychology that try to evaluate organizational contexts, employees' experiences, and their social relationships on the basis of the behavior they evoke.

Theories on stress process and performance

In terms of organizational psychology, the quality of nursing care processes and outcomes (i.e. quality of care) in long-term care units can be defined as the organizational performance of those units. A parallel concept at the individual level is the job performance, which generally refers to those individual employee behaviors that contribute to organizational goals, and that are often thought to be applicable to all jobs (Campbell, 1990; Jex, 1998; Viswesvaran, Schmidt, & Ones, 2005). Organizational performance is dependent on the degree to which employee behaviors support organizational goals, but it may also be influenced by factors other than those that affect individual job performance (Ostroff, 1992, 1993). Akin to its individual-level counterpart, organizational performance has been conceptualized in many ways, depending on its organizational context (Jex, 1998). The organizational performance in health care settings can be defined as the care providers' actions and procedures that aim at meeting the care needs of the patients which is the main goal of these organizations. In nursing care, particularly the interpersonal aspects of performance—such as the employees' tolerance of others, cooperation, or sensitivity—have been found to be important, and these have been sensitive to employee stress (Motowidlo, Packard, & Manning, 1986). Although the empirical evidence for the negative relationship between employee stress and their individual job performance has been limited (Jex, 1998; Sullivan & Bhagat, 1992), some investigators suggest that stressors may erode performance at the level of the organization, possibly by reducing employees' cooperative behavior (Jones et al., 1988; Ostroff, 1992; Ryan, Schmit, & Johnson, 1996).

Scientific investigation of stress begun in 1956 by Hans Selye whose work (Selye, 1956) cleared the way for the organizational stress research conducted later by the Michigan Group in the 1960s (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Since then, increasing numbers of scholarly work have summarized stress research (Beehr & Newman, 1978; Levi et al., 2000). Today, organizational psychology investigates contemporary working conditions, which rarely constitute acute life-threatening situations, but more often induce chronic psychosocial stress on employees across a wide range of different occupations. Stress can be defined in terms of the overall process by which stressors (i.e. stressful working conditions) require negative responses by employees manifested in their psychological, physical, or behavioral strain (Cooper, 2000; Levi et al., 2000). It is widely accepted that cognitive appraisal of the stressful environment is a central component in the stress process (Kahn et al., 1964; Katz & Kahn, 1978; Lazarus, 1966). However, conceptualizations of psychosocial work stress differ in respect to the emphasis put on either the situational characteristics of the work environment or the individual cognitive interpretation of the situation. The former refers to a stimulus approach that is adopted also in the job demands–control -model introduced by Karasek (1979). The latter includes relational models of stress process, including the theory of goal setting (Locke & Latham, 1990) and that of procedural justice in which the psychological reactions to environments are scrutinized (Lind & Tyler, 1988). Further, a more transactional approach to the stress process in terms of coping is introduced by Lazarus and Folkman (1984). Here these stress theories are presented in relation to employees' affect and performance, beginning with an introduction to objective context in which the stress process takes place.

Objective context

Objective environment and its situational constraints are included in most stress theories as important determinants of stressor appraisal and strain (Katz & Kahn, 1978). The work stress process is situated in an organizational setting that can influence both the stressor appraisals and their outcomes. One important antecedent to employee stress in an organization has been its level of staffing. Organization-driven reductions in the number of employees (i.e. downsizing) have been related to increased work stressors and health problems among the employees (Kivimäki, Vahtera, Pentti, & Ferrie, 2000; Vahtera, Kivimäki, & Pentti, 1997). Such organizational environments may also constrain employees' performance, but there is little empirical evidence on this relationship (Jex, 1998).

It is important that the objective environments are distinguished from the employees' perceptions of them, which may vary from one individual to another (Parasuraman & Alutto, 1981). Research has, however, relied mainly on employee self-reported reflections of the objective stressful working conditions, and inferred

situational influences from residual variance (James, Demaree, Mulaik, & Ladd, 1992; Mowday & Sutton, 1993; Spector, Dwyer, & Jex, 1988). The strength and the causality of the relationships between job stressors and performance are open to question when employee self-reports are used to evaluate both the antecedents and strain outcomes of the stress process (P. H. Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Spector et al., 1988). In addition to self-reports, objective data on working conditions are suggested as improving the assessment of causality (Hurrell, Nelson, & Simmons, 1998; Sullivan & Bhagat, 1992).

Social environments and their constraints: job demands and job control

The situational characteristics and their constraints outside the individual are key elements in the job redesign tradition initiated by Hackman and Oldham (1976; 1980). Their theory defines five strict job characteristics of skill variety, task identity, task significance, autonomy, and feedback from the job that produce positive outcomes such as improved motivation and job performance. The theory emphasizes the role of autonomy that gives an employee a sense of personal responsibility for the results of the work. Following this tradition, Karasek (1979) introduced one of the most influential models of work stress: the job demands–control model that focused not just on the direct effects of specific job characteristics, but also on the combinations of two psychosocial job characteristics in terms of job demands and job control, and their effects on employee health and other outcomes. Since the introduction of Karasek’s job demands–control model in 1979, it has become one of the most widely tested models concerning psychosocial working conditions and their outcomes, especially in relation to employee health (Schnall, Belkic, Landsbergis, & Baker, 2000).

The model specifies two independent inputs influencing employee strain-related and other outcomes: the job demands and control over the working conditions. The former refers to psychological stresses, such as time pressure and having too much work. The latter involves employees’ skill usage and authority to make decisions concerning their own activities (job decision latitude). It is the level of employee’s job control that determines whether exposure to a stressor will have negative or positive consequences. The ‘job demands–control’ model proposes that strain-related health problems occur in high strain situations where high job demands coincide with few possibilities for employees to control their working conditions, as compared to low strain situations where there are less job demands (Karasek, 1979). It is also suggested that the accumulated psychological strain that occurs in such a strain situation will increase employee’s anxiety level that, in turn, will inhibit learning (Karasek & Theorell, 1990).

Karasek and Theorell (1990) hypothesize further that when employees have the opportunity for taking responsibility through participatory decision-making

(i.e. high job control), demands are seen as challenges. This type of active situation that combines high job demands with possibilities for skill usage and decision making will be associated with increased learning and motivation, and with more effective performance, as compared to passive work where employees face neither job demands nor control over their working conditions. In their dynamic formulation of the model, Karasek and Theorell (1990) attempt to link the person and the environment by introducing two personal-response orientations that explain learning-related outcomes: accumulated strain and feeling of mastery. Their model proposes that accumulated psychological strain will increase employee's anxiety level that, in turn, will inhibit learning. On the other hand, active learning situations will develop employees' feeling of mastery, which will inhibit their strain perceptions and thus increase their success in coping (Karasek & Theorell, 1990).

The learning-related outcomes of this dynamic model have not, however, been studied extensively (for reviews, see De Jonge & Kompier, 1997; Taris, Kompier, De Lange, Schaufeli, & Schreurs, 2003). In addition, as the model is based on the assumption that both the job demands and job control can be determined directly by the organization of work (Karasek, 1979), it often fails to explain what actually happens in a stressful situation, and how the employees cope in these situations. Coping is suggested to enhance the explanatory power of the job demands–control model (Daniels, 1999; De Rijk, Le Blanc, Schaufeli, & Jonge, 1998). Coping is a key element in psychological stress: It is defined from a more relational perspective as “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources” (Lazarus & Folkman, 1984, p. 19). Coping can be used as synonymous with control when referring to cognitive or behavioral efforts to manage the stressful demands of the person–environment relationship (Lazarus & Folkman, 1984). Lazarus and Folkman (1984) emphasize that coping does not refer to any individual trait or style but rather it is a process that is highly dependent on the environment. Coping can be used to either alleviate the emotional distress or to manage the problem causing distress. Coping responses have been classified as emotion-focused or problem-focused, which may include not only cognitive, but also behavioral strategies to alleviate the emotional distress (Lazarus & Folkman, 1984). The emotion-focused coping refers to behavior that is focused on the emotional response rather than on directly managing the work stressor, such as staying home from work. Problem-focused coping, on the other hand, involves direct behavioral acts to reduce the work stressors. These behavioral coping acts are often aimed at changing the environmental pressures. Both emotion-focused and problem-focused behavioral coping responses may be counterproductive so that they interfere with the organizational efficiency. According to Lazarus and Folkman (1984), persons' appraisals on control can influence both their evaluations of the threat and the eventual coping strategies in a stressful situation.

Person–environment relationship: goal-setting

Coping relies on the employee's ability to understand the causes of significant events in the job setting and on the possibility for the employee to control those events. A related model that has inspired much stress research is the goal-setting theory that emphasizes the motivational aspects of the person–environment relationship (Locke & Latham, 1990). The theory refers to internal goals that provide a person with a cognitive representation of the desired outcome (Bandura, 1986; Locke & Latham, 1990). Goals can be enhanced through external feedback by which individual comes to understand the causes and pathways of work processes. The clearer the goals, the more structured the action will be, and the less the psychological energy needed to cope with the work situation (Newell & Simon, 1972; Sawyer, 1992). Clear and specific goals, regardless of their difficulty, help to reduce role conflict and role ambiguity (Locke & Latham, 1990). At a group level, goals provide a common end towards which employees can direct their efforts.

Goal setting may also contribute to the way that the employees perceive their organizational climate or team climate. In an organization with accepted and clear goals employees may perceive the organizational climate more positively and consequently, they may be more committed to the organizational goals (Brown & Leigh, 1996). In such an organization, employees may also experience less stress (Elovainio, Kivimäki, Eccles, & Sinervo, 2002; Mathieu & Zajac, 1990). West (1990) emphasized the importance of accepted and clear goals in his theory on innovative team climate, which also included three other factors: participatory safety, task orientation, and support for innovation. Although related research studies are not extensive in number, it can be hypothesised that employees are also more willing to commit to organizations where the key attributes of team performance function well. Allen and Meyer (1996) suggested that employees' organizational commitment in terms of emotional attachment to, identification with, and involvement in the organization relates not only to the organizational characteristics, but also to group processes such as psychological safety, fair treatment and feedback that make the employees feel psychologically comfortable in their organisation. These are group processes that characterize innovative team climates (M. A. West, 1990).

Psychological reactions to organizational decision-making: procedural justice

Stress process has been modeled from a more organizational perspective that focuses on the fairness of the procedures that an employee faces within the organization. Just and fair treatment is important for people who in general are not driven only by their personal gain, but rather are often willing to put their self-inter-

est aside in a group that provides them with a sense of self-worth and identity (Cropanzano, Byrne, Bobocel, & Rupp, 2001; Lind & Tyler, 1988). Fair treatment helps group members to predict and manage the processes within the group, and it strengthens the favorable effects of goal setting. A concept that captures the psychological reactions to social processes is that of procedural justice (Lind & Tyler, 1988; Thibaut & Walker, 1975). Procedural justice refers to the fairness of the process by which outcomes are determined (Lind & Tyler, 1988). Fairness judgments are determined by cognitive processes by which an individual evaluates procedures on the basis of their consistency, bias suppression, accuracy, correctability, representativeness, and ethicality (Leventhal, 1976). It is proposed that employees will respond to fair treatment by behaving in ways that benefit the organization, resulting in improved job performance (Moorman, 1991). Procedural justice may also improve job performance by enhancing the acceptance of common goals in organizations (Lind & Tyler, 1988). Instead, lack of fair treatment (i.e. procedural injustice) may lead to a deterioration in job performance (Colquitt et al., 2001).

Procedural justice has also been treated as a mediating component in the stress process through its close connection to job control, which has been used as a major psychosocial predictor of employee stress-related health (Bosma, Stansfeld, & Marmot, 1998; Elovainio, Kivimäki, & Helkama, 2001; Karasek, 1979). Lind and Tyler (1988) conclude that procedural justice is strongly influenced by the employees' possibility to participate in the decision-making processes through process control or voice (see also Thibaut & Walker, 1975). Their definition of control encompasses that of Karasek and Theorell (1990) which has also been found in empirical studies (Elovainio et al., 2001). Procedural justice that has implications on persons' sense of self-worth and identity may present another appraisal or belief that moderates the cognitive appraisal process and coping behavior in a stressful situation (Lazarus, 1991). This may allow resources and motivation for more effective performance (Tomaka & Blascovich, 1994).

Work stressors and organizational performance in the long-term care context

Objective context and work stressors

Long-term care employees have been found to report more work stressors such as high job demands and low job control than those working in hospital settings (Van den Berg, Landeweerd, Tiummers, & Van Merode, 2006). A line of research has examined the ways in which long-term care environments, as characterized by their structural and resident characteristics, create stress for those who work in these settings (for reviews, see Cohen-Mansfield, 1995; Hannan et al., 2001). Some

investigators suggest that inadequate staffing levels lead to increased time pressure and role conflicts for employees (Castle & Engberg, 2006). More often, however, stressors are related to the elderly residents' characteristics. Pearlin and his colleagues (1990) introduced one of the most influential models according to which the caregiver role conflicts emerge as a result of elderly residents' impairments in cognition, function, and behavior, particularly in the care of residents with dementia. Also, time pressure is related to resident impairments in informal settings (Yates, Tennstedt, & Chang, 1999). There, a resident's dependence on assistance in activities of daily living has been associated with caregiver burden (Newens, Forster, & Kay, 1995).

Although the majority of research has been conducted among informal caregivers, the relationship between elderly resident characteristics and caregiver stress is likely to be relevant in long-term facilities (Cohen-Mansfield, 1995). Chappell and Novak (1994; Novak & Chappell, 1994) found, for example, that impairments in residents' cognition and problematic behavior were related to employee stress in long-term care facilities. Residents with dementia have fewer physical health comorbidities, but they suffer from more severe cognitive impairments, they need more extensive assistance with their activities of daily living, and they exhibit more behavioral problems compared to those without dementia (Magaziner, Zimmerman, Fox, & Burns, 1998). Caring for residents with dementia has been related to high levels of work stress and distress among nursing employees, particularly when residents exhibit disturbing behavior (Rodney, 2000; Wood et al., 1999).

Organization of work: unit specialization and work stressors

The organization of work could influence the stressfulness of resident work. Care for dementia residents has been related to increased job demands for employees particularly in units where dementia residents are integrated with other residents whose care needs may be different (Morgan, Semchuk, Stewart, & D'Arcy, 2002). Some investigators have found the specialization of a unit into dementia care reduces employee stress associated with caring for dementia residents (Mobily, Maas, Buckwalter, & Kelley, 1992). Employees in specialized units have been less distressed, particularly with residents' disruptive behavior, despite high exposure to these behaviors (Middleton, Stewart, & Richardson, 1999; Morgan, Stewart, D'Arcy, Forbes, & Lawson, 2005). It has been suggested that focusing the care for dementia residents helps in implementing dementia care routines, and thus it reduces the job demands experienced by employees (Morgan et al., 2002). Further, unit specialization has been shown to improve employees' understanding of causes and pathways of work processes, as a result of which employees have been more satisfied with their work (Song, Daly, Rudy, Douglas, & Dyer, 1997).

Quality of care

The quality of long-term care is considered to be dependent on the performance of nursing employees. Quality can be assessed with clinical assessment tools, such as the Resident Assessment Instrument (RAI), which provide information on employees' actions and care procedures in response to the care needs of the elderly residents (Zimmerman, 2003). These quality indicators describe, for example, the use of psychotropic drugs (e.g. antipsychotics, antianxiety or hypnotic drugs) or physical restraints, or the prevalence of pressure ulcers in long-term care facilities (Noro et al., 2005; Zimmerman et al., 1995). Their high prevalence may indicate inappropriate care procedures, and create potential problems in care quality (Zimmerman, 2003). For example, frequent use of psychotropic drugs may indicate that these drugs are used inappropriately to restrain residents' behaviour rather than to treat disorder (McGrath & Jackson, 1996). In addition to clinical quality indicators, measures on other physical and psychosocial aspects of care quality that relate to residents' quality of life are important domains of long-term care quality (Kane & Kane, 2000).

The clinical quality in particular has been studied in relation to structural and resident characteristics of the long-term care facilities (for reviews, see Bostick, Rantz, Flesner, & Riggs, 2006; Davis, 1991). Findings on the influence of structural characteristics such as unit size or staffing level on quality outcomes as measured by the RAI-MDS or other clinical quality instruments have not been conclusive (Davis, 1991; Zinn & Mor, 1998). However, some quality outcomes such as the use of antianxiety or hypnotic drugs depend more on the level of nurse staffing than the on the resident characteristics (Schmidt, Claesson, Westerholm, & Svarstad, 1998; Svarstad & Mount, 2001). Inadequate nurse staffing has also been found to be related to high use of antipsychotics (Hughes, Lapane, & Mor, 2000), physical restraints (Castle, Fogel, & Mor, 1997; Phillips et al., 1996), and to the prevalence of pressure ulcers among the residents (Bostick, 2004; Horn, Buerhaus, Bergstrom, & Smout, 2005; Schnelle et al., 2004). The levels of restraint use are also hypothesized to be lower in facilities with fewer beds, but investigators have not been able find consistent associations between facility size and the quality indicators such as the use of physical restraints (Karlsson, Bucht, Eriksson, & Sandman, 2001; Phillips et al., 1996) and antipsychotic medications (Hughes et al., 2000). Instead, most research evidence exists on the relationships between resident characteristics and quality outcomes. Residents with cognitive impairments and related behavioral problems are most likely to be restrained either physically (Castle et al., 1997; Karlsson, Bucht, Eriksson, & Sandman, 1996; Phillips et al., 1996) or with antipsychotic medications (Lee et al., 2004; Pitkälä, Laurila, Strandberg, & Tilvis, 2004; Ruths, Straand, & Nygaard, 2001). Physical restraints also are used among residents with poor physical functioning (Castle et al., 1997; Karlsson et al., 1996;

Phillips et al., 1996), among whom the prevalence of pressure ulcers is high (Berlowitz et al., 1996).

Relationships between work stressors and quality of care

The care needs of the elderly residents largely determine the actions and care procedures that are taken by the nursing employees in meeting those needs. Thus, it is important to account for the resident characteristics that strongly influence the quality of care provided by the nursing employees. However, even after adjusting for resident or structural characteristics, variations exist across long-term care facilities in their use of psychotropic drugs (Ruths et al., 2001; Svarstad, Mount, & Bigelow, 2001), and physical restraints (Phillips et al., 1996), and in the prevalence of pressure ulcers (Bours, Halfens, Abu-Saad, & Grol, 2002; Coleman, Martau, Lin, & Kramer, 2002). Recent developments support a multidimensional evaluation of long-term care quality that includes not only sufficient structural and resident characteristics, but also supportive and professional working environments for nursing employees (Hawes et al., 1997; Rantz et al., 2001; Saliba & Schnelle, 2002). Most of the research evidence that exists relates to the favorable effects of multidisciplinary teamwork on the quality of care, as indicated by reduced psychotropics use (Schmidt, Claesson, Westerholm, Nilsson, & Svarstad, 1998; Schmidt & Svarstad, 2002; Svarstad et al., 2001) and pressure ulcers in long-term care settings (Barry, Brannon, & Mor, 2005; Berlowitz et al., 2003; Davies & Nolan, 1998). Further, Karlsson and his colleagues (2001) found that the use of physical restraints was more common in long-term care units where employees suffered from work stressors such as excessive workload and poor control over their work. Investigators also have found more negative interaction between residents and employees when employees have little possibilities for decision-making (Jenkins & Allen, 1998). In addition to these stressors, poor management has been related to lower job morale and care quality (R. A. Anderson, Issel, & McDaniel, 2003; Schaefer & Moos, 1996; Sheridan et al., 1992). However, there is still very little research evidence on the relationships between work stressors such as time pressure, role conflicts or procedural injustice, and the care quality in the long-term care context (Cohen-Mansfield, 1995; Hannan et al., 2001). In addition, only a few studies have used a comprehensive clinical assessment tool such as the RAI system in assessing the quality of care as an outcome. Most research findings share methodological limitations imposed by their reliance on self-report and individual-level data. Resident characteristics and quality outcomes often are assessed by the same employee whose stressors are measured. The causality of these relationships is open to question (Spector et al., 1988). Furthermore, researchers rarely account for the dependence between how individual employees and their colleagues within the work unit perceive and react to the shared working environment (Bliese & Jex, 1999, 2002; Kozlowski & Klein, 2000).

Evidence from hospital settings

More research has been conducted on the stress process in hospital settings (Cohen-Mansfield, 1995). In hospitals, nurses' work stressors such as high workload or job demands, low job control, or poor management have been related to lower patient satisfaction (Leiter, Harvie, & Frizzell, 1998; McNeese-Smith, 1999; Vahey, Aiken, Sloane, Clarke, & Vargas, 2004), poorer quality (Aiken, Clarke, & Sloane, 2002; Jones et al., 1988; Leveck & Jones, 1996; Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2002), and finally, to patient mortality (Tarnow-Mordi, Hau, Warden, & Shearer, 2000; for a review, see Tourangeau, Cranley, & Jeffs, 2006). Based on the existing research findings, a model has been proposed of the organizational impacts on the quality of patient care which includes factors at both the individual and organizational levels of analysis (E. West, 2001). In this model, employee appraisals of work stressors are treated as antecedents to both clinical quality indicators and other measures of care quality that are adjusted for the structural and resident characteristics. Key elements in the model are the employee job control and their participation in the organizational decision-making that both promote positive patient outcomes. Research on these relationships in hospital settings has, however, often lacked theories that would explain the mechanisms by which the psychosocial factors influence patient outcomes (E. West, 2001).

The present study

Organizational stress theories provided a framework for the present study to examine the psychosocial antecedents to organizational performance in the context of long-term care. The primary aim of this study was to find out whether long-term care units perform poorly when their employees perceive their work as stressful. Organizational performance was studied in terms of the quality of care provided by the long-term care units as indicated by various clinical quality indicators describing, for example, the use of restraints and drugs, and the pressure ulcer prevalence in the unit. Also the employees' perceptions of the quality of care were used as an indication of individual job performance. Following Donabedian's framework (1980; 1988), the objective contexts manifested in the unit structural and resident characteristics were closely examined both in relation to the quality of care and the appraised work stressors of employees. The organization of work in terms of unit specialization was analyzed in relation to employee appraisals of time pressure and role conflicts, and also to other psychosocial factors (i.e. team climate and organizational commitment). Finally, the study investigated the relationships between the quality of care and the employee appraisals of work

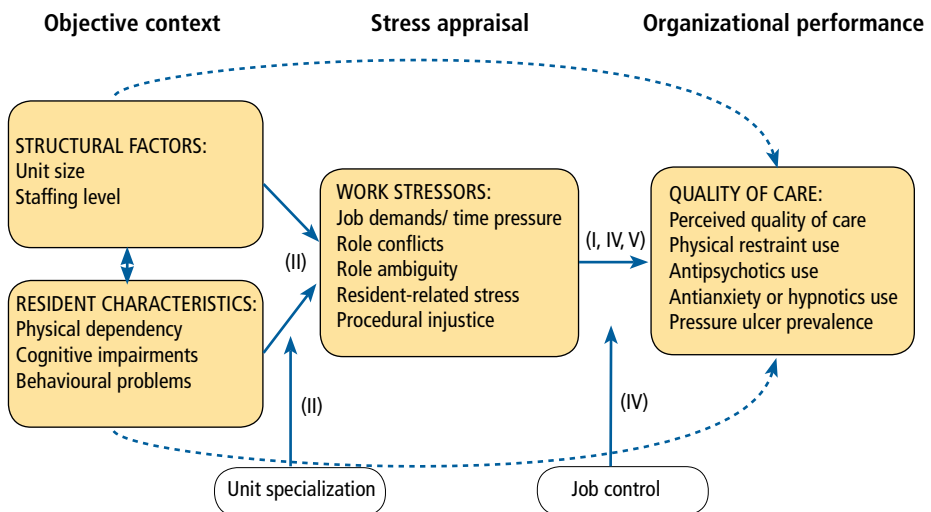


FIGURE 1. Framework of the study

stressors in terms of job demands or time pressure, role ambiguity, resident-related stress, and procedural injustice, while adjusting for the relevant structural and resident characteristics. An investigation was also made on the moderating effect of job control in the job demands–organizational performance relationship.

Study aims

The aim of this study was to disentangle the relationships between work stressors and organizational performance in the context of long-term care. The specific study questions were as follows:

- How are the appraised work stressors related to the objective context as indicated by the unit structural and resident characteristics (II)?
- How does reorganizing the objective context in terms of unit specialization into dementia and psychiatric care influence the relationships between resident characteristics and work stressors (II)?
- How is the unit specialization related to other outcomes such as team climate and employees' organizational commitment (III)?
- How are the work stressors (i.e. time pressure, role ambiguity, and resident-related stress) related to job performance as indicated by the individual employee assessments on the quality of care provided to the elderly residents (I)?
- How are the employee work stressors (i.e. job demands, procedural injustice) related to the differences in organizational performance as indicated by the clinical quality of care provided by the long-term care units to their elderly residents (IV, V)?
- Does the unit job control moderate the effect of job demands on organizational performance (IV)?

Design and methods

Participants and procedures

This doctoral thesis consists of five studies that were conducted within two research projects coordinated by the National Research and Development Centre for Welfare and Health (STAKES): (1) “*Towards an integrated evaluation system in elderly care*” (I and II) and (2) “*Building trust in organizations: organizational justice, team climate and job involvement as determinants of quality and effectiveness in nursing homes*” (III, IV, and V).

Study I used a representative sample of Finnish long-term care facilities that was formed by means of cluster sampling in early 1999 within a preceding research project that focused on the quality issues in institutional long-term care (see Vaarama, Kainulainen, Perälä, & Sinervo, 1999). First, a stratified sample of facilities was selected according to the facility type from the Finnish Municipal Database for Social and Health Statistics. A random sample of facilities was then selected from each facility type and all the residents and employees in the selected facilities formed the sample of the study. Also relatives of the elderly residents were enrolled in the study.

Residential homes and health centers were included in the final data sample I that consisted of 107 units. In these units, survey data on nursing working conditions and care quality were drawn from 1194 nursing employees who completed the questionnaire (response rate 63%). Of the respondents, 53% were licensed practical nurses, 28% were registered nurses, 14% were nursing assistants, and 5% were head nurses. The respondents' mean age was 43 (SD = 9.0) years, and the vast majority of them were women (98%). The majority worked full-time (92%). Information was also collected on the unit's structural characteristics (number of resident beds and nursing staff per resident in the units) as reported by the head nurses in the units. In addition, relatives (N = 1079) who represented one-third of the residents cared for in the units, also provided questionnaire data, which were not, however, included in the presented analyses.

Data for the other studies (II–V) also were drawn from residential homes and health centers, in collaboration with a research project entitled “*Benchmarking and implementation of RAI in elderly care in Finland*” (Noro et al., 2005). This research

project provided information on the unit structural and resident characteristics, and the quality of care as measured by the Resident Assessment Instrument (RAI) system (Hawes et al., 1997; Noro et al., 2005). In the year 2001, 164 units in 41 residential homes or health centers monitored their caring patterns using the RAI system. In 2002, their number had increased by 49 units, representing 5 119 beds comprising some 20% of the elderly population residing in residential homes and health centers in Finland. These units were invited to participate in a staff survey with a questionnaire for all staff on working conditions, in which 91 units participated in 2001 with 961 staff respondents (response rate 72%), and 107 units in 2002 ($N = 1172$, 67%). Unit head nurses also were surveyed on unit structural factors (number of resident beds and numbers of nurse staffing).

Data for studies II, III, and IV were drawn in the year 2002 from units that completed the data collection. Four units were excluded from the data sample because they failed to complete the periodical RAI-assessments (between January 1 and June 30, 2002) used in the studies. In addition, 12 units were excluded because of missing data on either working conditions (4 units) or unit structural factors (8 units). The final data sample (studies II and IV) comprised information based on 2430 resident assessments and 977 nursing staff responses from 91 residential-home or health-center inpatient units. Eleven staff responses were missing in study III, so the data consisted of responses from 966 nurses. The nursing employees were assigned to each unit and they did not rotate between units in the same facility. Response rate varied between 33% and 96% across units. The majority (57%) of the respondents was licensed practical nurses, 24% were regis-

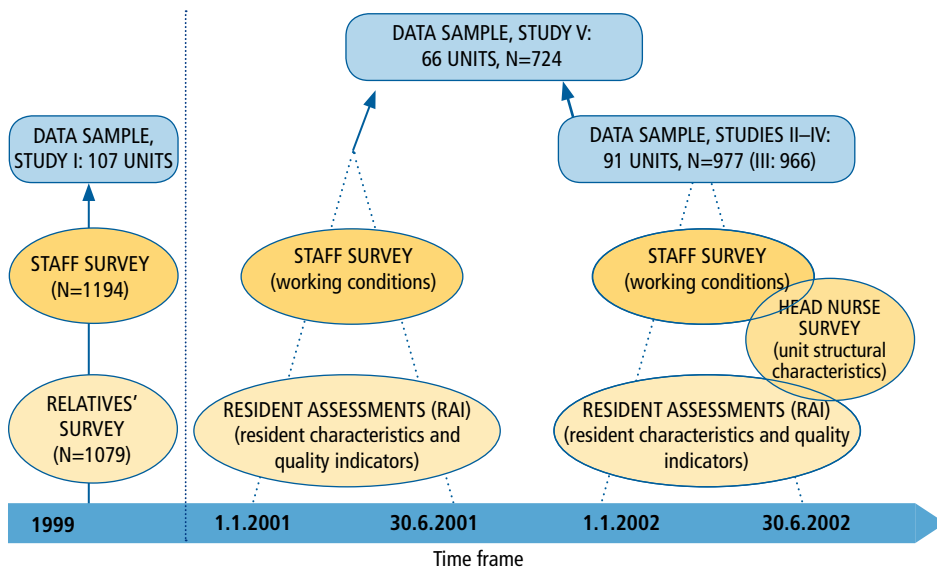


FIGURE 2. Study design

tered nurses head nurses, 14% were nursing assistants, and 5% were head nurses. The respondents' mean age was 43 ($SD = 11.12$) years, and the vast majority of the respondents were women (98%). The respondents worked mostly full time (91%), they had a permanent work contract (83%), and they had worked in their current job for a mean of 9 ($SD = 8.4$) years.

These respondents also were enrolled in study V that included follow-up data with adjustments made for the baseline RAI-assessments conducted between January 1 and June 30, 2001. The data sample (V) comprised information based on 1 748 resident assessments from 66 units in which 724 (response rate 33–96% per unit) nursing staff respondents completed questionnaire on their working conditions in 2002. This data also included information on unit structural factors as reported by head nurses.

Measures

Structural factors

Head nurses reported the number of resident beds (i.e. unit size) and the number of nursing employees in the unit (I–V). Nurse staffing levels were determined by dividing the number of nursing staff (registered nurses, licensed practical nurses, and nursing assistants) by the number of resident beds in the unit.

Resident characteristics

The unit resident characteristics were either reported by the nursing employees (I) or obtained from the Resident Assessment Instrument (RAI) database (II–V). Study I measured residents' *needs for assistance in physical and psychosocial activities* by two scales that were applied by the employees (Perälä & Räikkönen, 2000; Roper et al., 2002). Employees were asked to assess the proportion of residents (ranging from 1 = *none* to 4 = *most*) in the unit needing assistance with nine different physical activities (eating and drinking, eliminating, personal cleansing, dressing, mobilizing, changing position for bedridden patients, sleeping, controlling body temperature, and pain relief). Assistance with psychosocial activities was also assessed with seven items (recreation, maintaining a safe environment, contact with relatives, expressing sexuality, grief work, dying, and remembering). The item-rating were summed to form the scales measuring the proportions of residents in need of assistance with physical (Cronbach's alpha = 0.83) and psychosocial activities (Cronbach's alpha = 0.82).

Data were obtained from the RAI database on three resident characteristics: dependency in physical functions (II, III, IV, V), cognitive impairments (II, III,

IV), and behavioral problems (II, III, IV). The RAI database consists of the Minimum Data Set version 2.0 (MDS 2.0) assessments (Health Care Financing Administration, 1995), which in Finland, are completed for all residents at admission and periodically in every six months by trained members of the nursing-facility staff. The MDS includes nearly 400 items that provide information on residents' physical functioning and cognitive, medical, emotional, and social status (Health Care Financing Administration, 1995). The MDS-based summary scale of *Activities of Daily Living* (*hierarchical ADL*, Morris, Fries, & Morris, 1999) was used to measure residents' dependency in physical functions (i.e. toileting, transferring, eating, and personal hygiene) on a scale ranging from 0 (= *independent in all four activities*) to 6 (= *totally dependent in all four activities*). Residents' cognitive impairments (i.e. coma, short-term memory, decision-making, communication, and dependence in eating) were measured by *Cognitive Performance Scale* (CPS, Morris et al., 1994) that could have scores ranging from 0 (= *intact*) to 6 (= *very severe impairment*). Residents' daily *behavioral problems* were measured as the percentage of residents who in the preceding 7 days to the assessment had exhibited one or more daily behavioral problems (i.e. wandering, behavioral symptoms of verbal and physical abusiveness, resistance to care, and behavioral symptoms of social disruptiveness) (Health Care Financing Administration, 1995).

The ADL and CPS scales have good validity, internal consistency, and inter-rater reliability (Mor, 2004). Although specialized clinical measurements have provided more exact information on residents' behavioral problems than MDS (Horgas & Margaret, 2001), high inter-rater reliability has also been found for the MDS items (Mor et al., 2003). The resident characteristics were derived from the MDS assessments in the RAI database between January 1 and June 30, 2002, and then calculated to the unit level. Unit-level mean scores of ADL (range 1.0–5.7), CPS (range 1.1–5.0), and behavioral problems (percentage range 6.3–100) were used in the analyses (II–V).

Unit specialization

Studies II and III used the MDS-based Resource Utilization Groups (RUG-III/22) to classify the units that were specialized into dementia and psychiatric residents (SCUs) and the non-specialized units. RUG classification is used in identifying the case mix of the elderly residents (Björkgren, Häkkinen, Finne-Soveri, & Fries, 1999; Fries & Cooney, 1985; Fries et al., 1994). The unit was classified as a specialized unit if most (> 60%) of the residents in the unit had either cognitive problems or daily behavioral problems, or if they belonged to the functional decline group with severe cognitive decline (Noro et al., 2005). This indicated that the unit cared mostly for dementia and psychiatric residents. The remaining units were classified as non-specialized units that had varied resident case mixes.

Work stressors

Job demands (IV) and *time pressure* (II, V) were measured in the staff self-report questionnaires by a 3-item scale that inquired about the demands of work in terms of excessive workload, working hard and insufficient time to work (Karasek, 1979). This scale has proved to be a valid measure of job demands among health-care and other employees (Karasek & Theorell, 1990; Landsbergis, 1988), and also in long-term care facilities (Van Vegchel, De Jonge, & Landsbergis, 2005). For each item in the scale, respondents were asked to choose one of five responses ranging from 1 (= *strongly disagree*) to 5 (= *strongly agree*). These item-responses were summed to form a Job-Demands (IV) or a Time-Pressure Scale (II, V) that showed adequate internal consistency in the study samples (Cronbach's alphas = 0.79). Study I measured time pressure using a 5-item scale that asked respondents to rate how often (1 = *never*; 5 = *very often*) they had experienced stress due to scheduling problems and time shortages at work (Elovainio & Sinervo, 1994, 1997; Kivimäki & Lindström, 1992). These item-responses were summed to form the time-pressure scale that was internally consistent (Cronbach's alpha = 0.89).

Job control (IV) also was measured by a scale developed by Karasek (1979). This also has proved to be a valid measure of working conditions among health-care employees (Karasek & Theorell, 1990; Landsbergis, 1988). The Job-Control Scale consisted of a 6-item subscale to measure the skill discretion (job allows for continuous learning of new things, job allows for development of new skills, job entails task variety, non-repetitious work, job requires skill, job requires creativity) and a 3-item subscale to measure the authority to take decision (freedom to make decisions, choice about how to perform work, and having a lot of say in the job) (Karasek, 1979). For each item in the scales, respondents were asked to choose one of five responses ranging from 1 (= *strongly disagree*) to 5 (= *strongly agree*). These item-responses were summed to form a 9-item Job-Control Scale with an adequate internal consistency (Cronbach's alpha = 0.79).

Role conflicts (II) and *role ambiguity* (I) measures were derived from the scales developed by Rizzo, House, and Lirtzman (1970) that have gone through psychometric testing (King & King, 1990). Role conflicts were measured by a 7-item scale that inquired about respondents' experiences of conflicting expectations and organizational demands or conflicts among their various roles as employees in the unit. For each item in the scale, respondents were asked to choose one of the responses ranging from 1 (= *strongly disagree*) to 5 (= *strongly agree*). These responses were summed to form a Role-conflict Scale with a Cronbach's reliability alpha of 0.82. Role-ambiguity was measured using three items that asked respondents to indicate how often (1 = *never*; 5 = *very often*) they were uncertain about tasks, responsibilities, and requirements of their job. These item-responses were summed to form a Role-Ambiguity Scale (Cronbach's alpha = 0.83).

Resident-related stress (I) was measured by a 3-item scale that asked respondents to assess how often (1 = *never*; 5 = *very often*) they had experienced stressful incidents associated with caring for complaining or passive residents. The item-responses were summed to form a Resident-related Stress Scale (Cronbach's alpha = 0.64).

Procedural injustice (V) items were derived from Moorman's Procedural Justice Scale (Moorman, 1991) that has been found to be a valid predictor of health of both hospital and long-term care nurses (Elovainio et al., 2001; Elovainio, Kivimäki, & Vahtera, 2002; Kivimäki, Elovainio, Vahtera, & Ferrie, 2003). This 7-item scale measured the extent to which the staff perceives that the unit managerial procedures include input from affected parties and suppress bias, they are consistently applied, accurate, correctable and ethical. For each item, respondents were asked to choose one of five responses ranging from 1 (= *strongly agree*) to 5 (= *strongly disagree*). The responses were summed to form a Procedural Injustice Scale (Cronbach's alpha = 0.91).

Other psychosocial factors

Team Climate (III) was measured using the short version (Kivimäki & Elovainio, 1999) of the Team Climate Inventory (N. Anderson & West, 1994) that has shown good psychometric properties (N. Anderson & West, 1998). Four dimensions of team working were assessed: vision (4 items), participatory safety (4 items), task orientation (3 items), and support for innovation (3 items). For each item in the scales, respondents were asked to choose one of five responses that ranged from 1 (= *strongly disagree/to a very little extent*) to 5 (= *strongly agree/to a very great extent*). The item-ratings of the four subscales correlated highly with each other ($0.50 < r < 0.62$), due to which the responses were summed to form a single Team Climate Scale that showed high internal reliability (Cronbach's alpha = 0.91).

Organizational commitment (III) refers to employees' affective commitment, that is their emotional attachment to, identification with, and involvement in the organization that were measured by an 8-item scale developed by Allen & Meyer (1990). The scale has gone through careful psychometric testing (Allen & Meyer, 1996). For each item in the scale, respondents were asked to choose from one of five responses ranging from 1 (= *strongly disagree*) to 5 (= *strongly agree*). These item-responses were summed to form an Organizational Commitment Scale that showed adequate internal consistency (Cronbach's alpha = 0.78).

Quality of care

Employees' perceptions of quality of care and a comprehensive clinical assessment tool (RAI-MDS 2.0) were used in assessing the care quality as an indication of

organizational performance. Study I assessed the care quality using three proxy measures that have shown adequate structural validity when completed by the nursing employees in long-term care units (Perälä & Rääkkönen, 2000). The *sufficiency of help residents had received for their physical needs* was measured with nine items (eating and drinking, toileting, personal cleansing, dressing, mobilizing, changing position, bedridden patients, sleeping, controlling body temperature, and pain relief). The *sufficiency of received psychosocial help* was measured with seven items (recreation, maintaining a safe environment, contact with relatives, expressing sexuality, grief work, dying, and remembering). For each item in both scales, employees were asked to assess the degree of the sufficiency of help received (1 = *totally insufficient*; 3 = *sufficient*). These item-ratings were summed to form the scales of the sufficiency of the received physical (Cronbach's alpha = 0.84) and psychosocial help (Cronbach's alpha = 0.83). Also *client-centered practices* (in terms of kindness, individually tailored care, and autonomy) were measured with a 4-item scale that ranged from 1 to 4, with large values indicating client-centered practices in the unit (Cronbach's alpha = 0.72).

The quality indicators for studies IV and V were derived from MDS assessments in the RAI database between January 1 and June 30, 2002, and aggregated to the unit level. In study V, the quality indicators were also adjusted for their baseline values (between January 1 and June 30, 2001). The database contained only one assessment of each resident per unit for the half-year period. Data for study IV included quality indicators describing the unit restraint practices in terms of the unit level *prevalence of physical restraint use* and *prevalence of antipsychotics use* in the absence of psychotic and related conditions (Zimmerman et al., 1995). High inter-rater reliability has been found for both of these quality indicators (Mor et al., 2003). The use of physical restraints was measured by 3 MDS-items that assessed the use in the previous 7 days of a trunk restraint, a limb restraint, or a chair that prevents rising. Each item was scored according to three frequency levels (0 = *never*, 1 = *less than daily*, 2 = *daily*). Data on the proportion of residents that were daily restrained with one or more physical devices were used. The use of antipsychotics was measured by an MDS item on the frequency (number of days) of antipsychotic medication (neuroleptics) use in the 7 days previous to the assessment. The quality indicator described the proportion of residents that had received antipsychotics during the previous 7 days without having either MDS-indication of delusions or hallucinations or diagnosis of any psychotic disease (i.e. schizophrenia, mood disorders, or anxiety). The psychiatric diagnoses (ICD-10) were added to the MDS from the medical records as recorded by the treating physicians (mostly GPs).

Study V used a quality indicator of the *prevalence of antianxiety or hypnotic drug use* that was recorded in a similar pattern to that of antipsychotics use in the MDS. This study also used the *prevalence of pressure ulcers* as an indication of out-

come quality. A pressure ulcer was described in the MDS as “any lesion caused by pressure resulting in damage of underlying tissue”, including pressure ulcers from all severity stages (1–4). The aggregated quality indicator was used to describe the proportion of residents having a pressure ulcer to all the residents in the unit (Health Care Financing Administration, 1995). Reasonably high inter-rater reliability has been reported for both the quality indicators of antianxiety or hypnotic drug use and pressure ulcer prevalence (Mor et al., 2003).

Statistical considerations and analysis

Multilevel perspective

Only a few studies have examined performance at group or organizational levels (i.e. organizational performance) (P. M. Podsakoff & MacKenzie, 1997; Viswesvaran et al., 2005). There is no explicit theory guiding the investigation of whether organizations perform poorly when their employees, as a group, experience stressors (Jex, 1998). Understanding the formation of organizational performance requires a multilevel perspective that considers performance as a result of processes at different levels of organizational hierarchies and not as a simple sum of individual performance (Bliese & Jex, 2002; Kozlowski & Klein, 2000). It is recognized that employees rarely work alone but are instead usually embedded within “work groups” in the organization. There is some dependence between how individual employees and their colleagues within the work group perceive and react to shared working conditions (Bliese & Jex, 1999, 2002; Kozlowski & Klein, 2000). In other words, interaction among employees is likely to influence what working conditions individual employees appraise as stressors and how they respond to these stressors.

Many stressors have been suggested to be dependent on the social interaction, either by their definition or by what is learnt from empirical research. For example, role conflict and role ambiguity are often defined so that they include the evaluation of social interaction among fellow employees (Jackson & Schuler, 1985; Kahn et al., 1964; Rizzo et al., 1970). Research has also shown that employees within a work group share perceptions of job demands and job control (De Jonge, van Breukelen, Landeweerd, & Nijhuis, 1999; Van Yperen & Snijders, 2000), and procedural justice (Mossholder, Bennett, & Martin, 1998; Simons & Roberson, 2003). Coping can be defined not only as an individual process, but also as a group-level means to manage the stressful environment (Lazarus & Folkman, 1984).

A work group’s shared perceptions of working conditions can be measured as aggregate variables (typically as group means). The aggregated ratings may represent the actual working conditions more reliably than do individual employees’

self-reports, which are open to bias due to individual differences in perceiving, experiencing, and interpreting the working conditions (Bliese & Jex, 1999, 2002). The aggregated stressors may also differ in meaning from the individual appraisals and show more consistent relations with organizational performance (Kozlowski & Klein, 2000). However, the group-level analyses provide little insight into how individual employees within work groups differ in their perceptions or reactions. Researchers have been encouraged to apply multilevel models that recognize the hierarchical structure of the kind of data that they typically examine (Bliese & Jex, 1999, 2002).

Statistical methods

The data used in this study consisted of self-reports on work stressors drawn from individual employees who were clustered within units. Data also included both individual level (I) and unit level indicators (II–V) on the resident characteristics and the quality of care provided by the units. Relationships between structural and resident characteristics, work stressors and organizational performance were analyzed using various statistical methods to account for the hierarchical structure of the data. In all studies (I–V), the intra-cluster (unit) correlation (ICC) values were calculated to indicate the amount of variance in the observed work stressors that is attributable to the unit level. ICC values also were calculated for the observed team climate and organizational commitment. High ICC values imply that the score values are clustered within sampled units, which violates the independence assumption required by traditional regression analyses. The reliability of unit-level mean scores for the work stressors was estimated by their intra-group agreement indexes, which were regarded as adequate at the level of > 0.70 (James, Demaree, & Wolf, 1984).

Pearson product-moment correlation coefficients were estimated for unit structural characteristics, resident characteristics, and work stressors in study samples II, IV, and V by weighting the observations according to complex sampling so that the estimated values for correlations accounted for clustering of observations within units. Multiple-group analyses were then used in study II to investigate whether the relationships of unit resident characteristics to work stressors (i.e. time pressure, role conflicts) were similar in the specialized units (SCUs, $n = 38$) and non-specialized units ($n = 53$), while controlling for unit staffing level. Multiple-group analyses can be used to analyze data from different samples simultaneously by constraining all or some of the parameters to be equal across samples (Muthén & Muthén, 1998–2004). Two-equation regression models were fitted simultaneously for the samples of specialized units and non-specialized units using the statistical modeling program Mplus (Muthén & Muthén, 1998–2004). Mplus allows the parameters to be estimated when data are clustered on sampled units

and produces robust fit and parameter estimates with its maximum likelihood estimation routine. Here the regression coefficients from these models were used to present the mean change in the employee time pressure and role conflict for one standard deviation change in the proportion of daily behavioral problems among the residents in specialized units and the non-specialized units.

The relationships between unit specialization, team climate, and employees' organizational commitment were analyzed in study III using multilevel modeling. The basic structure of a multilevel model is an extension of ordinary least squares regression where the total variability in the outcome variable is decomposed into variance within and between units (Goldstein, 1995). Here the within and between unit variance in the employees' organizational commitment were explained first by unit specialization and then followed by the inclusion of team climate in order to detect its mediating effect between unit specialization and organizational commitment. The analyses were adjusted for unit structural and resident characteristics, and employees' age, organizational tenure, and job level. Multilevel models were estimated using iterative generalized least squares carried out using the statistical software package LISREL 8.52 (Jöreskog, Sörbom, Toit, & Toit, 2000). Multilevel modeling also was used in study I to explain the variations found in the employees' perceptions of quality of care provided to the elderly residents, both variations in individual employees' self-reports and the units in which they were clustered. The within and between unit variance in the perceived quality of care reports were explained by the employee work stressors (time pressure, role ambiguity, resident-related stress), with adjustments made for unit structural characteristics and resident characteristics.

Interdependence between the individual employee self-reports on work stressors within units was further recognized in studies IV and V in which the unit-level mean scores for work stressors were calculated and assigned to each staff member of each nursing unit, and then analyzed in association with the unit-level quality indicators. Data were analyzed using the SAS software package, which provided generalized estimation equations to account for the clustering effect owing to the possible correlation of units within the same facility. Logistic regression analyses (odds ratios and 95% confidence intervals) were conducted in study IV to evaluate the relation between job demands / control and the quality indicators on the use of physical restraints and antipsychotic medications, with adjustments made for resident characteristics. Study V analyzed the relationships between unit-level time pressure / procedural injustice and the prevalence of antianxiety or hypnotic drug use and pressure ulcers using hierarchical multiple regression with adjustments made for the baseline (2001) quality indicators and the unit structural factors (unit size and staffing level). Regression analyses were used to estimate the percentage change in the quality indicators associated with one standard deviation change in employee work stressors.

Here the covariance was further analyzed to illustrate the results found in studies IV and V on the associations of each quality indicator to work stressors, which were divided into high and low using a median split. The prevalence of physical restraint use was adjusted for the level of residents' ADL-dependency and cognitive impairments (IV); antipsychotic use for the proportion of residents with daily behavioral problems (IV); and antianxiety or hypnotic drug use for both baseline (2001) prevalence and unit structural characteristics; while pressure ulcers were also adjusted for baseline (2001) prevalence, unit structural characteristics and for residents' ADL-dependency (V). The general linear estimates are presented for the percentage prevalence of antianxiety or hypnotic drug use, antipsychotics use, physical restraint use, and pressure ulcers among units with high job demands / time pressure and those where job demands fell below the median (i.e. low demands) (studies IV and V). The prevalence of antianxiety or hypnotic drug use is then estimated according to the level of procedural justice (Study V). Finally, the interaction effect of job demands and control on quality indicators is illustrated with the estimated prevalence of restraints use in four types of units: (1) active units combining high job demands with high job control, (2) passive units with low job demands and low control, (3) low strain units with low job demands and high control, and (4) high strain units that combine high job demands with low control (Study IV).

Results

Descriptive statistics

The descriptive statistics for study samples I–V are presented in Table 1. Study sample I comprised 107 units with a mean of 34 resident beds ($SD = 8.6$, range 12–50) and 20 employees per unit ($SD = 7.0$, range 5–41). There was a mean of 0.6 employees per resident ($SD = 0.2$, range 0.23–0.97). The mean staffing level was also 0.6 ($SD = 0.10$, range 0.23–0.88) in those units that participated in studies II, III, and IV ($N = 91$), and in study V ($N = 66$). However, these units were slightly smaller with their mean number of beds being 27 ($SD = 8.88$, range 8–50) and a mean of 16 employees per unit ($SD = 6.04$, range 7–37). Nursing employees reported high levels of job demands or time pressure in their work (I, II, IV, and V: $M_s = 3.7$ – 3.9 , $SD_s = 0.5$ – 0.8). Also role conflicts (II: $M = 2.7$, $SD = 0.8$) and procedural injustice (V: $M = 2.6$, $SD = 0.3$) were common stressors among the respondents.

Table 1 also includes the unit-level quality indicators according to which the prevalence of the use of restraints among the 91 units that participated in study IV was common as the antipsychotic drugs were used for 38% ($SD = 17.1$, range 0–83) of the residents and physical restraints for 17% ($SD = 15.5$, range 0–75). Study V (66 units) indicated that use of antianxiety or hypnotic drugs was most prevalent among the units ($M = 62\%$, $SD = 15.9$, range 18–92). The prevalence of pressure ulcers was 10% ($SD = 6.7$, range 0–33).

Table 2 shows the hierarchical structure of the data that were examined. Of the reported work stressors, job demands/ time pressure varied most across units with 18% of its total variance being attributable to the unit-level. ICC estimates for the other work stressors were moderate (0.05–0.10). Significant agreement was found in how the employees perceived work stressors within units as shown by the inter-rater reliability indexes ($R_{wg} > 0.70$).

TABLE 1. Descriptive statistics (variable means and standard deviations) for the study samples I–V.

	Study I¹ 107 units, N = 1194 Mean value ± SD	Studies II–V² 91 units, N = 977 Mean value ± SD
Structural characteristics:		
Unit size (no. resident beds)	34 ± 8.6	27 ± 8.9
Staffing level (nursing employees/resident beds)	0.6 ± 0.2	0.6 ± 0.1
Resident characteristics:		
Physical care needs (scale)	3.4 ± 0.5	
Psychosocial care needs (scale)	3.1 ± 0.6	
Physical dependency (ADL scale)		3.5 ± 0.9
Cognitive impairments (CPS scale)		3.2 ± 0.9
Behavioral problems (%)		35.1 ± 18.9
Work stressors (scale):		
Job demands/ time pressure	3.9 ± 0.8	3.7 ± 0.5
Job control		3.6 ± 0.3
Role conflicts		2.7 ± 0.8
Procedural injustice		2.6 ± 0.3
Role ambiguity	1.9 ± 0.7	
Resident-related stress	3.0 ± 0.6	
Perceived quality of care (scale):		
Received physical help	2.6 ± 0.4	
Received psychosocial help	2.2 ± 0.5	
Client-centered practices	3.4 ± 0.4	
Clinical quality of care (% prevalence):		
Physical restraint use		16.7 ± 15.5
Antipsychotic drug use		38.2 ± 17.1
Antianxiety or hypnotic drug use		61.6 ± 15.9
Pressure ulcers		9.7 ± 6.7

1 Values are drawn from the employee sample in 1999.

2 Sample for study V comprised 66 units (N = 724). Values are unit means calculated from the data in 2002.

TABLE 2. Unit-level variance in the employee stressor perceptions and their within-unit agreement as indicated by intra-cluster correlation (ICC) and inter-rater reliability indexes (Rwg).

	ICC	Rwg
Job demands/ time pressure ^{1,2}	0.18	0.70
Job control ¹	0.10	0.90
Role conflicts ¹	0.09	0.73
Procedural injustice ¹	0.09	0.87
Role ambiguity ²	0.05	0.86
Resident-related stress ²	0.09	0.86

Note. All estimates are statistically significant ($p < 0.05$).

1 Estimates are from study samples II–IV (91 units, $N = 977$) and V (66 units, $N = 724$).

2 Estimates are from study sample I (107 units, $N = 1194$). ICC for time pressure (I) was 0.22; Rwg = 0.92.

Objective context and work stressors

Table 3 contains the correlation coefficients for structural and resident characteristics, and work stressors in study samples II, IV, and V, in which the data were weighted so that it accounted for the clustering of observations within units. The level of physical (ADL) dependency among the residents correlated positively with the level of cognitive impairments in the unit. Both of these resident characteristics were also related to a higher level of staffing in the unit. Employees reported most job demands or time pressure and role conflicts in units where residents were dependent in their ADL, while other resident characteristics yielded less consistent correlation coefficients with work stressors.

Unit specialization and work stressors

Further analyses on the relationships between resident characteristics and work stressors indicated that these were different in the 38 units ($n = 390$) that specialized in dementia and psychiatric residents as compared to the 53 ($n = 587$) non-specialized units. These units differed in their resident characteristics: residents in the specialized units were on average only slightly more physically (ADL) dependent ($M = 3.88$, $t [89] = 2.00$, $p = 0.05$), but their cognitive impairment scores were much higher ($M = 3.84$, $t [89] = 5.47$, $p < 0.001$), and problematic behavior was more prevalent ($M = 43\%$, $t [89] = 4.46$, $p < 0.001$) as compared to their non-specialized counterparts (M s 3.49, 2.86, and 26%, respectively). Despite this, there were no significant differences between these organizational settings in employees' experiences of time pressure and role conflicts.

TABLE 3. Bivariate correlations for study samples II, IV, and V (91 units, N = 977)¹.

	1	2	3	4	5	6	7	8
Structural characteristics:								
1. Unit size								
2. Staffing level	0.05							
Resident characteristics:								
3. ADL dependency	0.18	0.34						
4. Cognitive impairments	-0.03	0.36	0.66					
5. Behavioral problems (%)	-0.26	0.24	-0.03	0.47				
Work stressors:								
6. Job demands/ time pressure	0.01	0.12	0.18	0.10	-0.01			
7. Job control	-0.16	0.06	-0.08	0.01	0.10	-0.08		
8. Role conflicts	0.08	0.03	0.13	0.06	-0.03	0.42	-0.28	
9. Procedural injustice	0.05	-0.02	0.01	-0.06	-0.08	0.18	-0.36	0.37

Note. Correlations above 0.08 are statistically significant ($p < 0.05$).

¹ Study sample V included 66 units (N = 724). The observations are weighted according to complex sampling so that the estimated values for correlations account for clustering of the observations within units.

Study II revealed that the level of physical (ADL) dependency among residents correlated significantly with increased employee time pressure ($r = 0.30$, $p < 0.001$) and role conflicts ($r = 0.27$, $p < 0.001$) in the specialized units, but not in their non-specialized counterparts (r s 0.11 and 0.04, respectively). Instead, high prevalence of behavioral problems correlated both with decreased time pressure ($r = -0.13$, $p < 0.01$) and especially with less role conflicts ($r = -0.19$, $p < 0.001$) experienced by special care unit employees, but with increased work stressors for the non-specialized unit employees (r s 0.07 and 0.06, $p < 0.05$). Based on multiple-group regression models that yielded the best fit to the data, Figure 3 shows the estimated mean change in employee time pressure for one standard deviation change in the proportion of residents exhibiting daily behavioral problems in the specialized units and the non-specialized units. Figure 4 shows the corresponding estimates for employee role conflicts.

Unit specialization and other psychosocial factors

There was significant variation found across units also in psychosocial factors other than work stressors in terms of the employees' perceptions of team climate and their organizational commitment in study III. The intra-cluster correlation (ICC) estimates were 0.13 ($p = 0.03$) for team climate and 0.08 ($p = 0.03$) for organizational commitment which implied a significant lack of independence in employees'

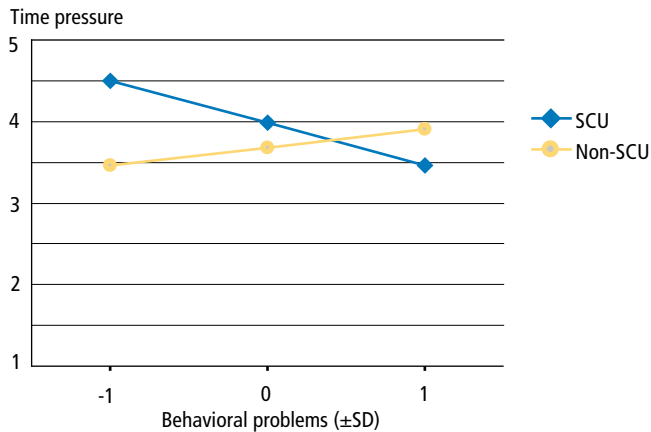


FIGURE 3. The relationship between employee time pressure and the level of residents' behavioral problems in specialized units (SCU, $n = 390$) and non-specialized units (non-SCUs, $n = 587$), with adjustments for unit staffing level.

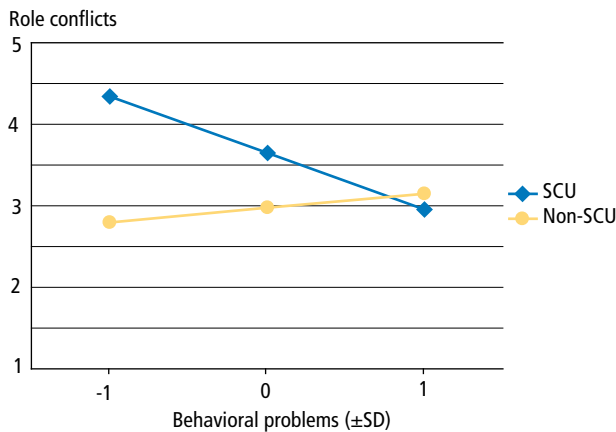


FIGURE 4. The relationship between employee role conflicts and the level of residents' behavioral problems in special care units (SCU, $n = 390$) and non-specialized units (non-SCUs, $n = 587$), with adjustments for unit staffing level.

perceptions within units. Unit specialization correlated with employees' perceptions of team climate ($r = 0.31, p < 0.001$) and their organizational commitment ($r = 0.25, p < 0.01$). Table 4 shows the regression coefficients from the multilevel analyses that were adjusted for unit structural and resident characteristics, and employees' personal characteristics (age, tenure, and job level). Unit specialization was positively related to employees' organizational commitment ($B = 0.25, p < 0.05$, model I). Organizational commitment was, however, most strongly related

TABLE 4. Multilevel analyses on the relationships between unit specialization, team climate, and employees' organizational commitment (Study III, 91 units, N = 966).¹

	Model I		Model II	
	Coefficient	B/SE	Coefficient	B/SE
Unit specialization ²	0.25	2.50	0.12	1.50
Team climate			0.43	14.33
R ² _{Within}	0.06		0.23	
R ² _{Between}	0.25		0.63	

Note. Values are regression coefficients. B/SE is the estimate of the regression coefficient (B) divided by its standard error (SE); B/SE of 1.96 is approximately equivalent to $p < 0.05$.

¹ Adjusted for unit structural and resident characteristics, and employees' age, organizational tenure, and job level.

² 0 = Non-specialized unit, 1 = Specialized unit (SCU)

to team climate, which also mediated the relationship between unit specialization and organizational commitment as shown in model II ($B = 0.43, p < 0.001$). This final model (II) explained 23% of the individual level variance and as much as 63% of the unit level variance in organizational commitment.

Relationships between employee work stressors and their quality perceptions

Significant differences were found across units also in the employee job performance as indicated by their assessments on the quality of care they provide for the elderly residents in study I. The intra-cluster correlation estimates showed that employee assessments of the sufficiency of psychosocial help varied most between units, with 22% of its total variance being on the unit level ($ICC = 0.22$). ICC estimates for the received physical help and client-centered practices were 0.19 and 0.12, respectively. In addition, measures were reliable estimates of the unit level quality as indicated by their intra-group agreement indexes (R_{wg}) which were 0.92 for the sufficiency of physical help, 0.85 for that of psychosocial help, and 0.91 for the client-centered practices.

The hierarchical data structure was accounted for in the coefficient estimates on the relationships between employee work stressors and their perceptions of the quality of care provided to the residents as presented in Table 5. After adjustments made for resident characteristics and structural factors, employee time pressure was related to reductions in both physical and psychosocial help that the residents received ($Bs -0.31$ and $-0.30, p < 0.001$, respectively). Role ambiguity was also related to insufficient physical help ($B = -0.13, p < 0.01$), in addition to which it has the strongest effect on the client-centered practices in the unit ($B = -0.18, p < 0.001$).

TABLE 5. Multilevel analyses on the relationships between employee work stressors and their perceptions of the quality of care provided to residents (Study I, 107 units, N = 1 136).¹

	Physical help		Psychosocial help		Client-centered practices	
	Coefficient	B/SE	Coefficient	B/SE	Coefficient	B/SE
Time pressure	-0.31	10.33	-0.30	10.00	-0.09	3.00
Role ambiguity	-0.13	4.33	-0.05	1.67	-0.18	6.00
Resident-related stressor	-0.07	2.33	-0.05	1.67	-0.09	3.00
R^2_{Within}	0.12		0.09		0.07	
R^2_{Between}	0.68		0.54		0.35	

Note. Values are regression coefficients. B/SE is the estimate of the regression coefficient (B) divided by its standard error (SE); B/SE of 1.96 is approximately equivalent to $p < 0.05$.

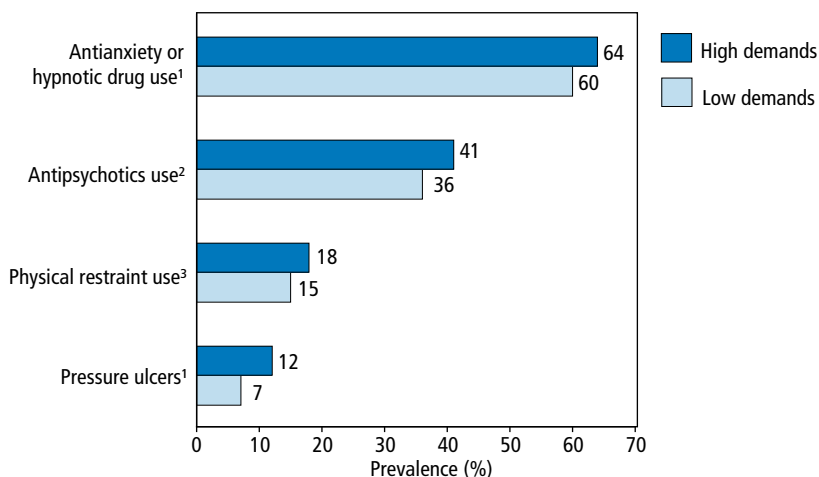
¹ Adjusted for resident characteristics (physical and psychosocial needs) and unit structural factors (unit size and staffing level).

Table 5 also indicates that work stressors explained most of the variance across units in the physical ($R^2_{\text{Between}} = 0.68$) and psychosocial help ($R^2_{\text{Between}} = 0.54$) that the residents received. The final model that included work stressors explained 35% of the variance in client-centered practices across units. In contrast, R^2 estimates on the individual employee perceptions of quality of care provided to the residents were modest ($R^2_{\text{Within}} < 0.12$).

Work stressors and organizational performance

High agreement within units in quality assessments and work stressors was further acknowledged in studies IV and V in which their relationships were analyzed on the unit level. Figure 5 shows that quality indicators varied according to the unit level of job demands/ time pressure. The estimated mean prevalence of pressure ulcers was significantly higher in units with extensive job demands than in units where job demands were below the median ($M_s = 11.9\%$ and 7.4% , $F = 7.3$, $p = 0.009$). Mean differences in other quality indicators between units with a high level of job demands and those with low demands were not significant with the prevalence for the respective units being 63.5% and 59.7% for antianxiety or hypnotic drug use ($F = 1.4$, $p = 0.243$), 40.7% and 35.9% for antipsychotics use ($F = 2.3$, $p = 0.130$), and 18.3% and 15.1% for use of physical restraints ($F = 1.4$, $p = 0.238$).

A quality indicator that was less sensitive to employee job demands described the prevalence of antianxiety or hypnotic drug use in units (Study V). Figure 6 shows that the use of these drugs was most common in units where employees perceived procedural injustice as compared to the units where the procedural justice score was above the median ($M_s = 64.8\%$ and 58.4% , $F = 4.4$, $p = 0.041$).



1 Longitudinal data from study V (66 units). Adjusted for the baseline (2001) prevalence and unit structural characteristics (unit size and staffing level). Pressure ulcer prevalence is also adjusted for the unit mean score of residents' ADL dependency

2 Cross-sectional data from study IV (91 units). Adjusted for the percentage of residents with daily behavioral problems in the unit.

3 Cross-sectional data from study IV (91 units). Adjusted for the unit mean score of residents' ADL dependency and cognitive impairments (CPS).

FIGURE 5. General linear estimates on the unit quality indicators (% prevalence) according to the level of job demands (studies IV and V).

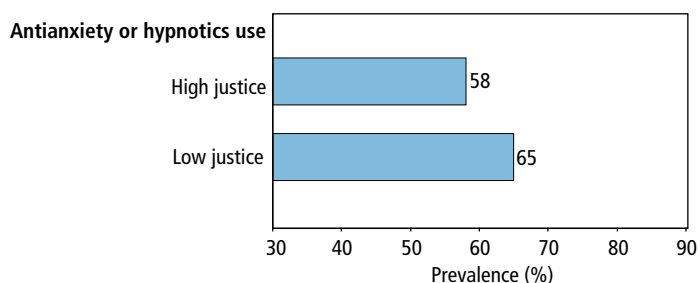
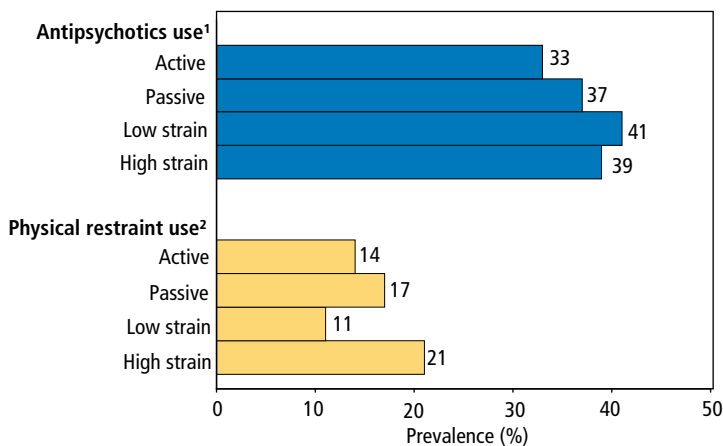


FIGURE 6. General linear estimates of the prevalence (%) of antianxiety or hypnotic drug use in units with high and low procedural justice levels (Study V, 66 units). Adjusted for the baseline (2001) prevalence and unit structural characteristics (unit size and staffing level).

Does unit job control moderate the effect of job demands on organizational performance?

A significant interaction was found between job demands and job control in Study IV in relation to both physical restraint and antipsychotics use. Figure 7 presents the general linear estimates on the restraint practices according to this interaction (for description, see Statistical Methods). The highest prevalence of physical restraint use ($M = 21.1$) was found in high strain units where high job demands were combined with little possibilities for employee skill usage and decision-making. The estimated mean prevalence was lower both in low strain ($M = 11.1$) and active units ($M = 14.2$) where employees were provided with high job control, despite that their job demands were at a higher level in active units. The use of antipsychotics was least prevalent in the active units ($M = 33.4$), whereas in other settings it was common despite their level of job demands.



1 Adjusted for the percentage of residents with daily behavioral problems in the unit.

2 Adjusted for the unit mean score of residents' ADL dependency and cognitive impairments (CPS).

FIGURE 7. General linear estimates of the prevalence (%) of restraint practices according to the combination of job demands and control levels (Study IV, 91 units).

Discussion

The quality of long-term care is dependent on the actual care given to the elderly residents by the care providers. This interaction produces not only medical and nursing care but also social and environmental support for elderly people, who are most often admitted to long-term care facilities because of their functional decline. Despite the increasing concern about the finite resources available for the provision of long-term care, there is little research on how and under what circumstances nursing employees succeed in the provision of daily care for the elderly residents. This study provided insights into the psychosocial determinants of care quality in the context of long-term care. It was found that large unit size or lower staffing level were not consistently related to employee work stressors, whereas impairments in residents' functioning initiated stressful working conditions for employees. Relationships between resident characteristics and work stressors were not, however, consistent across units. Organization of work in terms of unit specialization into dementia and psychiatric residents had a distinct effect not only on how the resident characteristics influenced stressor appraisals, but also on the team climates and organizational commitment of employees in the units. Work stressors, in turn, were associated with reduced organizational performance in terms of both the perceived quality of care and the clinical quality of care provided to the elderly residents. Particularly high job demands were found to relate to some increases in all problems in care quality. However, employee job control was found to buffer the effects of their job demands on the quality of care in terms of the restraint use among elderly residents. In addition, procedural injustice influenced psychotropic drug use more than the employees' experience of excessive job demands. These findings are discussed following the organizational stress theories so that the mechanisms by which stressors influence organizational performance can be understood.

Work stressors in the long-term care context

Organizational scientists have long debated the extent to which organizational contexts influence individual and group performance (Mowday & Sutton, 1993). Recent developments support a multilevel perspective that acknowledges the dependence between how individual employees and their colleagues within the work group perceive and react to shared working environments (Bliese & Jex, 1999, 2002; Kozlowski & Klein, 2000). The present study detected dependence in the stressor appraisals between individual employees within units. Variance in how the stressors were appraised was also found across units. This led to the investigation of the associations of structural and resident characteristics to the employee appraisals of work stressors. Resident characteristics have been identified as the main antecedents to caregiver stress (Pearlin et al., 1990). Residents may play an important role in the stress process among long-term care employees, because the latter's work consists of close interaction with the residents. The results of the present study implied that it was more the level of impairments in resident functioning that was related to increased work stressors than the structural resources of the units. The level of residents' dependency in daily physical activities was related to most increases in time pressure and role conflicts. This resident characteristic was closely linked to the level of residents' cognitive impairments, which has been a major source of employee stress in long-term care facilities (Chappell & Novak, 1994; Novak & Chappell, 1994). Among the long-term care facilities in Finland, over half of the residents suffer from both severe cognitive impairment and physical dependency, whereas only some 10% of residents suffer from one but not the other (Noro et al., 2005).

Unit specialization in relation to work stressors

Interaction between the person and the work environment has been emphasized by many organizational stress theories, in addition to the assumption that the organization of work determines the level of work stressors (Hackman & Oldham, 1976, 1980; Karasek, 1979). Here the organization of work in terms of unit specialization into dementia and psychiatric residents was found to buffer the effects that the residents' behavioral problems had on the employees' stressor appraisals. The differences in how resident characteristics affect work stressors within and between organizational settings may be explained using goal setting theory, which emphasizes the importance of clear and specific goals in reducing employee stress (Locke & Latham, 1990).

Specialized units cared for a homogeneous clientele that consisted mostly of dementia and psychiatric residents which may have helped employees to create

agreed upon and clear goals, and effective work procedures concerning the provision of care for dementia and psychiatric residents. Thus, clear goals may reduce employee role conflicts associated with caring for residents who exhibit problem behaviors that are common among dementia residents. Problematic behavior might also be tolerated because employees in specialized units have often been trained to manage the dementia disease process to which they also can attribute the resident behavior (Middleton et al., 1999). However, employees in specialized units might not be as well focused on attending to the daily physical tasks required by physically dependent residents, perhaps leading to staff experiencing them as stressors in these units. The physical care could be the strength of non-specialized units in which work stressors were less related to residents' physical dependency. However, their role repertoires often lack the psychosocial care that benefits dementia residents, which could result in employee role conflicts while caring for residents with behavioral problems. Employees in non-specialized units might also experience work stressors because they have to attend to residents with diverse care needs (Morgan et al., 2002).

Unit specialization into dementia and psychiatric care was also found to have a positive influence on other psychosocial working conditions that may have helped to reduce the stress associated with caring for complaining and uncooperative residents. Unit specialization was related to more innovative team climate which, in turn, associated with employees' increased commitment to their organization. The findings suggest that a reorganization of work may be a way to improve team climates, which have generally been reported to be poor in those long-term care settings where the roles and responsibilities of team members are unclear (M. A. West & Puolton, 1997; Williams & Laungani, 1999). The findings suggested that the innovative team climates may, in turn, increase employees' affective commitment to their organization, a crucial factor in long-term care settings that struggle with employee turnover. Prior research suggests further that innovative team climates may help to improve the performance of nursing employees (Elovainio et al., 2000; Kivimäki et al., 1997).

Relationships between work stressors and performance: do they exist across units?

There is considerable disagreement on the form and the magnitude of the relationship between stressors and job performance in empirical research (Jex, 1998; Muse, Harris, & Feild, 2003; Sullivan & Bhagat, 1992). Research has shown that employees' exhaustion is related to impaired job performance (for a review, see Taris, 2006). Meta-analyses on the research results also indicate mainly negative linear—though very often only weak—relationships between job perform-

ance and stressors such as job demands (Spurgeon & Harrington, 1989), or role conflict and role ambiguity (Jackson & Schuler, 1985). The results of the present study supported the hypothesized negative linear association between work stressors and job performance (Jex, 1998; Sullivan & Bhagat, 1992). In long-term care settings, nursing employees have been found to report poorer quality when they suffer from time pressure or role strains (Schaefer & Moos, 1996). Also in the present study, time pressure was related to greatest reductions in the employees' perceptions of the sufficiency of physical and psychosocial help that the residents received, and role ambiguity to the perceptions of client-centered practices. Findings suggest that together with workload issues such as time pressure, conflicting or ambiguous roles may represent relevant job demands in health care settings in which employees establish their work goals in close interaction with the residents (Söderfeldt et al., 1996). The need to include more dimensions to the job demands concept in the health care settings has also been presented by other investigators (De Jonge, Mulder, & Nijhuis, 1999).

Further, it was found that employee appraisals of work stressors explained more of the differences in the employees' perceptions of the quality of care between units than the unit's structural and resident characteristics. Employees' assessments of the quality of care provided to the elderly residents varied significantly across units and they were reliable estimates of the unit level quality. These results suggest that the quality outcomes can be investigated at the unit level as an indication of organizational performance.

Work stressors and organizational performance: what is the role of job control?

Very little is known about whether organizations perform poorly when their employees experience work stressors (Jex, 1998). Here the work stressors were analyzed in relation to four unit-level quality indicators that described the prevalence of the unit's use of physical and pharmacological restraints, antianxiety or hypnotic drug use, and the prevalence of pressure ulcers among the residents. These indicators capture employees' actions and care procedures in response to the care needs of the elderly residents (Zimmerman, 2003). Job demands that reflected the psychological stresses inflicted on employees by the situational constraints were found to be related to some increases in all problems in care quality. However, increases were found to be significant only in the prevalence of pressure ulcers in units with a high level of job demands. Instead, unit restraint practices were dependent on the combined effect of employees' job demands and job control.

The results indicated that it is often the level of job control that determines whether exposure to a stressor will have negative or positive consequences for em-

ployees. Support was found for the active work hypothesis of Karasek and Theorell (1990) in that the problems in care quality in terms of physical restraint and especially antipsychotic drug use were less prevalent in active units that combined both high job demands and high control for employees as compared to the passive units where neither of these psychosocial job characteristics was present. Only a few investigators have tested the learning hypothesis in the active and passive situations (De Jonge & Kompier, 1997). Partial support has been found for enhanced outcomes of learning in terms of perceived mastery, self-efficacy, and personal accomplishment in situations combining high job demands and high job control (Dollard, Winefield, Winefield, & de Jonge, 2000; Parker & Sprigg, 1999). None of these studies have, however, investigated these psychosocial job characteristics and their learning-related outcomes at the group level. De Jonge and his colleagues (1999) suggested that the employee perceptions of job demands and job control are based on an 'environmental reality' and as such, they influence employees' work motivation at the group level (see also Van Yperen & Snijders, 2000).

Another finding was that the organizational performance was poor in terms of the frequent use of physical restraints so that more residents were restrained to a bed or chair in high strain units where heavy job demands coincided with a lack of control for employees. The opposite was observed in the low strain unit. Several epidemiological studies have shown that employee health deteriorates in such high strain situations (for reviews, see Belkic et al., 2004; De Lange et al., 2003; Schnall et al., 1994; Theorell & Karasek, 1996; Van der Doef & Maes, 1999). However, employees' high strain has rarely been studied in relation to other performance-related outcomes such as the motivation to develop new behavior patterns (Taris et al., 2003). The present study provided further evidence that poor organizational performance in high strain units may originate from employees' strain, which has been found to inhibit learning, skill utilization, and self-efficacy (Holman & Wall, 2002; Taris & Feij, 2004; Taris et al., 2003). In long-term care, this may manifest as care practices that restrain residents rather than support their active participation in the unit.

The job demands and job control alone may not, however, be sufficient determinants of organizational performance. Employees are also subjected to work stressors by the way of the judged fairness of organizational and managerial procedures, and this may influence employee performance in a organization (Lind & Tyler, 1988; Moorman, 1991). Employees have been shown to share perceptions of their group's climate in regard to the fairness of procedures (Mossholder et al., 1998; Naumann & Bennett, 2000; Simons & Roberson, 2003). Simons and Roberson (2003) found that the shared perception of procedural justice strongly improved the organizational performance. This was in line with the prior findings on the individual level relationships between procedural justice and performance-related outcomes (Colquitt et al., 2001). The results sought in the current study

provide further evidence for the impact of the procedural justice on employee performance. Procedural injustice was related to organizational performance so that the use of antianxiety or hypnotic drugs for elderly residents was significantly more frequent in units where employees experienced procedural injustice as compared to high justice units. Employees' perceptions of procedural injustice may reflect poor decision-making procedures in the unit so that nurses, who have the expertise on the daily care needs of the elderly residents, are excluded from the decisions on whether residents should be treated with antianxiety or hypnotic drugs.

Interpreting the relationships: staff coping in long-term care for elderly residents

The findings of this study suggest that there are significant relationships between work stressors and organizational performance in the context of long-term care. Explanations as to why the employees' experience of work stressors should influence the quality of care provided to elderly residents can be sought from a relational viewpoint, which emphasizes the importance of coping in the psychological stress process. Coping can be used either to alleviate the emotional distress or to manage the problem causing distress in a stressful situation. Such coping behaviors can be counterproductive so that they interfere with organizational effectiveness (Lazarus & Folkman, 1984).

Stressors appraised by long-term caregivers are considered to stem mostly from impairments in residents' functioning (Pearlin et al., 1990). Thus, it is important to consider how the employees best cope with the stressful environment where residents may suffer from physical and cognitive impairments, or exhibit behavioral problems. Karasek (1979) suggested that organization of the working environment influences work stressors directly. However, it can be hypothesized that the organization of work may reduce work stressors also through its positive influence on employees' coping abilities so that they are better able to manage their distress (Lazarus & Folkman, 1984). In the present study, the positive effects that the unit specialization had on the psychosocial working conditions could be explained by employees' improved coping abilities in the specialized units. Clear work goals concerning the care for dementia and psychiatric residents may have helped employees to cope with residents who exhibit behavioral problems, and thus experience less associated time pressure and role conflicts. Instead, employees in non-specialized units may have been less able to cope with the residents' behavioral problems because they had to care for residents with divergent care needs.

Coping can be defined not only as an individual process, but also as a group-level means to manage the stressful environment (Lazarus & Folkman, 1984). This

may include direct action against problems that cause distress. It has been suggested that some stressors may influence employees' choices of coping strategies so that the coping becomes counterproductive in stressful situations (Chen & Spector, 1992). Stressfulness of the long-term care environment was determined by the level of resident impairments in the present study. Potentially inappropriate care procedures such as frequent use of antipsychotic drugs or physical restraints could be used as a means of coping with work stressors that originate from residents when employees experience high strain. The results indicated that the residents were restrained more frequently in units where heavy job demands coincided with a lack of control for employees. However, when employees were provided with possibilities for skill usage and decision-making, they used less physical restraints and especially antipsychotic drugs to manage their residents, despite the high level of job demands. Employees in such active units may find other ways of coping that do not interfere with their care procedures. For example, job control may provide employees with flexibility in the decisions on how to care for the residents or with possibilities to take breaks from work, so that they can regulate their exposure to stressful situations with the residents. This may further help employees to actively cope with the residents in a productive way, such as by implementing improved care practices so that employees are better able to respond to the care needs of individual residents rather than maintaining passive care routines. As suggested by Karasek & Theorell (1990), the results thus imply that job control may improve employees' coping abilities, resulting in better organizational performance. Other studies have also shown that employee control in a frustrating situation will improve their coping abilities and reduce their counterproductive behaviors (Storms & Spector, 1987).

Through its close connection to job control, procedural justice may represent another psychosocial contributor to improved coping which originates more from organizational processes than the situational characteristics of the working environment (Elovainio et al., 2001; Lind & Tyler, 1988). There is evidence that justice beliefs improve task performance through their positive influence on coping abilities (Tomaka & Blascovich, 1994). The positive association found in the present study between employees' perceptions on procedural justice and their organizational performance in terms of reduced antianxiety or hypnotic drug use could also be explained by employees' improved coping. Procedural justice may provide other possibilities to cope with the residents besides counterproductive behavior such as the inappropriate use of sedative drugs. Procedural justice may, for example, contribute to an organizational climate or culture in which employees are encouraged to actively seek ways to care for the residents in an individualized way.

Methodological considerations

This study included clinical data on the objective context and the quality outcomes that were combined with self-report data on the employee work stressors. The use of objective data on the sources and outcomes of employees' work stressor appraisals strengthened the inferences about the causal direction of these relationships. In addition, the hierarchical structure of the data was acknowledged by using a multilevel methodology, an approach which has rarely been used when investigating the factors affecting the quality of long-term care (Bravo, Wals, Dubois, & Charpentier, 1999). Data were drawn from large samples of long-term care units, enabling a systematic comparison between units. Since prior research on the psychosocial working environment and quality of care has been mostly based on small samples with few organizational units, the variation occurring between units simply may not have been large enough for the relationships to be found (Garman, Corrigan, & Morris, 2002; Hannan et al., 2001; Kruzich, Clinton, & Kelber, 1992; Leveck & Jones, 1996).

However, most analyses were conducted on cross-sectional data, thus preventing further causal conclusions to be drawn on what the effects of changes in objective environments have on work stressors, and how these changes affect the quality of care. This may explain some of the inconclusive results on the influence of unit structural characteristics on work stressors. Another reason may be that there simply was not enough variance in unit sizes and staffing levels across units that could have explained the differences in the employees' stressor appraisals. Further, the unit-level analyses that were used in explaining the quality outcomes do not allow for inferences about individual residents' risks of facing the problems in care quality, nor can these results be used to draw inferences about the specific effects that the individual employee's stressor appraisals have on the quality of care for the elderly residents. Finally, it should be borne in mind that both the employee appraisals of work stressors and the quality of care can be influenced by many other factors such as physical environment, institutional policy, or nursing employees' personality characteristics (e.g. self-efficacy, negative affectivity, type A/B behavior), or their knowledge and attitudes towards residents and care procedures, none of which were examined in this study. Neither did this study include specific measures of employees' goal setting or coping, but rather these theoretical concepts were used in interpreting the relationships between objective context, work stressors, and organizational performance.

How do you provide good care when the resources are not there?

Employees working in residential homes and health-center inpatient units have been faced with an ongoing problem: how do they provide care for the increasing numbers of elderly residents with physical and cognitive impairments with the limited resources? The results of this study indicate that this problem may manifest in the employee appraisals of work stressors and consequently, in a reduced quality of care provided to elderly residents. Although adequate staffing is a definite prerequisite to both healthy work and appropriate care, stressor appraisals were not directly matters of staffing level or unit size in this study. Work stressors were related to impairments in resident functioning in the units, but even more to the organization of work. Unit specialization into dementia and psychiatric residents could clarify goal setting and improve employees' abilities to cope with residents' behavioral problems, resulting in reduced time pressure and role conflicts.

The findings imply further that the problems in care quality in long-term care settings may be disposed most by enhancing the psychosocial working conditions for employees so that they are better able to cope with the residents. Perceived justice in the unit managerial procedures was related to reduced use of psychotropic drugs in residents. Further, active units that coupled high job demands with possibilities for skill usage and decision making for their employees provided better care for their residents in terms of reduced restraint practices. They may have accomplished this by providing possibilities for active learning and a sense of competence for their employees. Also, job control may have provided employees with flexibility in the decisions on how to care for the residents or with possibilities to take breaks from work. Thus, the key to improved quality seems to be the control that the employees have over their working conditions, including both the possibilities for skill usage and authority to make decisions concerning one's own activities. Job control will be even more important in the future when the nursing employees' workload is likely to increase with the growing number of dementia residents among the long-term care population. It is time for the long-term care facilities to seek ways to enhance both fair managerial procedures and job control among their employees, possibly through participatory management and multi-disciplinary teamwork which encourage employees to act autonomously in the best interest of the residents.

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