Nursing Staff Competence, Psychosocial Work Environment and Quality of Elderly Care: Impact of an Educational Intervention

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Abstract

Insufficient competence among nursing staff is a major concern in elderly care worldwide as the healthcare needs of the elderly become increasingly complex. In previous research, insufficient competence has been associated with work dissatisfaction and stress among elderly care nurses, and with lower quality of care. This thesis describes the development, implementation and evaluation of an educational intervention for nursing staff in elderly care. In a prospective, controlled study, evaluation of the educational toolbox was based on nursing staff ratings of their competence and psychosocial work environment, as well as on care recipients’ and family relatives’ ratings of the quality of elderly care.

Paper I validated a questionnaire measuring care recipient relatives’ perceptions of quality of care. Paper II compared self-rated competence, work strain, stress, and work satisfaction between staff working in home-based care and nursing homes. Papers III and IV evaluated the impact of the educational intervention on staff perceptions of their competence and psychosocial work environment (Paper III) and on care recipients’ and relatives’ perceptions of the quality of care (Paper IV).

The results showed that staff ratings of their competence and psychosocial work environment, including work satisfaction and work stress, improved significantly over time in the intervention municipality, compared to the reference group. Neither care recipients’ nor relatives’ ratings of the quality of care changed significantly over time in the intervention organization. Furthermore, there were no significant interaction effects over time between the intervention and reference groups for quality ratings. These results indicate that an educational toolbox that can be used according to local workplace needs may be an effective and sustainable intervention for improving staff competence and the psychosocial work environment. However, further studies are needed to investigate whether, and under what conditions, improved staff competence and work environment have an impact on quality of care.

Keywords: elderly care, home care, nursing home, nursing staff, care recipient, family members, quality of care, the psychosocial work environment, competence development

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List of Papers

This thesis is based on the following papers, which will be referred to in the text by their Roman numerals.


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Abbreviations and definitions

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<tbody>
<tr>
<td>ANOVA</td>
<td>Analysis of variance,</td>
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<tr>
<td>CI</td>
<td>Confidence Interval (usually 95% CI)</td>
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<td>DCM</td>
<td>Demand-Control Model</td>
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<td>HWO</td>
<td>Healthy Work Organization</td>
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<td>NS</td>
<td>Non-Significant</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>QI</td>
<td>Quality Improvement</td>
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<td>QWC</td>
<td>Quality-Work-Competence questionnaire</td>
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<td>RAI</td>
<td>Resident Assessment Instrument</td>
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<tr>
<td>SD</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>SEK</td>
<td>Swedish kronor</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<tr>
<td>TOOL</td>
<td>Tools for Optimal Organizational Load (name of the research project in this thesis)</td>
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<tr>
<td>TQM</td>
<td>Total Quality Management</td>
</tr>
<tr>
<td>UK</td>
<td>The United Kingdom</td>
</tr>
<tr>
<td>US</td>
<td>The United States</td>
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<tr>
<td>USD</td>
<td>American dollars</td>
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<tr>
<td>USÖ</td>
<td>Örebro University Hospital</td>
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<tr>
<td>VAS</td>
<td>Visual Analogue Scale</td>
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<td>VIF</td>
<td>Violent Incident Form</td>
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**Term used in this thesis**

<table>
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<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Home help services</td>
<td>Services offered to people living in their own homes or in sheltered housing.</td>
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<tr>
<td>Home nursing care</td>
<td>Nursing care for people living in their private homes or in sheltered housing.</td>
</tr>
<tr>
<td>Home-based care</td>
<td>All care and services offered in private homes or in sheltered housing, i.e. home help services and home nursing care.</td>
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<td>Sheltered housing</td>
<td>A group accommodation with services and care offered by personnel in home help services or home nursing care. Alternative terms: ordinary home, service accommodation and home for the elderly.</td>
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<tr>
<td>Nursing home</td>
<td>A group accommodation with 24-hour nursing surveillance.</td>
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<tr>
<td>Role</td>
<td>Description</td>
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<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>Nurses’ aides</td>
<td>An employee whose level of education varies from little or no formal nursing training to a three-year upper secondary school Healthcare program. Alternative terms: nursing aide, nursing auxiliary and auxiliary nurse.</td>
</tr>
<tr>
<td>Practical nurses</td>
<td>An employee whose education includes a three-year upper secondary school Healthcare program. Alternative terms: nursing assistant, assistant nurse and enrolled nurse.</td>
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<tr>
<td>Registered nurses</td>
<td>An employee whose education includes a three-year university program.</td>
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<td>Nursing staff</td>
<td>Nurses’ aides, practical nurses, and registered nurses.</td>
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Introduction

The need for competence development for elderly care nursing staff has increased during recent years (Socialstyrelsen 2004). Nursing care tasks, both in care recipients’ private homes as well as in nursing homes, have become more medically demanding as increasing numbers of elderly suffer from neurodegenerative disorders (Bergmark et al. 2000, Socialstyrelsen 2006e). Recent reports from Swedish elderly care have revealed low levels of formal staff competence (Socialstyrelsen 2004), as well as limited opportunities for skills development at work (Socialstyrelsen 2005d). Insufficient competence regarding work tasks might lead to less control over the work situation and increased stress levels (Theorell 2002). Other reports have showed that the psychosocial work environment is poor in many elderly care organizations in Sweden (Bäckman 2001, Gustafsson & Szebehely 2005).

There have also been several recent alarming stories regarding poor quality and negative care recipient outcomes in Swedish elderly care (Parker 2000). Prior research has reported an association between quality of care and staff competence (McAiney 1998), stress (Cohen-Mansfield & Rosenthal 1989) and work satisfaction (Chou et al. 2003, Redfern et al. 2002), i.e. lower quality of care has been related to lower competence, less satisfaction, and higher stress levels among nursing staff.

Few educational interventions in elderly care have been evaluated on outcome measures such as staff work satisfaction, psychosocial work environment or quality of care (Aylward et al. 2003). In addition, earlier intervention projects aimed at improving elderly care nursing staff competence have also been criticized for methodological limitations such as small sample sizes, lack of a control group and lack of long-term evaluation (Aylward et al. 2003). Difficulties in transferring the knowledge gained from educational interventions to work practices have also been reported (Broad 1997). In this thesis an educational intervention with a “toolbox” design for nursing staff in home-based care and in nursing homes was developed and implemented. The impact of the intervention on nursing staff competence, the psychosocial work environment, and the quality of care was evaluated.
Aims of the thesis

The overall aim of this thesis was to develop, implement, and evaluate an educational intervention for nursing staff in elderly care. In a prospective, controlled study, evaluation of the intervention was based on nursing staff ratings of their competence and psychosocial work environment, as well as on care recipients’ and their relatives’ ratings of the quality of elderly care. The aims of the papers included in the thesis were:

- to validate a questionnaire concerning care recipient relatives’ perceptions of quality of care and to investigate their perceptions of the quality of elderly care (Paper I)
- to compare self-rated competence, work strain, stress, and work satisfaction between nursing staff working in home-based care and those working in nursing homes (Paper II)
- to evaluate the possible impact of an educational workplace intervention on nursing staff perceptions of their competence, work satisfaction, and psychosocial work environment (Paper III)
- to evaluate the possible impact of the educational intervention on care recipients’ and relatives’ perceptions of the quality of elderly care (Paper IV)

Additional analyses that were not included in any of the papers were conducted for this thesis. The aims of the additional analyses were to investigate:

- the possible association between nursing home costs and the work environment and between nursing home costs and the quality of care.

The Swedish system of elderly care

In this chapter, the Swedish system of elderly care provision regarding the aspects relevant to this thesis will be briefly described.

A brief historical description

Around 1910 “old people’s homes” were becoming common to provide subsistence, lodging, and care for older people (Edebeck & Lindgren 1994), and in 1918 every local authority was advised to have a facility that functioned
as an old people’s home (Möller 1996). After the Second World War, there were attempts to reform and develop these homes (Möller 1996), but due to an economic crisis, the program was not fully implemented (Edebalk & Lindgren 1994). Instead, in the 1950s, a new ideology for elderly people living in their own homes and receiving home help services became popular (Socialstyrelsen 2006c). The home help service expanded throughout the 1950s (Edebalk & Lindgren 1994, Möller 1996), and continued to expand until the end of 1970 (Socialstyrelsen 2006c).

Political decisions in the 1960s dictated that the local municipalities would allocate resources to home help services and county councils for institutional care (Bergmark 1997, Edebalk & Lindgren 1994). The ideology of having elderly people stay in their homes was powerful, and the county council institutions were only for those who could not be cared for at home (Edebalk & Lindgren 1994). Thus, county councils have traditionally provided healthcare for the elderly, and municipalities have provided services (Riksrevisionsverket 2003).

In the 1970s elderly care, with respect to both municipalities and county councils, underwent rapid expansion (Edebalk & Lindgren 1994, Riksrevisionsverket 2003). Municipalities offered the elderly, including individuals not severely disabled, home help services such as shopping, preparing food, and cleaning (Bergmark et al. 2000), thus emphasizing the social needs of elderly citizens (Parker 2000). Since very old people continued to live in their own homes, the work of care assistants started to include tasks helping with personal needs, such as toilet assistance. This imposed requirements for further development of staff skills (Edebalk & Lindgren 1994).

In the 1980s, the expansion of elderly care began to slow down. The increased cost of home help services led to decreasing amounts of people receiving home help. Home help began to focus on the most frail elderly people (Bergmark 1997, Edebalk & Lindgren 1994), with services also offered during the evenings and nights (Sveriges Kommuner och Landsting 2005b). During the 1980s the proportion of elderly people living in institutions decreased dramatically, while the proportion of those living in service apartments with social service increased (Edebalk & Lindgren 1994).

Developments during the 1990s

In 1992, the Elderly Reform Bill (ÄDEL) transferred the responsibility for nursing homes and other institutions for long-term medical care from the county councils to the municipalities (Thorslund et al. 1997). Municipalities also received the responsibility of providing healthcare and rehabilitation in nursing homes. Municipalities could also, in agreement with the county council, take on the responsibility for home nursing or primary healthcare for elderly individuals in their own homes (Riksrevisionsverket 2003, Sveriges Kommuner och Landsting 2005a). Approximately 55,000 staff members and 400 care units with 30,000 residents were transferred from
county councils to municipalities (Riksrevisionsverket 2003, Sveriges Kommuner och Landsting 2005b).

The first half of the 1990s was characterized by an economic recession in Sweden. National and local authorities made cutbacks in many areas of the welfare sector (Bergmark et al. 2000). County councils reduced the number of hospital beds, and the average length of stay in hospital emergency care units was shortened (Riksrevisionsverket 2003). The shortened hospital stays implied that a substantial part of advanced care was transferred to the municipalities. Elderly individuals who had previously been cared for in hospitals were transferred to municipal nursing homes (Socialstyrelsen 2006c). At the same time, municipalities substantially decreased the number of beds in nursing homes (Socialstyrelsen 2005e). The ambition was to allow elderly people to live in their own homes as long as possible (Thorslund et al. 1997). Municipal elderly care services were meant for the individuals with greatest needs. Younger and healthier elderly persons that were in less need of care and services were given lower priority when allocating municipal resources (Socialstyrelsen 2005e). This created a greater need for private resources, such as help from families, for those not receiving enough, or any, municipal care (OECD 2005).

Several other European countries (Kerkstra & Hutten 1996, Meijer et al. 2000, Oberski et al. 1999, Paasivaara et al. 2003), as well as countries in the OECD (OECD 2005) have also had the ambition to build up community-based services to replace care in hospitals and long-term care institutions. For instance, in the United Kingdom the number of hospital beds available for long-term care has decreased, and communities have received the responsibilities for management of elderly care services (Higgs et al. 1998). The main reason for the shift to home-based care is considered to be its lower cost in comparison to institutional care (Kerkstra & Hutten 1996, Meijer et al. 2000).

In conclusion, elderly care in Sweden, in line with international developments, is increasingly being provided outside the traditional elderly care institutions. Elderly care is often provided in private homes. At the same time, elderly care staff has to deal with increasingly complex age-related disorders, both social and medical. Together, these changes have put a great emphasis on the need to enhance skills and knowledge among staff. The role of relatives of elderly care recipients has also changed, and they are viewed today as an important component in ensuring proper care of the elderly.

Laws regulating elderly care

There are two main laws regulating care and services for elderly people in Sweden. These laws are of a framework nature, and are thus designed to designate the state’s and municipalities’ responsibilities to provide for citizens’ needs, rather than emphasizing citizens’ rights (Parker 2000).
The Social Services Act (2001) grants all individuals assistance with different aspects of living if their needs cannot be provided in any other way. The act states that municipalities are ultimately responsible for ensuring that people receive the support and assistance they need. The social services provided should enable elderly people to continue living in their home environments, or, if this is no longer possible, offer them sheltered housing, group accommodation, or nursing homes with services and care.

The Health and Medical Services Act (1982) maintains that medical care shall be available to all members of society. According to this act, healthcare and medical services aim to maintain a good standard of health among the entire population.

The Swedish legislation emphasizes universality and aims to serve all individuals if needs arise, regardless of age, income or place of residence (Parker 2000). However, the laws include few elements of detailed regulations and allow local authorities autonomy in decision-making (Thorslund et al. 1997).

Division of responsibilities

Responsibility for elderly care is divided between three levels of government. At the national level, the parliament and government set out aims and directives in the form of legislation and economic policy documents. At the regional level, the county councils are responsible for healthcare, if an agreement with municipalities taking over the responsibility has not been made, and at the local level the municipalities are legally obligated to meet the social service and housing needs of all elderly people living in the municipality (Socialstyrelsen 2005e). However, as stated in the previous sections, the laws regulating elderly care do not provide details regarding municipalities’ obligations. All services and care for elderly people are based on a needs’ assessment, but the municipalities have the authority to decide criteria for the amount and type of help offered to elderly individuals (Thorslund et al. 1997). Thus, available elderly care services may vary greatly between municipalities.

The National Board of Health and Welfare and County Administrative Boards have a joint duty to supervise the provision of elderly care and the Swedish work environment authority is responsible for supervision of the work environment factors (Ansvarskommittén 2003).

Costs of elderly care

Several approaches, such as an increase in private care providers and a decrease in nursing home places in comparison to care in private homes, have been tried in order to decrease costs and increase efficiency in Swedish elderly care (Hörstedt et al. 1996, Socialstyrelsen 2006e).
Elderly care accounts for approximately 20% of the total expenditures of municipalities (Ansvarskommittén 2003), even though the total costs for care of and services for elderly have decreased somewhat during recent years (Socialstyrelsen 2006e). In 2001, the municipalities’ total costs were 82.8 billion SEK and in 2004 they were 79.6 billion SEK (in constant prices, reference year 2004) (Socialstyrelsen 2006e). The decrease in total costs is mainly explained by a decrease in nursing home places (Socialstyrelsen 2006e). Nursing home care is the segment of elderly care that accounts for the majority, approximately 66%, of all municipal costs for elderly care (Socialstyrelsen 2006e). The median cost per resident in a nursing home was 483.700 SEK per year in 2004. However, large differences have been reported between municipalities’ costs for elderly care (Hörstedt et al. 1996, Socialstyrelsen 2006e).

Nursing home costs have been associated with different elements of care provision. An economic model associates greater costs with higher quality of care (Fleming 1990). In this model, quality of care is measured with structural (input) measures of care provision such as staffing levels (Fleming 1990). Thus, for instance, higher staffing levels are expected to result in higher costs. Earlier empirical research on nursing home cost and quality has focused on the structural measures of quality (Nyman 1988, Weech-Maldonado et al. 2006). A quality management model expects higher quality to be associated with lower costs (Daigh 1991). Quality is conceptualized as freedom from deficiencies and is measured as outcome variables, such as the number of care recipients’ pressure ulcers (Weech-Maldonado et al. 2006). Extra time and resources are required to produce products and services with high quality. However, the extra resources serve as prevention of defects, which leads to lower cost (Daigh 1991). Few prior studies have evaluated nursing home cost in relation to the outcome measures (Nyman 1988, Weech-Maldonado et al. 2006).

In conclusion, attempts to reduce the cost of elderly care have been made, but the possible implications for the outcome measures of quality of care have not been empirically investigated.

Home-based care

In general, home help services for elderly living in their own homes include practical assistance such as cleaning, laundry, shopping, bank and post office errands, food distribution, transportation service and security alarms. Home help services also include personal care such as assistance with eating, get-
ting dressed, and personal hygiene (Westlund & Edvardsson 1998). Complementary services also include daytime activities that can be offered to elderly individuals living in their own homes (Sveriges Kommuner och Landsting 2005a).

Home nursing care for elderly people living in their own homes includes care and rehabilitation by registered nurses (Sveriges Kommuner och Landsting 2005a). The Elderly Reform Bill made it possible for municipalities to take the responsibility for home nursing care. In 2004, half of the municipalities had the responsibility for home nursing care (Sveriges Kommuner och Landsting 2005a). As a result, home nursing has become a part of the social services and often belongs to the same organization as the home help services (Kerkstra & Hutten 1996). The needs’ assessment procedure precedes a decision of receiving home nursing care (Thorslund et al. 1997), but no referral from a doctor is needed (Kerkstra & Hutten 1996).

After the developments of the 1990s, the nature of home-based care has changed (Blomberg et al. 2000). It has been reported that it became more difficult for elderly to obtain home services. In addition, increased nursing elements in home help services, as well as more active help from families and voluntary organizations, have been identified (Blomberg et al. 2000).

Nursing homes

For elderly people with more extensive care requirements, nursing home placement can be offered by the municipalities (Sveriges Kommuner och Landsting 2005a). Between the years 2000 and 2003, cutbacks in the municipal budgets reduced the nursing home places by approximately 7400 (Socialstyrelsen 2005e). On a national level, there are indications that nursing homes have been replaced by home help services, which have increased by approximately 7200 care recipients during the same time period (Socialstyrelsen 2005e). However, at the municipal level, only half of the municipalities that have cut back on nursing home care have expanded home help services. A comparison of ten western countries at the beginning of the 1990s showed that Sweden had the highest percentage of elderly people in the population, but a relatively low ratio of nursing home beds to elderly individuals (Ribbe et al. 1997).

The main actors in elderly care

Care recipients

The tendency towards concentrating municipal resources on elderly people with the most extreme needs implies that a greater proportion of both home
care recipients and residents in nursing homes have physical and cognitive disabilities than previously (Bergmark et al. 2000). The majority of elderly people living in nursing homes have some form of dementia, often combined with other disabilities (Socialstyrelsen 2006e, Sveriges Kommuner och Landsting 2005a). Elderly people receiving home-based services or care often constitute a more heterogeneous group, where some need advanced medical care and others need help with personal care or general housework (Socialstyrelsen 2005e).

A total of 237,100 persons received elderly care in Sweden in 2004, i.e. 15% of the population aged 65 and above (Socialstyrelsen 2005f, 2005g). The total amount of care recipients has been unchanged during the 2000s. Meanwhile, the amount of persons receiving home help services has increased by 10% and those receiving home nursing care have increased by 5%. In contrast, elderly people living in nursing homes have decreased by approximately 11% (Socialstyrelsen 2005g). Approximately 75% of all care recipients were older than 80 years (Socialstyrelsen 2005g) and a majority were women (Socialstyrelsen 2006e). Approximately 40% of those receiving home help services received help between one to nine hours per month and 23% received between 10 and 25 hours per month (Socialstyrelsen 2005g).

Family members of care recipients

Family members of elderly care recipients are playing increasingly important roles in care provision, since many of the elderly receive services and care both from the municipalities and from their relatives (Socialstyrelsen 2006e). Family members also act as monitors of the quality of care and report possible inaccuracies (Bowers 1988, Socialstyrelsen 2006e). In addition, the Health and Medical Services Act states that if information cannot be supplied to the patient, the relatives should be informed instead, which further indicates relatives’ important role in care provision.

In Swedish home care, the official help from municipalities in 1994 was estimated to be 40% of the total help to persons over 75 years, and in 2000 the corresponding proportion was estimated to be 30% (Socialstyrelsen 2005e, Sveriges Kommuner och Landsting 2005a). Thus, the informal help seems to have increased during the last ten years. Informal care is most often provided by women between 45-64 years of age, and 10-20% of the Swedish population were estimated to be informal caregivers to a relative (Socialstyrelsen 2006b). International studies have reported that family members retain emotional ties and often visit their relative even when the relative has been transferred to a nursing home. Residents with little or no contact at all with their families are a minority (Bowers 1988, Ejaz et al. 2003).
Staff

Several staff categories are engaged in elderly care. Swedish municipalities usually employ practical nurses, nurses’ aides, needs’ assessments officers, and supervisory staff. Since the Elderly Reform Bill came into effect in 1992, occupational therapists and registered nurses have also been employed by the municipalities. However, physicians are employed by county councils (Sveriges Kommuner och Landsting 2005b).

In many municipalities practical nurses and nurses’ aides comprise the largest professional groups (Fahlstrom & Kamwendo 2003). There is a high percentage of women working in elderly care, and a low percentage (less than 10%) of men (Socialstyrelsen 2005e). The proportion of men working in elderly care is even lower in small municipalities (Socialstyrelsen 2005e). The mean staff age is relatively high and approximately 22% of staff members are 55 years or older (Socialstyrelsen 2005e). In 2004, approximately 239,500 persons, including part-time staff and staff on sickness or parental leave, worked in municipal elderly care (Socialstyrelsen 2006e). Between 1995 and 2004, the total amount of staff has increased by 15% (Sveriges Kommuner och Landsting 2005a).

The National Board of Health and Welfare (2006e) recently reported that the greatest challenge in elderly care was the problem of ensuring sufficient and competent staff. Care work in general, and elderly care in particular, seem to have lost their attraction, and a constant need to recruit large numbers of care staff for elderly care has been reported (Socialstyrelsen 2005e). A shortage of staff with adequate knowledge and skills in several other member states in the European Union (Kerkstra & Hutten 1996) and in OECD countries (OECD 2005) has also been reported, both in nursing homes and in home care.

Work environment

This thesis deals mostly with the psychosocial work environment. However, some aspects of the physical work environment and physical strain are also considered.

The psychosocial work environment has been defined as psychological work demands, influence and control over work, good contact with and support from supervisor and fellow workers, stimulation from work and opportunities for development (Kallestal 2004, Theorell 2003). In elderly care settings, a lack of sufficient leadership and support (Arbetarskyddsstyrelsen 2000, Meyer & Muntaner 1999, Oberski et al. 1999), influence and control over the work (Backman 2001, Gustafsson & Szehely 2005, Johansson 1995), as well as stimulation from the work (Johansson 1995) have been reported. In addition, an increased degree of dependency among elderly care
clients has increased the staff’s physical workload (Oberski et al. 1999). In fact, high physical and emotional demands at work were considered to be the main reason that many staff members were not able to work full-time (Gustafsson & Szebehely 2005).

Work environment regulations
The Work Environment Act (1977) requires that work organization and work content should be designed so that staff is not exposed to physical strain or mental stress that may lead to illness or accidents. The employer’s obligations, such as investigation of work-related injuries and ensuring that staff has sufficient knowledge of work conditions and possible hazards, are also stated in the act.

The Swedish Work Environment Authority’s regulation regarding systematic work environment efforts (Arbetsmiljöverket 2001) gives more specific rules for employers to take their responsibility for work environment. Another regulation (Arbetsmiljöverket 1990) on home-based care states that staff working in private homes should have sufficient knowledge regarding the work tasks in the home environment. The Social Service Act also emphasizes that staff should have suitable training and experience to perform their work tasks in social services.

As mentioned earlier, the Swedish Work Environment Authority has the responsibility for supervision of the work environment in Swedish workplaces and they may carry out workplace inspections for that purpose.

Stress and emotional strain
There does not seem to be a single, accepted definition of stress (Hasson 2005). However, most of the stress theories agree that “stress is adaptive, that it is associated with threatening or harmful events, and that it is typically characterized by aversive or unpleasant feelings and mood” (Dougall & Baum 2001 p. 321). Stress has been shown to affect emotions, health, productivity, and performance (Dougall & Baum 2001). There are several theoretical frameworks for work stress (Nelson et al. 2001) but it is not within the scope of this thesis to describe these models. However, the Demand-Control Model (DCM) will be briefly presented, since the concept of skills utilization is included in the model. The Demand-Control Model suggests that the impact of psychosocial work demands on staff health is moderated by the level of decision latitude (work control). The authors proposed that jobs with high stress levels are characterized by high job demands and low employee control (Karasek 1979, Karasek et al. 1988). Skills utilization and development are a part of the control (decision latitude), i.e. if staff has opportunities to develop their competence they also have greater possibilities to control the different situations occurring at work (Theorell 2002).
Prior research has found high stress levels among staff in nursing homes (Morgan et al. 2002, Proctor et al. 1999, van den Berg et al. 2006) and home care (Denton et al. 2002a, Laamanen et al. 1999). It has also been proposed that work stress and stress-related symptoms such as fatigue and exhaustion have increased during the past years among staff in Swedish elderly care (Arbetarskyddsstyrelsen 2000, Bäckman 2001). In addition, nursing staff have reported higher stress levels than the working population in general (Wall et al. 1997). However, lower levels of stress have also been identified among staff in psychiatric services for elderly people (Baillon et al. 1999), in units for severely demented people (Hansson et al. 1995), and among home care workers (Bartoldus et al. 1989, Johansson 1995).

In the occupational context, heightened stress or prolonged stress have been proposed to be related to decreased work satisfaction (Boswell 1992), increased absenteeism (Vagg & Spielberger 1998), higher staff turnover (Sjogren et al. 2005, Yin & Yang 2002), a greater number of injuries (Clarke et al. 2002), and poorer quality of care (Cohen-Mansfield & Rosenthal 1989).

Physical strain

A general increase in physical workload in Swedish elderly care has been identified both in home care and in nursing homes since residents’ care dependency has increased (Gustafsson & Szebehely 2005, Socialstyrelsen 2005e). Increased physical workload also seems to be a trend in other European countries (Meijer et al. 2000). A questionnaire study of elderly care staff in eight Swedish municipalities revealed that between 20-30% of home care and nursing home staff reported that they were often physically tired after work (Gustafsson & Szebehely 2005).

The most common physically strenuous aspects of elderly care work have been reported to be heavy lifts and inappropriate working positions (Bäckman 2001). One reason for the heavy physical work strain might be the use of poor or inadequate equipment when transferring care recipients (Arbetarskyddsstyrelsen 2000). In addition, toilet areas that are too small, both in private homes and in nursing homes, caused unsuitable working positions. The limited knowledge of staff regarding ergonomics has also been reported (Arbetarskyddsstyrelsen 2000).

Competence

As described earlier, several of the laws regulating elderly care require that staff have the appropriate education and experience for executing their work tasks. However, the formal level of education among elderly care nursing staff is reported to be low, with only 56% of nursing assistants and practical nurses having a formal upper secondary (high school) education suitable for
their profession (Socialstyrelsen 2004). The proportion of staff with formal education is higher in nursing homes compared to home help services (Socialstyrelsen 2004). Nursing assistants’ and practical nurses’ opportunities for skills development at work are also limited (Socialstyrelsen 2005d). In addition, the guidance given to these occupational groups has been reported to be limited, since there are few doctors and registered nurses working in elderly care settings (Riksdagens revisor 2002, Socialstyrelsen 2005a).

In a recent review of Swedish literature regarding the work of elderly care nursing staff, several different competence areas necessary to nursing work were identified (Socialstyrelsen 2006d). Nursing staff needs to be able to carry out tasks related to nursing care, social relations, housework, medical tasks, and administrative work (Socialstyrelsen 2006d). Work competence in elderly care has also been defined as knowledge that is needed to take care of a home and the physical body of another individual as well as skills to listen to and identify needs and wishes of a care recipient (Runesson & Eliasson-Lappalainen 2000). In addition, the ability to individualize the care for each care recipient is needed, together with theoretical knowledge of medical, psychiatric, and social aspects of work (Runesson & Eliasson-Lappalainen 2000). Thus, the definition of work competence for elderly care nursing staff is broad and the fact that care recipients today have more complex medical and psychiatric needs than previously has placed new demands on nursing staff competence (Proctor et al. 1999, Robertson & Cummings 1996, Socialstyrelsen 2004, Sung et al. 2005). Areas such as dementia and dementia treatment (Brodaty et al. 2003, Sung et al. 2005), mental health problems (Hsu et al. 2005), medical work tasks such as injections, physical diseases with special treatment (Brulin et al. 1998), aggressive behavior (Skovdahl et al. 2003), palliative care (Ersek et al. 1999, Raudonis et al. 2002), and employees’ rights (Wills et al. 1998) have been reported to be in need of competence development.

As described earlier, sufficient competence regarding work tasks improves staff opportunities to control different work situations (Theorell 2002). An earlier study showed that nursing aides’ performance of work tasks that were not included in their education contributed to uncertainty (Brulin et al. 2000). In addition, risk for burnout and negative attitudes has been shown to be higher for nurses with low education levels, since the less qualified nurses have a greater exposure to residents’ behavioral disturbances, and they are less skilled in managing these behaviors than nurses with higher levels of education (Astrom et al. 1991). Other studies have associated lack of skills and training opportunities with low work satisfaction (Brodaty et al. 2003), high staff turnover (D’Eramo 2001, Sung et al. 2005), and low quality of care (McAiney 1998, Rantz et al. 1999).
Work satisfaction

Earlier studies have found a number of organizational, professional, and personal variables to be related to work satisfaction (Lu et al. 2005). For instance, work stress has been proposed to be closely related to work satisfaction (Blegen 1993, Lu et al. 2005). In addition, social support (Chou et al. 2002, Navaie-Waliser et al. 2004), feedback (Jansen et al. 1996), interaction with care recipients (Denton et al. 2002a, Moyle et al. 2003, Navaie-Waliser et al. 2004), development opportunities (Jansen et al. 1996, Moyle et al. 2003), leadership (Grieshaber et al. 1995), and influence on work (Friedman et al. 1999, Hansson et al. 1995) have been reported to be positively related to work satisfaction. Personal variables, such as age and education level have also been proposed to be related to work satisfaction (Grieshaber et al. 1995). However, work environment variables have been reported to be more related to work satisfaction than personal characteristics, implying that adaptation of work environment is crucial to improving work satisfaction (Friedman et al. 1999).

Prior research has reported high and moderate work satisfaction in home care (Denton et al. 2002a, Jansen et al. 1996) and in nursing homes (Brodaty et al. 2003, Grieshaber et al. 1995, Moyle et al. 2003). However, low satisfaction (Haggstrom et al. 2004) has also been reported. For instance, almost half of the registered nurses in 12 municipalities in southern Sweden reported being dissatisfied with their working situations (Weman et al. 2004).

Quality of care

Theoretical quality definitions

There are several theoretical concepts for defining quality and a great many empirical evaluations. One of the most frequently used quality models in service organizational research defines quality as having three aspects: customer outcome, customer process, and prerequisites for the service (Edvardsson 1996, 1998). Edvardsson (1998) argues that the customer judges the quality of a service based on these outcomes and he/she is a co-producer of a service in the customer process. Outcome and process quality are dependent on the organization’s prerequisites for the service, i.e. the resources of the service provider, in terms of technical and physical resources as well as administrative routines and procedures (Edvardsson 1998).

In the field of medical research, Donabedian’s definition of quality is probably the most well-established model. Donabedian (1966) proposed a quality of care framework including structural, process, and outcome measures of quality. Structural factors are organizational characteristics such as staffing levels, management, facility size, and consumer characteristics such
as functional level of clients (Dellefield 2000, Schirm et al. 1999). Process refers to what is done for care recipients, including aspects such as quality assurance work, cleaning, infection controls, and restraint use (Dellefield 2000). Outcome refers to the results of the care and services, such as prevalence of pressure ulcers, malnutrition, and falls as well as client and family satisfaction (Dellefield 2000, Schirm et al. 1999). Donabedian’s framework proposed that the three quality aspects are causally linked; structure leads to process, and process leads to outcomes. Later on, it was also proposed that structure directly influences outcomes (Sainfort et al. 1994). Thus, the basic assumption is that good organizational structure and care processes are linked to desirable outcomes (Davis 1991).

Regardless of the different research traditions in service organizational research and medical research, the models proposed above have similar characteristics. The models include outcomes as one measure of quality. It is proposed that outcomes are influenced by service delivery processes and organizational factors. The main difference between the models seems to be the view of the customer/patient. Service organizational research treats the customer as co-producer in the service delivery processes. The traditional medical view of the patient has included a more passive role. However, in recent years the medical and nursing research has also reinforced the patient position in Sweden and other countries (Nordgren 2003, Sitzia & Wood 1997). This is in line with a general trend towards individualism in the society, and in fact the word patient has been replaced in many organizations by terms such as consumer, customer, client, or service user (Nordgren 2003, Sitzia & Wood 1997).

Quality of elderly care
A great variation in quality of elderly care has been reported between the OECD countries and between care providers within a country (OECD 2005). Swedish elderly care does not have a long tradition of quality assurance work or standardized quality evaluation. However, recent scandals regarding unacceptable conditions in elderly care have increased the interest in quality controls (Parker 2000). In general, quality measurement and improvement strategies in elderly care have been reported to lag behind the methods used in emergency care (OECD 2005).

The Swedish County Administrative Boards conducted inspections of elderly care organizations in almost all of the Swedish municipalities in 2004 (Socialstyrelsen 2005b). Deficiencies were identified in half of the inspections, with the most common situations regarding staff behavior and poor documentation processes (Socialstyrelsen 2005b). Reports of inaccurate municipality healthcare, according to the Lex Maria (see below), consisted most often of improper medication, late or incorrect diagnoses, slip and fall accidents and poor cooperation between different caregivers resulting in
unmet care needs (Socialstyrelsen 2006e). Inadequate care in institutional settings in other OECD countries has included inadequate treatment of chronic pain, pressure ulcers, inappropriate use of chemical or physical restraints, inadequate housing, and poor social relationships (OECD 2005).

Quality regulations

The Social Services Act and the Health and Medical Services Act require “good quality” for the services and care provided. The acts also require systematic and continuous quality development work. Quality development work is further defined in The National Board of Health and Welfare’s recommendations for social services (Socialstyrelsen 1998) and for healthcare (Socialstyrelsen 2005c). It is stated that an elderly care organization should have a system for establishing quality goals, as well as for planning, performing, evaluating, and developing quality (Socialstyrelsen 1998). The goal of the quality system is to ensure that the individual’s care and service needs are met, and the system should include methods to secure aspects such as needs-assessment procedures, responsibilities of staff members and organizations, adequate staff competence, as well as reports of adverse events and complaints (Socialstyrelsen 1998).

Lex Sarah, a chapter in The Social Services Act (2001), also states that persons who are active in elderly care shall verify that good care and secure living conditions are offered. The act requires that inappropriate care must be reported, which is also required of staff working in healthcare according to the chapter called Lex Maria in The Health and Medical Services Act (1982).

Quality measurements

Quality evaluations often utilize structure, process, and outcome measures of quality. These aspects of quality can be measured according to an expert-oriented approach containing objective and often technical aspects of quality (Gummesson 1992). In the healthcare context expert-oriented objective measures have commonly been used (Socialstyrelsen 2003). Many elderly care organizations in several of the OECD countries have used quality requirements such as room size, staff ratios, prevalence of pressure ulcers, infections, slip and fall accidents, restraints and anti-psychotic drug use (OECD 2005).

Another approach, a user-based quality definition, implies that quality is what gives satisfaction to a customer and that quality is measurable in the sense of asking a customer about the service experience (Gummesson 1992). The users’ answers can be used as input for quality development (Gummesson 1992). The user-based view on quality measurement is traditionally included in service organizational research (Seth et al. 2005) and
also increasingly in medical and nursing research (Axelsson 2000). In fact, half of the Swedish municipalities reported using client satisfaction as a tool to evaluate quality of elderly care (Socialstyrelsen 2001).

**Elderly care recipients’ perceptions of quality**

It has been recognized that the elderly care recipients’ viewpoints on quality and content of care can offer important information for care organizations in identifying potential areas for improvement (Aharony & Strasser 1993, Duffy et al. 2001). Several Swedish elderly care organizations started with measurements of clients’ perceptions of quality in the 1990s. However, no nationwide studies have been conducted (Socialdepartementet 2002, Socialstyrelsen 2006e). In the USA a requirement that nursing home quality measurements should incorporate assessment of resident satisfaction has been codified in legislation (Bowers et al. 2001a).

Prior research has in general found positive care recipients’ perceptions of quality of care (Curry & Stark 2000, Curtis et al. 2005, Pearson et al. 1993, Socialdepartementet 2002). However, critical ratings have also been reported concerning some aspects of care, such as information received from staff (McCartan-Quinn et al. 1996), continuity of staff (Socialdepartementet 2002), social activities available (McCartan-Quinn et al. 1996), opportunities to influence care (Socialstyrelsen 2006a), and opportunities to participate in decision-making regarding the care provision (Wressle et al. 2006).

Several characteristics of elderly care recipients have been found challenging when including them in quality measurement activities (Bowers et al. 2001a). For a great proportion of elderly care recipients, dementia may limit their ability to report perceptions of quality (Bowers et al. 2001a, Wilde et al. 1995). However, a majority of long-term care residents has been reported to be able to produce logical responses to a quality of care survey on incontinence care (Simmons & Schnelle 1999). Another common problem regarding quality measurements with elderly people has been a tendency toward high quality ratings (Chong 2003, Owens & Batchelor 1996). It is reported that elderly care recipients give answers consistent with prevailing social norms rather than answers that are their real personal responses (Forbes & Neufeld 1997); they may not be willing to express critical views due to vulnerability to staff (Grau et al. 1995, Owens & Batchelor 1996). Elderly people have also been reported to have low expectations regarding care and therefore to be more easily satisfied with services and care than younger people with higher expectations (Grau et al. 1995).

**Family members’ perceptions of quality**

It has been recognized that family members can also be a source of information regarding the quality of care, especially since they have been shown to be very interactive in the care processes (Ejaz et al. 2003). Relatives’ views on quality of care can be an alternative source of information when patients
have difficulties expressing their views (Ejaz et al. 2003, Lubart et al. 2004a). Relatives’ perceptions of quality may also be a complement to care recipients’ perceptions, since the views of these groups have been shown to differ from each other (Ejaz et al. 2003). It is also recognized that family members are likely to influence or make decisions for elderly care recipients, which further points to the importance of family perspectives (Ejaz et al. 2003). However, like care recipients, the family members may also be unwilling to report dissatisfaction because of fear of staff retaliation against their relative (Grau et al. 1995, Hertzberg & Ekman 1996).

Earlier research on family members’ perceptions of elderly care quality has found that relatives were highly satisfied with nursing home care (Lubart et al. 2004b, Maas et al. 1991) and with home care (Chiu 1997). However, relatives have also reported dissatisfaction with specific aspects of care, such as their own possibilities to participate in care provision (Maas et al. 1991), information they receive from staff members regarding care recipients’ illnesses and treatments (Wellwood et al. 1995), activities provided to care recipients (Maas et al. 1991), and ignorance of care recipients’ personal preferences when planning care and services (Curry & Stark 2000).

Educational interventions in elderly care

It has been proposed that interventions to strengthen staff care provision in terms of improving the working conditions and increasing staff competence are possible ways to improve care quality (Wiener 2003). However, few evaluations of educational initiatives in elderly care settings have been conducted (Aylward et al. 2003, Beck et al. 1999, Ross et al. 2001). Aylward et al. (2003) reviewed literature regarding continuing educational programs in long-term care facilities and found 48 educational studies. The Beck et al. (1999) literature review of dementia training identified six interventions evaluating dementia training programs for nursing assistants in nursing homes.

Earlier educational interventions have been reported to suffer from serious methodological weaknesses, such as small sample sizes, lack of a control group, or low response rates (Aylward et al. 2003, Beck et al. 1999). In addition, a lack of long-term measurements has been reported to limit the evaluation of the effects of the educational interventions (Aylward et al. 2003). For instance, two thirds of the reviewed educational studies by Aylward et al. (2003) included only immediate post-intervention evaluations and lacked long-term follow-up evaluations.

It has thus been suggested that more rigorous research on the implementation and effectiveness of continuing education is needed (Aylward et al. 2003). However, there are several factors that have been reported to challenge the provision of staff education in elderly care organizations. For in-
stance, lack of fiscal and human resources, lack of time for staff to attend lectures, and poor staff motivation regarding education have been reported to make it difficult to conduct educational interventions in elderly care (Fitzpatrick & Roberts 2004, Ross et al. 2001).

The focus of previous educational interventions has often been on resident mental health. A total of 19 of the 48 interventions identified in the Aylward et al. (2003) literature review focused on resident mental health issues. The reviewed interventions also focused on chemical or physical restraint reduction, incontinence, and oral care. However, none of the reviewed interventions focused on staff work environment issues, except for a few studies aiming to change staff attitudes towards elderly people. Adding staff work environment perspectives to interventions aiming to improve residents’ wellbeing might be important, since work environment is one crucial factor for staff ability in providing care (Wiener 2003).

The educational interventions have often been conducted in a staff training program format (Aylward et al. 2003). However, a need for innovative education formats has been identified (Ross et al. 2001, Stolee et al. 2005), primarily since difficulties transferring and implementing new knowledge into practice after a staff education program have been identified (Broad 1997).

Most of the reviewed educational interventions (Aylward et al. 2003) were evaluated on staff knowledge, attitudes, or behavior, and only two studies on staff work satisfaction. A total of 14 interventions were evaluated on resident outcomes, and the majority of the interventions only used one outcome variable for evaluation (Aylward et al. 2003). A literature review regarding staff educational programs in dementia care suggested that future intervention evaluations should include outcome measures of improvements in staff knowledge (Beck et al. 1999). They recommended measures of factors such as staff, resident, and family satisfaction in order to evaluate the effect of increased staff knowledge.

The theoretical framework

The theoretical framework of this thesis is based on the organizational research regarding healthcare organizations and the quality management theories presented earlier. The basic assumption of the quality theories was that good work organization, care processes, and adequate staff competence are linked to desirable outcomes (Davis 1991, Donabedian 1966, Edvardsson 1998). This approach will be further developed with the theoretical models presented below.

Sainfort et al. (2001) developed a theoretical model that integrates the total quality management (TQM), quality improvement (QI) and healthy work organization (HWO) theories, all of which emphasize the importance of
management practices, employee empowerment, and supportive organizational culture. Sainfort et al. (2001) proposed that adopting quality improvement methods, such as total quality management, not only improve the quality of care, but also contribute to the transformation of an organization into a healthy work organization. By “healthy work organization” the authors mean an organization with both a healthy workforce and financial success. The “Organizational Health and the Total Quality Management (TQM) Framework” is theoretical, but according to the authors it is based on prior empirical research investigating relationships between work organizations, quality of care, and staff outcomes in hospital settings.

At the left of the “Organizational Health and the Total Quality Management (TQM) Framework” are the organizational variables – work organization, organizational culture, technology, and the environmental factors affecting the organization. The organizational variables interact with the intermediate outcomes that are in the middle of the model. The intermediate outcomes are staff outcomes and care processes. According to the model, staff health and care processes will be directly affected by the organizational variables. At
the right of the model are the final outcomes – patient health, safety, satisfaction, quality of life, and organizational performance and quality. Both the organizational variables and the intermediate variables affect the final outcomes directly. The organizational factors may also affect the final outcomes through their impact on the intermediate variables. In addition, the authors proposed that the intermediate and the final outcomes may also influence the organizational variables. However they did not, for some reason, draw that relationship to the “Organizational Health and the Total Quality Management (TQM) Framework”.

Since this model was developed for healthcare organizations in general, some aspects of the model, such as technological factors, may not be as relevant in elderly care settings as in other healthcare environments. For this reason, another theoretical model will be presented. The “Model of hypothesized relationships between work satisfaction, work stress, quality of care and resident/patient wellbeing” was developed especially for elderly care settings by Hannan et al. (2001). The model has basic features that are similar to those of the framework proposed by Sainfort et al. (2001), but it is based on the findings in the authors’ literature review regarding work and quality of care in elderly care settings (Hannan et al. 2001).

![Figure 2. Model of hypothesized relationships between work satisfaction, work stress, quality of care, and resident/patient wellbeing by Hannan et al. (2001).](image_url)

The model consists of input factors in the left side. These are institutional factors, such as management, training, staffing levels as well as home factors such as stress regarding balance between home and job and support received from home environment. The input factors are suggested to be directly related to staff outcomes, such as work satisfaction, work stress, and sickness absence. The authors proposed that the effect of the institutional factors is expected to be stronger than that of the home factors since more support was
found for this in the literature review. Staff outcomes are suggested to be directly related to quality of care and resident wellbeing. However, this relationship may be influenced by staff and resident characteristics, which act as moderators. The solid arrows in the model indicate relationships that are relatively well-established in the literature and the broken arrows indicate relations that are suggested, but not clearly established.

The model does not consider that the outcome factors may, in turn, affect the organizational variables, which was proposed by Sainfort et al. The relationship between staff and resident outcome factors and the organizational variables has also been proposed in an empirical study (Robertson et al. 1995). Robertson (1995) considered the influence of these factors to be a “mutual feedback system”. The author suggested that factors like low work satisfaction lead to a decline in quality of care, which further diminishes the staff work satisfaction. Thus, work satisfaction and quality of care reinforce each other in a workplace (Robertson et al. 1995).

Neither of the theoretical models presented above emphasizes the influence of family members of care recipients on the outcome measures. The model by Hannan et al. (2001) recognizes marital status of care recipient and number of children as patient moderators, but does not develop the role of relatives and family members as factors influencing the care quality. Therefore a modified version of the “Model of hypothesized relationships between work satisfaction, work stress, quality of care, and resident/patient wellbeing” by Hannan et al. (2001) is proposed.

![Figure 3. Modified version of “Model of hypothesized relationships between work satisfaction, work stress, quality of care, and resident/patient wellbeing” by Hannan et al. (2001).](image)

The modified model proposes that family members of the elderly care recipients have a possible influence on staff outcome, quality of care, and care recipient outcomes. Edvardsson (1998) proposed that customers are co-producers of the services provided. This thesis considers both care recipients and their family members as co-producers of elderly care services. The modified model places staff competence and skills as staff outcomes. Staff competence is related to staff moderators such as staff grade and can be influenced by institutional factors such as training and education. Staff compe-
tence in turn affects work satisfaction, stress, and work performance, in addition to quality of care and care recipient wellbeing.

The model also proposes that care recipient wellbeing affects staff outcomes and the institutional factors, as was proposed by Sainfort et al. (2001) and Robertson (1995). The modified model functions as a theoretical framework for this thesis. Some variables from the original model of Hannan et al. (2001), such as home factors, staff, and patient moderators, are not empirically measured in this thesis and thus not included in the modified version of the model. These variables are still considered to be possible confounding variables. The modified model is mainly used to give structure to the evaluation of the intervention (Papers III and IV).

In conclusion, the empirical research behind the theoretical models focusing on the outcome variables of this thesis reported that staff competence correlates negatively with staff work stress levels, i.e., the lower one’s perceptions of competence and skills, the higher the feelings of work stress (Dunn et al. 1994, Morgan et al. 2002). In addition, staff have reported becoming more comfortable and confident at work after having an opportunity to improve their skills (Morgan et al. 2002). Work stress has been revealed to be closely related to work satisfaction, i.e. increased levels of work-related stress have been associated with lower levels of work satisfaction (Boswell 1992, Lu et al. 2005). A strong negative association has also been reported between work stress and quality of care (Cohen-Mansfield & Rosenthal 1989), and work satisfaction and quality of care (Chou et al. 2003).

Hypothesized impact of the intervention according to the theoretical models

The model presented above was a foundation for the hypothesis constructed for the evaluation of the educational intervention in this thesis. The toolbox intervention was hypothesized to have a direct positive impact on staff competence and several aspects of the psychosocial work environment, such as social climate and staff possibilities to influence and participate. The intervention was also hypothesized to have an indirect positive impact on staff stress and work satisfaction through improved competence and psychosocial work environment.

It was also hypothesized that the intervention would also have a direct positive impact on certain aspects of quality of care, since these areas of care were the focus of some of the toolbox instruments. This could be the case, for instance, for activities provided for care recipients, since an instrument for recording care recipients’ preferences for leisure activities was included in the toolbox. Using the instrument, staff could gather information regarding care recipients’ preferences for activities and adapt the activities to better
suit their preferences. This could improve care recipient and their relatives’
quality ratings regarding the activities.

The intervention was also hypothesized to have an indirect positive im-
pact on some other aspects of quality of care such as care recipients’ oral
health and pressure ulcers, since staff knowledge and skills in these areas
was expected to improve when using the corresponding instruments included
in the toolbox.

Finally, the general improvement of staff psychosocial work environment
and work satisfaction was hypothesized to improve the quality of care as
proposed by the theoretical models. The improvements in quality of care
would in turn improve care recipients’ wellbeing, which would eventually
have a positive impact on both institutional factors and staff outcomes.
Methods

The four papers included in this thesis are based on a research project entitled “Tools for Optimal Organizational Load” (TOOL), which was conducted in two municipal elderly care organizations. The project aimed to assess an educational intervention on staff perceptions of the psychosocial work environment and care recipient and family members’ perceptions of quality of care. All four papers included in the thesis present results from questionnaire studies conducted in these municipalities between 2001 and 2004. Paper I also includes questionnaire data from a university hospital study that was aimed at investigating patient relatives’ perceptions of quality of care. Figure 4 illustrates the study design, settings, and participants in each of the papers.

<table>
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<tr>
<th>PAPER I</th>
<th>2001</th>
<th>Patient relatives Örebro University hospital n=38</th>
<th>Care recipient relatives Bengtfor n=184</th>
<th>Care recipient relatives Bengtfor n=134</th>
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Figure 4. Study setting, participants and design in Papers I-IV.

In addition, this thesis includes analyses of nursing home costs’ possible correlation with administrative data concerning resident and staff outcomes, staff ratings of the psychosocial work environment, and care recipients’ and
their relatives’ ratings of quality of care. The data concerning nursing home costs and administrative data about staff and resident outcomes were collected from the two municipalities involved in the TOOL project. The results of these analyses were not presented in any of the papers, but are presented as additional findings in this thesis.

**Designs**

Papers I and II were cross-sectional questionnaire studies. Papers III and IV were based on a prospective, non-randomized, controlled intervention. The intervention study used a quasi-experimental design, since the individuals and workplaces included in the intervention and control groups were not randomly assigned. The timeline of the intervention project and the study design are presented in Figure 5. The additional analyses regarding nursing home cost had cross-sectional designs.

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<td>Order from the Swedish Work Environment Authority (I)</td>
<td>Focus group discussions (I)</td>
<td>Pilot questionnaire study (I)</td>
<td>Baseline measurement (I)</td>
<td>Toolbox introduced (I)</td>
<td>6-month evaluation (I)</td>
<td>16-month evaluation (I)</td>
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<td>12-month evaluation (R)</td>
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*Figure 5. Timeline for the intervention project, (I) = intervention municipality, (R) = reference municipality.*

The TOOL project started in the elderly care organization of the intervention municipality (Bengtsfors). This organization had received orders from the Swedish Work Environment Authority to evaluate the working situation of the elderly care staff. High levels of sickness absence and work strain among nursing staff were also reported in the municipality’s internal reports. In response to the authority’s demand, the municipality’s occupational health service contacted the research team in 1998 asking for assistance in carrying out an investigation of the psychosocial work environment in the elderly care organization. The results of the investigation became a starting point for an educational intervention, “Toolbox”, which was implemented in the elderly care organization in Bengtsfors in 2003.
Settings
The Örebro University Hospital

The university hospital study (Paper I) was conducted in five departments at the Örebro University Hospital (USÖ). The departments that participated in the study were geriatrics, medicine, neurology, orthopedics, and the intensive care unit. USÖ had conducted hospital-wide patient questionnaire studies to measure patient perceptions of quality of care. There was a need for a patient relatives’ questionnaire, since a large proportion of patients on these departments were not capable of replying to a questionnaire.

The elderly care organization of Bengtsfors

Bengtsfors is a municipality in western Sweden with 10,335 inhabitants in 2004 (Bengtsfors kommun 2004). The amount of inhabitants has decreased in the municipality during the past ten years by approximately 10%. Those who have moved from the municipality have mainly been young people, with the result that approximately 25% of the population is over 65 years (Wigren et al. 2002). This can be compared to 17% in the surrounding county and in Sweden in general (Socialstyrelsen 2006c, Wigren et al. 2002). During recent years many industrial companies have also closed down in Bengtsfors and the economical situation of the municipality has been strained (Kommunstyrelsen 2001, Wigren et al. 2002). The unemployment rate was approximately 10% in both 2001 and 2004 (Bengtsfors kommun 2004, Kommunstyrelsen 2001).

The municipal elderly care organization in Bengtsfors made several changes in the provision of home care and nursing home care during the research project. In 2002 and 2003 the number of nursing home places was reduced and home care was reorganized into one unit instead of several geographical units (Bengtsfors kommun 2003). All staff having permanent tenure kept their jobs, but the amount of part-time staff and substitutes was reduced (Bengtsfors kommun 2003). In addition, several new managers were employed for administration of social services and for the elderly care organization, since turnover in these positions was high (Bengtsfors kommun 2004). The municipality also took measures for improving the process of elderly individuals’ need assessments and offered education in dementia care for some nursing staff (Bengtsfors kommun 2004). A systematic work environment plan was introduced in 2003 in all workplaces (Bengtsfors kommun 2003).

The elderly care organization of Bengtsfors includes one service apartment complex that is taken care of by a non-profit association, but home care services are offered by the municipal elderly care (Private communication Nils Andrée 6 October 2006). There are eight service apartments in total, and the care recipients in these apartments and their relatives were included
in the present study. The numbers of care recipients and staff members in the elderly care organization of Bengtsfors are presented in Table 1.

Table 1. Numbers of elderly care recipients and staff members in the elderly care organizations in Bengtsfors and Uddevalla.

<table>
<thead>
<tr>
<th></th>
<th>Bengtsfors</th>
<th></th>
<th>Uddevalla</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
<td>2004</td>
<td>2001</td>
<td>2004</td>
</tr>
<tr>
<td>Amount of care recipients ^ in:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>home help services</td>
<td>174</td>
<td>189</td>
<td>687</td>
<td>811</td>
</tr>
<tr>
<td>home nursing care *</td>
<td>79  (25)</td>
<td>112 (41)</td>
<td>420 (71)</td>
<td>316 (49)</td>
</tr>
<tr>
<td>nursing homes</td>
<td>280</td>
<td>216</td>
<td>774</td>
<td>756</td>
</tr>
<tr>
<td>Total amount of care recipients †</td>
<td>479</td>
<td>446</td>
<td>1532</td>
<td>1616</td>
</tr>
<tr>
<td>Amount of staff members ‡ (part-time and full-time) in:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>home help services</td>
<td>95</td>
<td>78</td>
<td>406</td>
<td>458</td>
</tr>
<tr>
<td>home nursing care *</td>
<td>8</td>
<td>18</td>
<td>593</td>
<td>626</td>
</tr>
<tr>
<td>nursing homes</td>
<td>279</td>
<td>271</td>
<td>999</td>
<td>1084</td>
</tr>
</tbody>
</table>

^ = References: (Socialstyrelsen 2002, 2005g)
* = care recipients receiving both home nursing care and home help services, within parentheses the amount of care recipients receiving only home nursing care.
† = the sum of care recipients receiving home help services, home nursing care (excl. those receiving both home nursing care and home help services) and individuals in nursing homes.
‡ = References: Bengtsfors: (Private communication Sara Molander 9 October 2006), Uddevalla: (Private communication Pär Levander 25 October 2006).

The elderly care organization of Bengtsfors was the intervention organization in the present project. The workplace toolbox was introduced at all workplaces in the elderly care organization in the intervention municipality.

The elderly care organization of Uddevalla

The Uddevalla elderly care organization was included in the research project as a reference municipality in 2003. The organization had also received orders from the Swedish Work Environment Authority to evaluate the working situation of the elderly care staff. Reference organization elderly care staff had no knowledge of, or exposure to, the intervention.

Uddevalla is a municipality that had 50,068 inhabitants in 2004 (Uddevalla kommun 2004). The population trend has been upward; there has been an increase in the amount of inhabitants during recent years. For purposes of comparison there were 49,255 inhabitants in the municipality in 2001 (Uddevalla kommun 2001). The proportion of people over 65 years has been approximately 21% of the population during recent years (Kvalitetsnätverk Västkust 2003). The unemployment rate increased from 6.4% in 2001 to 6.8% in 2004 (Uddevalla kommun 2001, 2004).
In 2003, new nursing home places were opened for elderly with dementia, and attempts to divide the staff ratios more equally between nursing homes were conducted (some nursing homes received higher staff ratios while others were reduced) (Uddevalla kommun 2003). During 2004 some of the workplaces within the elderly care organization tested new work scheduling models such as a 3-3 system, (in which people work three days and then have three days off), some measures to improve care recipients’ meals and nutrition, palliative care, and care of individuals with dementia were conducted (Uddevalla kommun 2004).

There were no private care providers in elderly care in 2004 (Private communication Pär Levander 25 Oktober 2006). Numbers of care recipients and staff members in the elderly care organization of Uddevalla are presented in Table 1.

Participants

Nursing staff
In the analyses used in this thesis nursing staff working in the two municipalities’ elderly care organizations were included. Nursing staff was defined as registered nurses, practical nurses and nurses’ aides. The other staff categories, such as occupational therapists and needs assessment officers, were excluded from the analyses. All types of care settings, i.e. home help services, home nursing care, and nursing homes were included. However, staff that had been away from the workplace for longer than three months due to maternity or sick leave were excluded from the questionnaire studies. These individuals were excluded since we aimed to measure more recent perceptions. Response rates and background characteristics of the staff participants for each questionnaire study are presented in Table 3 in Paper III.

Care recipients
Elderly care recipients who were capable of responding to a questionnaire (on their own or with assistance) were considered eligible for the studies. Nursing staff and their supervisors together made the decisions regarding capability of care recipients to reply to the questionnaire. Care recipients were permitted to receive assistance reading the questions and/or writing responses. Response rates and background characteristics of the care recipient respondents for each questionnaire study are presented in Table 2 in Paper IV.
Family members of care recipients
Participants in the Örebro University Hospital study were relatives of patients whose illness prevented them from responding to a questionnaire concerning their views on quality of care in the five units of the hospital. Response rate for the USÖ study is presented in Table 1 in Paper I, and background characteristics of the participating relatives in USÖ study are presented in Table 2 in Paper I.

For the municipality studies, relatives’ questionnaires were delivered to individuals who were registered as primary family members of care recipients. One relative per care recipient was registered as a primary family member and therefore one relative per care recipient was invited to participate in the studies. Response rates and background characteristics of the participating relatives for each questionnaire study in Bengtsfors and Uddevalla are presented in Table 3 in Paper IV.

A brief description of the intervention
The content of the educational intervention, the toolbox, was based on the results from the staff, care recipient, and relatives’ baseline (2001) questionnaire studies in Bengtsfors. The results revealed areas in need of improvement regarding staff competence, psychosocial work environment, and quality of care. For instance, staff reported a need to improve their competence in areas such as care recipients’ medication, oral hygiene and strategies for handling aggressive care recipients as well as care recipients with dementia.

A work group comprised of researchers and elderly care management representatives assembled a toolbox of practical instruments for use at intervention workplaces. For a more detailed description of the toolbox development, see Paper III.

A total of 16 instruments for nursing staff were included in the toolbox. The instruments were practical in nature and the aim was that staff could use these to improve their regular work practices. A description of the instruments is available in Table 2 in Paper III. The instruments were organized into four categories: (1) instruments for improving the working situation for nursing staff; (2) educational materials regarding, for example dementia, and nutrition, (3) instruments for meeting care recipients’ social and physical needs; and (4) staff, care recipients’, and relatives’ baseline questionnaires accompanied by guidelines for interpreting the questionnaire results.

The intervention toolbox was a binder containing detailed descriptions of each of the toolbox instruments. Each description stated the instrument’s purpose, use, cost (when applicable), and the name of a contact person for further information. Whenever possible, the actual instrument or educational
material was included in the binder; otherwise, the description was accompanied by appropriate references.

In February 2003 the toolboxes were distributed to workplaces in the intervention organization. Each workplace was free to decide to what extent they would work with the toolbox instruments, and no guidelines were given by the researchers or the management of the elderly care organization regarding work with the instruments. However, the intervention workplaces were asked to fill in a short checklist every other month regarding their work with the toolbox instruments. Staff members were asked to document which instruments the workplace had used and to record the time allocated for this work. The reference organization did not receive any information regarding the toolbox intervention.

Data collection procedures
The results obtained in the articles included in the present thesis are based on data gathered with self-administered questionnaires. Prior to the questionnaire, structured interviews and focus group discussions were conducted in order to identify possible relevant items to be added to the previously validated questionnaires. The staff questionnaire was based on the Quality-Work-Competence questionnaire (QWC), which has been used extensively and validated among healthcare staff (Arnetz 1999, Arnetz & Wiholm 1997). A previously validated Pyramid patient questionnaire (Arnetz & Arnetz 1996) was a foundation for the elderly care recipient questionnaire and for the relative questionnaire. In addition, a Pyramid questionnaire for parents of children receiving hospital treatment (Ygge & Arnetz 2001) was used as a base for the relatives’ questionnaire.

The results obtained in the additional analyses included in the thesis are based on nursing home costs and administrative data regarding staff and resident outcomes. The data collection of these measures will be described at the end of this chapter.

Interviews and focus group discussions
When developing a questionnaire for patient relatives at the Örebro University Hospital, a total of 22 structured interviews with patients’ relatives were carried out by a nurse in each of five departments at USÖ. The purpose of the interviews was to develop relevant questionnaire items for the relatives’ questionnaire.

In further developing the relatives’ questionnaire to community elderly care, one focus group discussion with family members of elderly care recipients was conducted in Bengtsfors. Another focus group discussion was conducted with elderly care recipients in an effort to adapt the Pyramid patient
questionnaire to municipality elderly care recipients. In addition, a total of six focus group discussions with different staff groups were conducted in order to add questions to the staff questionnaire. All focus group discussions were conducted in the last quarter of 2000 in Bengtfsors.

The participants in the focus group discussions were recruited by the local administrators. All focus group discussions included six-eight participants in each group. All focus group discussions were tape-recorded and lasted approximately 90 minutes. Two members from the research team were present at each of the focus groups. One person moderated the discussions and the other person made notes on a notice board concerning the themes discussed. These notes were visible to all participants. All focus groups followed a structured plan in which the following main subject areas were discussed: organizational stress, work environment, quality of care/services, and organizational management.

A team consisting of researchers read all the researchers’ notes made in the focus group discussions. The tape recordings from each of the focus group discussions were listened to by a research assistant. The assistant made notes regarding the topics discussed, and these were compared with the researchers’ notes. Additional questions were developed and included in the staff’s, care recipients’, and family members’ questionnaires, while some questions that were not found to be relevant in community settings were omitted.

Questionnaire studies

All questionnaire responses were anonymous and no reminders were sent. Each respondent received an addressed, postage-paid envelope in which to return the questionnaire to the research unit. The staff questionnaires were distributed at workplaces to all currently employed elderly care staff. Workplace managers at each respective workplace distributed questionnaires directly to each employee. Questionnaires were mailed to the homes of staff that had been on maternity or sick leave for less than three months.

Care recipient questionnaires were distributed by nursing staff after discussions with their supervisors regarding the capability of care recipients to reply to the questionnaire. Care recipients were permitted to receive assistance in reading the questions and/or writing responses from a friend or a relative but not from staff. Less than half of eligible care recipients responded to the baseline questionnaire in 2001. For this reason, individuals were recruited to help the care recipients with the questionnaire in both of the follow-up measurements in the intervention municipality and in the second follow-up in the reference municipality. These persons were directed to read the questions and response alternatives and to fill in the care recipient’s reply, but not to interpret or answer the questions themselves.
The relatives’ questionnaire at USÖ was delivered to family members by staff members at each of the units. One family member per patient received a questionnaire. Relatives of elderly care recipients in the municipalities received the questionnaire by mail. The researchers received a list of relatives’ addresses in Bengtsfors and posted the questionnaires. In Uddevalla the local administrators mailed the questionnaires to relatives. In both municipalities, university envelopes were used for mailing the relatives’ questionnaires.

Nursing home costs and administrative data
Nursing home costs and administrative data regarding staff and resident outcomes were collected for all nursing homes in Bengtsfors and Uddevalla for 2003. The administrative data were collected from the municipalities’ administrative registers. Measures that would be comparable between the municipalities were chosen. Costs were collected from the municipality financial administrators. The administrators in both municipalities were asked to provide a data file with nursing homes’ total costs, staff costs, and operating costs for all nursing homes in the municipality. They were also asked to provide any information that would be necessary when comparing costs between nursing homes, for instance costs not included in the data files or possible differences between nursing homes on cost calculations.

Outcome measures
Nursing staff competence and psychosocial work environment as well as care recipients’ and their family members’ perceptions of quality of care were the main outcome measures of this thesis. In addition, nursing home costs and administrative data regarding staff and resident outcomes were measured. The outcome measures will be described in the following chapters.

Staff competence and the psychosocial work environment
Staff respondents were asked to rate their knowledge regarding eighteen aspects of their work (analyzed in Papers II and III). In addition, staff were asked to rate the emotional strain for eight aspects of their work and the physical strain for seven aspects (analyzed in Paper II).

The staff questionnaire included 11 measurement indices for different aspects of their psychosocial work environment. In addition, a visual analogue scale for overall work satisfaction was included in the staff questionnaire. An overview of the staff work environment indices is presented in Table 2. The items included in each of the measurement indices are presented in Paper III, Table 1.
Table 2. Psychosocial work environment indices included in the staff questionnaire.

<table>
<thead>
<tr>
<th>Work-related exhaustion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work stress</td>
</tr>
<tr>
<td>Staff participation</td>
</tr>
<tr>
<td>Efficiency</td>
</tr>
<tr>
<td>Leadership</td>
</tr>
<tr>
<td>Work climate</td>
</tr>
<tr>
<td>Mental energy *</td>
</tr>
<tr>
<td>Goal clarity *</td>
</tr>
<tr>
<td>Employeeship *</td>
</tr>
<tr>
<td>Performance feedback *</td>
</tr>
<tr>
<td>Skills development *</td>
</tr>
<tr>
<td>Overall work satisfaction (VAS)</td>
</tr>
<tr>
<td>* not included in the questionnaire in 2001</td>
</tr>
</tbody>
</table>

Not all of the indices were included in all of the four papers. In Paper II four indices – work-related exhaustion, work stress, skills development, and mental energy – were analyzed. In Paper III all of the 11 indices were analyzed for 2003 and 2004, but for 2001 only six indices were included in the questionnaire. These were work-related exhaustion, work stress, participation, efficiency, leadership, and work climate.

Quality of care

The care recipients’ questionnaire consisted of four quality of care measurement indices (see Table 3). The component items included in the indices are presented in Table 1, Paper IV. Care recipients were also asked to give an overall rating for the quality of care on a visual analogue scale.

The family members’ questionnaire consisted of seven quality of care indices (Table 3). An overview of the items included in each of the indices is presented in Table 1, Paper IV. Relatives were also asked to give an overall rating to the quality of care on a visual analogue scale.

The names of two measurement indices in the family members’ questionnaire are not consistent in Paper I when compared to those in Paper IV. The “nursing staff” index name was changed to “staff professional skills” and “caring processes” was changed to “care”. In addition, an index measuring family members’ perceptions of the staff work environment was presented in Paper I. However, this index was not analyzed in Paper IV, since the focus of that article was only on quality of care.
Table 3. Quality of care measurement indices included in care recipient and family members’ questionnaires.

<table>
<thead>
<tr>
<th>Quality of care indices rated by:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CARE RECIPIENTS</strong></td>
</tr>
<tr>
<td>Information</td>
</tr>
<tr>
<td>Staff behavior</td>
</tr>
<tr>
<td>Care</td>
</tr>
<tr>
<td>Activity</td>
</tr>
<tr>
<td>Overall quality grade (VAS)</td>
</tr>
<tr>
<td><strong>FAMILY RELATIVES</strong></td>
</tr>
<tr>
<td>Information</td>
</tr>
<tr>
<td>Staff professional skills (in Paper I: nursing staff)</td>
</tr>
<tr>
<td>Care (in Paper I: caring processes)</td>
</tr>
<tr>
<td>Activity</td>
</tr>
<tr>
<td>Contact</td>
</tr>
<tr>
<td>Social support</td>
</tr>
<tr>
<td>Relative participation</td>
</tr>
<tr>
<td>Overall quality grade (VAS)</td>
</tr>
</tbody>
</table>

Nursing home costs

Nursing homes’ total costs, staff costs, and operating costs were collected. However, the information received from the municipalities’ financial administrators revealed that costs for cleaning were either calculated as staff costs or operating costs depending on whether the cleaning was conducted by regular nursing staff or an external cleaning firm. Thus, it was decided that the costs would only be analyzed as the facility’s total costs so that the differences in calculation of cost for cleaning would not affect the results.

The total cost was supposed to consist of staff and operating costs and exclude costs for facility rental. Rent was not included, since great differences were reported in rent levels due to differences in internally charged transfer rents. In Bengtsfors the cost reports did not include costs for nursing home supervisors and administrative staff. These costs could not be provided by the municipality, but were included in the total cost reports received from Uddevalla. Thus, it was decided that the total costs of nursing homes were not comparable between the municipalities. Analyses of nursing home costs were only conducted for the municipality with the greater number of nursing homes (Uddevalla).

There were some differences between the nursing homes in Uddevalla regarding how the costs of care recipients’ meals were reported. This affects the reports of the total facility costs. Most of the nursing homes prepared the meals by themselves or bought the meals from another producer, and the costs were calculated for the facility. However, some nursing homes received the meals or part of the meals from another nursing home without actually paying for the service. This meant that some nursing homes did not calculate any costs for care recipients’ meals, while other nursing homes
included these costs in their reports. The financial administrators could not provide any approximate cost for these meals. Thus, the costs of the different nursing homes in Uddevalla may not be totally comparable.

The total costs of a facility were divided by the number of its resident places in the facility in 2003 in order to increase the comparability of the costs between the nursing homes. The local administrators were asked to report possible changes in the amount of resident places during the year 2003, which was taken into consideration when calculating the costs per resident day. All resident places were estimated to be used, since the municipality reported a waiting list for nursing home places (Uddevalla kommun 2003).

Administrative data
Administrative data regarding staff and resident outcomes were: staff sickness absence, prevalence of adverse medication events, staff work injuries, and care recipients’ falls. Sickness absence was divided into four categories in the municipalities’ registers: 3 days or less absence, 4-14 days, 15-90 days, and 91 days or more absence. The total amount of absence days at the nursing home level in each of the four categories was divided by the total number of staff members at that nursing home in order to get a measure that would be more comparable between the nursing homes.

In both municipalities some nursing homes lacked data for one or more of the measures. Several attempts by the author were made to obtain the missing data. In some cases the data were provided later on by a nursing home and in other cases nursing homes reported no data for the measure. However, when the analyses were conducted, one nursing home still lacked a measure for prevalence of falls. This nursing home was located in Bengtsfors and thus was not included in the analyses, since a decision had been previously made to include only nursing homes in Uddevalla.

Statistical analysis
The SPSS statistical package (versions 11.0, 12.0, 14.0) was used for all statistical analyses. Statistical significance for all analyses was set at $p<.05$ (two-tailed).

Papers I-IV
In all of the papers, Chi square statistics were used to compare discrete variables, such as respondent background characteristics, between groups. In addition, Chi square statistics were used to compare the questionnaire re-
spondents to the total population of staff, care recipients, and relatives in each municipality, respectively.

All continuous variables (measurement indices, overall work satisfaction and overall quality ratings) were examined for normality using the Kolmogorov-Smirnov test in Papers II-IV. Since not all of the continuous variables were normally distributed, both non-parametric and parametric tests were performed simultaneously in Papers II-IV, yielding identical results. Possible differences in mean values of the continuous variables between two groups were assessed using the non-parametric Mann-Whitney rank sum test and the parametric independent samples t-tests. When mean values between three or more groups were compared one-way analysis of variance, ANOVA, with Tukey and Bonferroni post-hoc tests, and Kruskall Wallis rank sum tests were used. Changes over time and possible interaction effects between municipalities were assessed using multivariate ANOVA (Papers III and IV).

Pearson product-moment correlations ($r$), were used to examine correlations between measurement indices (Papers I and II).

Forward stepping multiple regression analysis was used to determine predictors of care recipient relatives’ overall quality ratings (Paper I) and of staff work satisfaction ratings (Paper II). The fit of the regression model was studied by examining scatterplots of residuals for each independent variable, plotted against the values of the respective predictor (Paper II).

In Paper I, exploratory and confirmatory factor analysis was conducted in order to study the questionnaire item’s suitability for building indices. In all of the papers, internal reliability of the indices was measured using Cronbach’s alpha. In Paper I, second order factor analysis using principal components analysis with scree plots and varimax rotation was carried out to further investigate inter-scale correlations.

**Additional analyses**

Nursing home costs’ possible correlation to the administrative data, staff ratings of the work environment, and care recipients and their relatives’ ratings of the quality of care were analyzed in an aggregated data file. The data file was aggregated at the nursing home level and comprised of total facility cost per care recipient per day, administrative data at the nursing home level, nursing home mean values of the staff work environment indices, and care recipients’ and relatives’ ratings of the quality of care indices.

Non-parametric correlation tests, Spearman rho, were conducted in order to investigate whether the costs were correlated to the administrative data or to the work environment or quality of care indices.
Power calculations

The powers of the studies in Paper II-IV were calculated with the sample power program included in the statistical package SPSS (version 12.0).

The statistical power is a function of statistical significance, sample size and effect size, i.e. existing differences between the groups (Kazdin 2003). It has been proposed that the power should be at least .80 when statistical significance is .05 (Cohen 1965, Kazdin 2003).

To calculate effect size, the difference between study groups in mean values for a dependent variable was estimated to be approximately 10 percentage points on a scale from 0% to 100% (standard deviation of approximately 20.0). This calculation gives an effect size of .50. The statistical significance was set at .05 level (2-tailed). The power was calculated for the minimum sample sizes in Papers II and IV and a power over .80 was estimated. Thus, the power may be even higher since the actual sample sizes were larger. In Paper III, it was estimated that at least 180 respondents per measurement would be needed to obtain a power of 100% in order to detect an increase of 9-percentage points in the scale measuring skills’ development.

Ethical approval

No ethical approval was requested for the university hospital study, since the study was a part of an internal quality development project at USÖ. The TOOL project obtained ethical approval from the research ethics committees of Uppsala University and Gothenburg University (dossier number 00-206).
Results

Paper I

Seven quality of care indices and one index for relatives’ ratings of staff work environment were constructed. The content validity of the questionnaire was considered good, since some of the indices were found to be similar to prior studies with patients’ relatives. In addition, the majority of relatives considered the questionnaire to be relevant and of reasonable length. Internal reliability of the indices exceeded 0.70 in all but one index (Table 3, Paper I). However, correlations between some of the indices were high, indicating some overlap between these indices (Table 4, Paper I). A second order factor analysis resulted in three distinct index groupings: personnel, relative’s role and care content (Figure 1, Paper I). These three dimensions seem to summarize relatives’ perceptions of the quality of elderly care.

Correlation analysis confirmed a higher correlation between relatives’ overall quality rating and work environment variables, compared to variables concerning relatives’ participation. Furthermore, relatives’ ratings of the staff work environment was the most important predictor of a positive overall quality rating in all three surveys. For relatives with more frequent contact with elderly care staff, the index nursing staff was the strongest predictor, followed by work environment, information, and contact. When the three-quality dimensions were entered into a regression model, the personnel dimension was the only significant predictor of a positive overall quality rating.

Relatives of care recipients in the two questionnaire studies in Bengtsfors gave highest ratings to the caring processes index (Figure 2, Paper I). In the university hospital study patients’ relatives gave highest ratings to social support. The indices information and participation received lower ratings from relatives in all three studies. In addition, relatives in the Bengtsfors studies gave lowest ratings to the activity index.

Paper II

In general, a larger percentage of home care staff in both municipalities rated their knowledge as insufficient, compared to staff in nursing homes (Table 3, Paper II). Staff in both care settings rated their opportunities for skills devel-
development as limited (Table 5, Paper II). Staff expressed similar competence development needs in both care settings. There were several areas, such as dementia, psychiatric illnesses, threats and violence, leadership and laws regarding healthcare and social welfare, in which the majority of nursing staff (≥ 50%) rated their knowledge as insufficient in both care settings.

In general, staff in nursing homes rated their work as significantly more physically and emotionally strenuous than staff in home care did (Table 4, Paper II). Transfer of care recipients to and from bed, transfers to and from a chair, caring for individuals requiring different levels of assistance and assisting at the toilet were rated as the most physically strenuous aspects of work in both care settings. Lack of time for work tasks, caring for individuals with dementia, caring for individuals requiring different levels of assistance were rated as the most emotionally strenuous aspects of work in both care settings.

There were no significant differences in mean values for staff ratings of work-related exhaustion, mental energy, and overall work satisfaction between home care and nursing homes or between municipalities (Table 5, Paper II). Nursing home staff ratings of work stress were within the target level range, but below the target level minimum for staff in home care, indicating low work stress in home care. Mean values for work-related exhaustion were above the target level in both care settings, indicating high work-related exhaustion. Mean values for staff ratings of their mental energy were above the target value in both settings, which indicates high mental energy. Staff ratings of work satisfaction were moderate both in home care and in nursing homes.

Work-related exhaustion, skills development, work stress, and mental energy were significant predictors of work satisfaction ratings in both care settings (Table 6, Paper II). The strongest predictor of work satisfaction in both care settings was work-related exhaustion. The relationship was inverse, indicating that higher ratings of work-related exhaustion predicted lower ratings of work satisfaction.

Paper III

In the intervention municipality (Bengtsfors), nursing staff ratings of their competence and the psychosocial work environment improved significantly over time. Staff ratings of work-related exhaustion and work stress decreased significantly over time (Table 5, Paper III). Mean values for participation, efficiency, leadership, work climate, performance feedback, skills development, and work satisfaction increased significantly over time (Table 5, Paper III). Staff ratings of their knowledge showed significant improvements in 10 out of 18 areas in the intervention municipality in 2004 as compared to 2003 (Table 4, Paper III).
In the reference municipality, staff ratings of knowledge showed improvements in only one area (Table 4, Paper III). No significant changes were found over time in the reference municipality regarding staff ratings of their psychosocial work environment (Table 5, Paper III).

A significant interaction effect between municipalities over time (2003–2004) was found for staff ratings of participation, leadership, performance feedback, and skills development, which indicates a significant difference over time between the municipalities in staff ratings of these four scales (Table 5, Paper III).

A significant increase in staff reports of utilization of the toolbox instruments between 2003 and 2004 was found in the intervention municipality. In 2003, 42% and in 2004, 53% of the respondents reported that their workplace had used the toolbox instruments.

**Paper IV**

There were no significant changes over time in care recipients’ (Table 4, Paper IV) or relatives’ (Table 5, Paper IV) ratings of the quality of care in the intervention municipality. In the reference municipality, some significant changes over time were found regarding care recipients’ (Table 4, Paper IV) and relatives’ (Table 5, Paper IV) ratings. However, no significant interaction effects between municipalities over time (2003-2004) were found for care recipients’ (Table 4, Paper IV) or relatives’ (Table 5, Paper IV) ratings of the quality of care indices.

Some ceiling effects on the index care and the overall quality grade were found in care recipients’ and relatives’ baseline surveys.

**Additional findings**

The total facility costs, amount of resident places, and total cost per resident place per day for the 17 nursing homes in Uddevalla are presented in Table 4.
Table 4. The total facility costs, number of resident places and total cost per resident per day for nursing homes in Uddevalla 2003

<table>
<thead>
<tr>
<th></th>
<th>Total cost (SEK 1000’s)</th>
<th>Number of resident places</th>
<th>Number of resident places per year</th>
<th>Total cost per resident places per day (SEK (USD))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>13,168 (1,627)</td>
<td>37</td>
<td>13,351</td>
<td>1,030 (127)</td>
</tr>
<tr>
<td>Minimum</td>
<td>3,754 (464)</td>
<td>8</td>
<td>2,920</td>
<td>735 (91)</td>
</tr>
<tr>
<td>Maximum</td>
<td>23,370 (2889)</td>
<td>60</td>
<td>21,900</td>
<td>1,427 (176)</td>
</tr>
</tbody>
</table>

The total costs per resident place per day were significantly positively correlated to staff ratings of goal quality ($\rho = 0.512, p < 0.05$), and relatives’ ratings of the quality of care indices care ($\rho = 0.576, p < 0.05$), contact ($\rho = 0.655, p < 0.01$), social support ($\rho = 0.553, p < 0.05$), and participation ($\rho = 0.592, p < 0.05$). The total costs per resident places per day were not significantly correlated to any of the administrative measures or care recipients’ ratings of quality of care.

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General discussion

An overall interpretation of the findings is provided in this chapter. A more detailed discussion of the findings is included in each of the four papers included in the thesis.

The impact of the educational intervention

Psychosocial work environment

It was hypothesized that the toolbox intervention would have a positive impact on staff ratings of their competence, the psychosocial work environment, as well as on work stress and work satisfaction. The hypotheses were supported by our findings, which showed that nursing staff ratings of their competence and most of the psychosocial work environment indices improved significantly over time in the intervention municipality. In addition, staff ratings of work-related exhaustion and work stress decreased and their ratings of work satisfaction increased significantly. In the reference municipality, staff rated one of 18 competence questions significantly higher in the follow-up measurement, while their work environment ratings were unchanged. Significant interaction effects between the municipalities over time for four psychosocial work environment indices offered further evidence for the positive work environment changes in the intervention municipality.

The introduction of the educational toolbox is suggested to be related to the improvements in the psychosocial work environment in the intervention municipality. However, it is not possible to rule out the possible effects of other changes occurring in the organizations at the same time. In elderly care in the intervention municipality, several organizational changes, including new supervisors, and decreases in the number of staff members and nursing home places, occurred during the intervention period. Prior research has found that this type of change can cause stress and lower work satisfaction among staff working in the organization (Brown et al. 2003, Petterson et al. 2005). Thus, the other changes occurring at the same period of time as the intervention would probably have a negative impact on staff. However, some staff in the elderly care intervention received education in dementia care during the intervention period (Bengtsfors kommun 2004). Based on regulations implemented in 2001 (Arbetsmiljöverket 2001), systematic work envi-
vironment improvement efforts were also introduced (Bengtsfors kommun 2003). It is possible that the dementia care education or the systematic work environment work improved the staff work situation. However, it seems unlikely that this effect alone would be reflected in all aspects of staff ratings. On the contrary, almost all of the competence areas that showed improvements in the intervention staff ratings could be associated with the toolbox instruments, which indicates that the intervention was related to the improvements. The organizational changes occurring in the reference municipality during the study period were in general more positive than in the intervention municipality (Uddevalla kommun 2004), but no changes in staff work environment ratings were found in the reference municipality. This offers further support that the toolbox was related to the positive changes in the intervention municipality.

It is possible that there were changes in Swedish elderly care in general during the intervention period. The negative work environment trend that was noticed during the 1990s was reported to have stabilized at the beginning of the 2000s (Gustafsson & Szebehely 2005). Thus, it is possible that the toolbox intervention was implemented and evaluated during a period of time when a general positive trend regarding staff work situation in municipality elderly care was noticed. The positive changes in staff ratings of their work environment in the intervention municipality could be a result of that trend. However, no corresponding improvements were found in the reference municipality. Thus, it is unlikely that the changes in the intervention municipality would be a result of a general improvements in elderly care work environment in Sweden.

There are some features of the toolbox intervention that could have accounted for the changes in staff ratings. It has been proposed that interventions have best results when the real needs of staff are investigated prior to designing the intervention (Cowan et al. 2004, Donabedian 1996, Gustafson et al. 2003). The contents of the toolbox intervention were based on reported staff needs in the baseline measurement. Staff may have felt that the instruments included in the toolbox met their competence development needs, thus motivating them to use the toolbox. In addition, different development needs were reported between the intervention workplaces, and in order to further meet staff needs, the project design allowed each workplace to decide which instruments they would work with, based on the specific needs experienced by each work group. A standardized educational program was not considered as effective in meeting the different workplace development needs, since difficulties in tailoring educational program for staff with different needs and backgrounds have been reported (Maslin-Prothero 1997, Ross et al. 2001). In addition, staff participation in the intervention processes has also been reported to be crucial for successful intervention (Dahl-Jorgensen & Saksvik 2005). The toolbox design allowed nursing staff themselves to make decisions regarding the development work at their workplace. This was an im-
important aspect for improving staff participation, but it was also necessary since supervisor turnover was high in the intervention organization. It is possible that staff felt empowered by the possibility to influence and make decisions regarding their workplace development work.

The toolbox intervention also lacked some characteristics that have been reported in prior studies to be crucial for successful intervention. Leadership commitment has been reported to be one of the most important aspects for intervention projects (Donabedian 1996, Gustafson et al. 2003, Mentes & Tripp-Reimer 2002). Leadership commitment in the present project was probably low in some workplaces, due to high turnover rates among managers. It is possible that the present intervention would have had an even stronger impact if all of the workplaces had had stable leadership. It is also possible that those few workplaces in intervention organization that had the same supervisor during the whole study period had greater improvements than the other workplaces. However, this thesis did not compare workplaces within the intervention municipality. Sufficient resources in terms of staff members, money, and time should also be provided in order to achieve the best results with an intervention (Gustafson et al. 2003). Lack of resources could have been one of the main reasons for workplaces not participating in the work with the toolbox intervention. No additional resources or time for planning and conducting the toolbox work was provided at the workplaces. However, since the instruments included in the toolbox intervention were in general free of charge, the intervention was estimated to be economically possible for the workplaces. The intervention was a workplace intervention, i.e. all skills development would be carried out right at the workplace. This was intentional in order to encourage individual workplace choice as well as to limit costs.

Staff reported that use of the toolbox instruments increased significantly over time. However, this thesis did not include analyses at the workplace level regarding the use of the toolbox intervention. Such analyses could identify characteristics of workplaces using the toolbox to a greater extent or investigate whether improvements in work environment were greater at workplaces that used the toolbox to a greater extent. Such analyses are needed in order to investigate the causality of the intervention, i.e. whether workplaces that worked more with the toolbox achieved greater improvements in work environment ratings. It would also be interesting to study whether workplaces with higher initial work environment ratings were more likely to use the toolbox instruments. These analyses would also highlight possible differences between home-based care and nursing homes regarding the extent of toolbox use.

This is among the first of any controlled studies investigating the impact of an educational intervention on self-rated staff competence, the psychosocial work environment, and work satisfaction in elderly care. It is suggested that an educational toolbox, consisting of practical instruments adapted to
local needs, might be an effective intervention for improving staff competence and the psychosocial work environment in elderly care.

**Quality of care**

It was also hypothesized that the intervention would have a positive impact on quality of care through improved staff knowledge, psychosocial work environment, and work satisfaction. The theoretical basis of the thesis proposed that staff outcomes such as health, satisfaction, and quality of working life directly affect the quality of care and care recipient wellbeing (Hannan et al. 2001, Sainfort et al. 2001). However, our findings did not support that hypothesis, since care recipients’ and their relatives’ ratings of quality of care did not change significantly in the intervention organization after the introduction of the intervention.

There are several possible explanations for these findings. Perhaps staff competence, work satisfaction, and work environment are not related to quality of care as proposed by the theoretical frameworks. The theoretical models were based on empirical research regarding work organization, staff work environment and quality of care. Several literature reviews from hospital settings have concluded that factors such as total nursing hours per patient, skill mix among staff (Lang et al. 2004), quality of interaction among staff (Lundstrom et al. 2002) and quality of work environment (Mitchell & Shortell 1997) seem to be related to quality of patient care. In addition, research from so called magnet organisations have further supported the relation between work organization and quality of care and patient outcomes. Magnet hospitals are characterized by low staff turnover, strong nurse autonomy, decentralised decision making, adequate staffing levels and investments in nurse education, and have reported lower patient mortality (Aiken et al. 1994) and higher patient satisfaction (Rondeau & Wagar 2006) than other hospitals. However, one recent review (Hoff et al. 2004) concluded that hospital organizational variables like leadership or teamwork do not seem to have an influence on medical errors or patient safety. In conclusion, the majority of the prior empirical research from hospital settings give support for an association between staff work-related factors and quality of patient care. However, several different measures have been included in the studies which make a comparison of results difficult. In addition, several of the measures used are not relevant in elderly care settings.

In elderly care, a smaller amount of research regarding the links between staff perceptions of their jobs and the well-being of care recipients has been conducted. Hannan et als (2001) concluded in their literature review that increased work satisfaction and decreased stress among nurses probably improve quality of care, but added that the association seems to be complex and there might be several factors, such as management style and group cohesiveness, that influence the relationship between these factors. Some re-
Recent empirical studies have found that greater resident satisfaction was associated with higher staff job satisfaction (Redfern et al. 2002, Sikorska-Simmons 2006). However, Sikorska-Simmons concluded that the causal nature of this relationship needs to be further investigated (Sikorska-Simmons 2006). In addition, many of the prior studies investigating the relationship of work organization and quality of care have been criticized for not specifying the mechanism linking these factors (Mitchell & Shortell 1997) and for not showing that organizational factors come before quality of care (Flood 1994). It seems that the empirical evidence for the relationship between nursing work and quality of care, especially in elderly care settings, is mainly based on cross-sectional research, which limits the understanding of the causal relationship between these factors. In addition, there are some studies that did not find an association between work environment and quality of elderly care (Goodell & Van Ess Coeling 1994, Jenkins & Allen 1998). This could imply that staff competence and quality of working life are not related to care recipients’ or relatives’ ratings of quality of care. However, future, longitudinal studies are needed to highlight the causal links and mechanism between staff work variables and quality of care.

It is also possible that nursing staff did not change their working behavior after gaining new knowledge, in ways that were appreciated by care recipients and their relatives. The actual behavior of staff was not evaluated in the present study. Prior studies have found that staff had difficulties putting knowledge gained in educational interventions into practice (Broad 1997). Clearly, more research is needed to investigate whether knowledge gained by staff in educational interventions changes their work behavior and improves the quality of care. Elderly care providers should be aware of the possibility that staff education does not automatically improve quality of care or satisfaction among care recipients or their relatives. In addition, the actual patient outcomes, such as occurrence of pressure ulcers or amount of activities provided to care recipients, were not evaluated. This could have provided different results, since it has been suggested that care recipients’ and family members’ perceptions of quality of care are not sensitive to changes (Boumans et al. 2005). Several prior educational interventions did not result in any changes in care recipients’ (Boumans et al. 2005, Laitinen et al. 1996, Molloy et al. 2000) or family members’ (Finnema et al. 2001, Molloy et al. 2000) perceptions. Future studies could combine more objective measures of quality such as administrative data with care recipients’ and relatives’ perceptions, as has been proposed by some earlier studies (Chang et al. 2006, Socialdepartementet 2002).

The fact that no significant effects were found on care recipients’ and their relatives’ ratings of the quality of care does not necessarily mean that the quality of care was unchanged during the study period. There were several methodological aspects that could have limited the evaluation of the
intervention’s possible impact on quality of care. These are discussed under the methodological considerations.

Perceptions of competence and work environment

The findings of the present study showed that the majority of nursing staff rated their knowledge as insufficient in areas such as dementia, psychiatric illnesses, threats and violence and laws regarding healthcare and social welfare. Similar competence development needs were identified in home-based care and in nursing homes. However, a greater proportion of staff in home-based care reported less sufficient knowledge compared to staff in nursing homes. These findings indicate that in these municipalities, staff working in home-based care had greater needs for competence development than staff in nursing homes. In addition, a greater proportion of staff in Bengtsfors rated their knowledge as insufficient when compared to staff in Uddevalla. Clearly, the organization (municipality), not just the care setting, may affect nursing staff ratings and competence levels may vary greatly between municipalities. Staff ratings of their opportunities for skills development were low in both care settings and both municipalities. These findings are in line with prior studies that have found, for instance, that less than half of home help service staff felt that they had sufficient training and work introduction that they needed to cope with the demands at work (Laamanen et al. 1999). The National Board of Health and Welfare has also reported poor competence development opportunities for nursing staff in elderly care (Socialstyrelsen 2005d). In addition, it has been reported to be difficult to recruit staff with adequate competence and knowledge to elderly care (Kerkstra & Hutten 1996, OECD 2005, Socialstyrelsen 2006e). Swedish regulations emphasize that staff should have sufficient competence, but do not consist of detailed regulation (Thorslund et al. 1997).

The most emotionally and physically strenuous aspects of work in both care settings were: lack of time for work tasks, caring for individuals with dementia, caring for individuals requiring different levels of assistance, and physical transfers. In general, home care staff ratings of work strain were significantly lower than those of nursing home staff. This could be due to the fact that a larger proportion of care recipients in nursing homes are more dependent and cognitively impaired (Socialstyrelsen 2005e). This gives us very specific information about causes of work strain that should be considered in all efforts to improve the work situation of elderly care staff. Prior studies have also reported that elderly care staff experience lack of time at work (Bowers et al. 2001b, Brulin et al. 2000, Laamanen et al. 1999). It is interesting that staff in our study reported lack of time to be one of the most strenuous aspects of their work, but at the same time they rated the work stress index in general as low. The work stress index measures staff percep-
tions of time for planning and executing work tasks and the findings indicate that staff experienced that they had sufficient time at work, i.e. the stress levels were low. However, time at work was measured on different scales in these items (VAS vs. four Likert scale questions), which could explain the differences in staff ratings. However, since time pressure seems to be a common issue in elderly care, further research should focus on the possible reasons, such as workload and work routines.

Staff ratings of work-related exhaustion were high in both municipalities and in both care settings. Thus, nursing staff experienced high exhaustion levels after work, but responded that they had sufficient time for work tasks. These findings indicate that other factors than lack of time caused high exhaustion levels for staff. Staff ratings of their opportunities for participation, the leadership in the organization, goal clarity at the workplace, directives and feedback received from the leaders, and the possibilities for skills development were rated low in both municipalities. Thus, there were several aspects of the psychosocial work environment that were rated as limited in these elderly care settings, which could have caused the high exhaustion levels. Prior studies in nursing homes and home care have associated high exhaustion and stress with time pressure (Morgan et al. 2002, Rafnisdottir et al. 2004); but also with factors such as insufficient skills (Dunn et al. 1994, Morgan et al. 2002), unclear work directives (Brulin et al. 2000), hierarchic organization (Brulin et al. 2000), limited control and impact on work tasks (Denton et al. 2002b), heavy workload (Morgan et al. 2002), uncooperative family members (Walcott-McQuigg & Ervin 1992), and cognitively impaired residents (Novak & Chappell 1996, van den Berg et al. 2006).

Staff ratings of work satisfaction were moderate both in home care and in nursing homes. The predictors of work satisfaction were the same in both care settings. The strongest predictor of work satisfaction in both care settings was work-related exhaustion. The relationship was inverse, indicating that higher ratings of work-related exhaustion predicted lower ratings of work satisfaction. Skills development, work stress, and mental energy also predicted staff ratings of work satisfaction. Work satisfaction has in previous studies also been influenced by stress and work pressure (Chou et al. 2002, Karsh et al. 2005). It seems that work-related exhaustion levels should be reduced in order to improve work satisfaction. In addition, stress management and increased opportunities for competence development should result in higher satisfaction levels.

Our findings showed that home care staff reported lower strain than nursing home staff. Otherwise few differences regarding staff ratings of the psychosocial work environment were found between the care settings. The comparison of our findings to prior research is limited, since few studies have compared the work environments between these care settings. One recent study found that home care staff in Swedish elderly care rated the work environment more positive in terms of workload, the variety of work
tasks and stimulation from the work, when compared to staff in nursing homes (Gustafsson & Szebehely 2005). However, home care staff rated their influence on working conditions lower than nursing home staff did (Gustafsson & Szebehely 2005). More research could be conducted in order to investigate possible work environment issues that should be considered in future interventions in each care environment.

Perceptions of quality of care

Care recipients and their relatives gave highest ratings to the basic nursing elements of elderly care, such as personal hygiene, meals, and physical transfers. It seems that these actors perceived that the elderly care recipients were well taken care of regarding the elementary aspects of care. Prior studies of Swedish elderly care have found that relatives and care recipients in general give positive ratings to nursing care (Socialstyrelsen 2006a). In fact it has been reported that staff prioritize the nursing tasks of their work instead of, for instance, the social aspects (Socialstyrelsen 2006d), which could be the reason for high ratings regarding nursing care.

The results of the present study also showed that both care recipients and their family members gave lower ratings to information they received from staff and for the activities that were offered to care recipients. Information and activities have also been given low ratings by care recipients and families in prior studies (Finnema et al. 2001, Maas et al. 1991, Ryan & Scullion 2000, Wellwood et al. 1995). The findings could indicate that these aspects of care were not prioritized by nursing staff as the basic nursing care was. Relatives of Swedish nursing home residents reported communication difficulties with nursing staff, and felt a responsibility to initiate and establish interaction with nursing staff (Hertzberg et al. 2001). Relatives also felt that staff had no time to talk to them (Hertzberg et al. 2001).

Our findings also revealed that family members of care recipients gave low ratings for their own possibilities to participate in the care processes, which is also supported by earlier Swedish studies (Socialstyrelsen 2006a) and studies from the USA (Maas et al. 1991). In this thesis relatives of care recipients were considered to be some of the main actors in elderly care, together with staff and care recipients. Relatives have been reported to give a large amount of informal care to their elderly relatives (Socialstyrelsen 2006e). In addition they are actively involved in care decisions for the elderly care recipients (Ejaz et al. 2003). The role of family members is further emphasized in the Swedish Health and Medical Services Act (1982), which states that if information regarding care cannot be supplied to the patient, the relatives should be informed instead. However, it seems that the family members in our studies were not satisfied with the information they received or with the opportunities they had to influence care provision. There are
several prior studies investigating the relationship between nursing staff and relatives of residents (Bowers 1988, Hertzberg et al. 2001, 2003, Ryan & Scullion 2000). Staff members seem to recognize that family members might be important in patient care (Astedt-Kurki et al. 2001, Weman et al. 2004). However, it has been reported that staff give low priority to working with family members, which was considered to be time-consuming and demanding (Hertzberg et al. 2003). It has been proposed that cooperation with relatives and staff in elderly care is not fully utilized (Hertzberg & Ekman 2000), and that relatives are undervalued as a resource (Ryan & Scullion 2000). Lack of support and appreciation from management for the work with relatives has been reported (Hertzberg et al. 2003). It is suggested that more structured ways to inform and involve the relatives together with strong supervisory support are needed in order to increase the involvement and potential help of relatives of elderly care recipients.

This thesis did not focus on comparing quality of care between home-based care and nursing homes. However, such a comparison could be beneficial, since the structure of care provision in nursing homes versus private homes has changed during recent years (Socialstyrelsen 2005e). The ambition of allowing elderly people to live in their own homes has had a powerful impact (Thorslund et al. 1997). It is suggested that studies should be conducted comparing the perceptions of care recipients and their families in these care settings in order to investigate how these actors experience the increased home care.

Costs and administrative data of nursing homes

Analyses were conducted to investigate possible correlations between nursing home costs and administrative data regarding staff and resident outcomes, such as prevalence of staff sickness absence and care recipients’ fall incidence, staff ratings of the psychosocial work environment, and care recipients’ and their relatives’ ratings of quality of care. The findings revealed few significant correlations between costs and the other variables. The total costs per resident places per day were significantly positively correlated to staff ratings of goal quality at the workplace and relatives’ ratings of four quality of care indices. No significant correlations were found between nursing home costs and administrative data or care recipients’ ratings of quality of care. These results must be interpreted with caution for several reasons. First of all, only nursing homes in one of the municipalities, Uddevalla, were included in the analyses due to incomparable measures of cost between the municipalities. Thus, the results are based on 17 nursing homes. In addition, the measure of nursing home total cost was not completely comparable between the nursing homes in Uddevalla, since some differences were reported in the system for cost accounting for care recipient meals. The finan-
cial administrators could not provide costs for these meals and no attempts to estimate the cost were included in the present analyses. These analyses must be viewed as a first attempt in identifying associations between costs and other organizational measures in the Swedish elderly care context.

There are few studies from other countries that have investigated nursing home costs in relation to outcome measures of quality of care, and a need for such studies has been reported (Weech-Maldonado et al. 2006). Two earlier studies from the USA found that nursing home costs were significantly associated with care recipients’ outcome measures such as worsening of pressure ulcers and mood declines (Mukamel & Spector 2000, Weech-Maldonado et al. 2006). The relationships were complex, but were in general non-monotonic with an inverted U-shape, implying that the nursing homes were able to achieve both lower costs and better care recipient outcomes (Mukamel & Spector 2000, Weech-Maldonado et al. 2006). Another study found that availability of individualized activities at the nursing home was associated with lower costs (Nyman 1988). However, that study did not find any of the care recipient outcome measures, such as quality of life, to be significantly related to higher costs (Nyman 1988). The author concluded that costs were not higher in nursing homes with higher quality of care (Nyman 1988). There is one Swedish study comparing nursing home costs, which found that labor costs per resident were lower in care units with a greater number of residents (Svensson et al. 1996). However, no measures of quality of care were included in the study. There is a need for future studies investigating whether nursing home costs are related to quality of care or care recipient outcomes. In addition, research regarding nursing home costs and staff work environment, for instance in terms of competence development opportunities for nursing staff, could increase the knowledge about how cost is related to staff outcomes. However, in order to conduct such studies it is important to have measures that can be compared between the care units and between care providers. Having these measures correct and comparable is also crucial for the care providers when investigating the efficiency of elderly care.

In this thesis an attempt was made to collect administrative data of staff and resident outcome measures. However, in both municipalities some nursing homes lacked data for one or more of the measures and several attempts by the author were necessary in order to receive the missing data. In some cases the data was not collected by a nursing home, despite municipality policy and requirements by the laws regulating work environment and elderly care. Difficulties in obtaining outcome measures make any evaluation of elderly care quality challenging. In fact, only half of the Swedish municipalities were reported to have recorded adverse events as required by the Health and Medical Services Act (Socialstyrelsen 2001). In addition, quality comparisons between municipalities have been difficult to conduct, since different measures and methods have been used (Socialstyrelsen 2001). OECD
concludes that measurement of quality of care is still in its infancy in elderly care. A need for systematic objective quality data collection in elderly care has been recognized by The National Board of Health and Welfare (Socialstyrelsen 2006e).

Methodological considerations

First of all, this study encompassed only two municipal elderly care organizations, which limits generalization of the results. These municipalities and the elderly care organizations differed regarding several characteristics. However, similar results were found in both municipalities regarding staff ratings of their competence and the psychosocial work environment, and care recipients’ and their relatives’ ratings of quality of care, which lends support to the findings of the thesis.

It is also important to remember that almost all data in this thesis were self-rated, i.e. staff, care recipients’, and family members’ ratings were evaluated in this way. Thus, for instance staff competence was not measured with objective measures. It is possible that different results might be obtained if more objective measures had been used.

Considerations about the questionnaire studies

The QWC questionnaires that were used to measure staff perceptions were previously validated. In addition, the Pyramid questionnaire that was the base for the care recipient and family members’ questionnaires used in the present studies had been validated. The family members’ questionnaire developed in Paper I demonstrated good reliability and validity. The reliability and validity of a questionnaire is important for the ability to draw reliable conclusions, for instance in terms of the instruments’ ability to detect differences between groups and changes occurring during the intervention.

Some methodological limitations need to be taken into consideration when interpreting the results of the questionnaire studies. First of all, the proportion of care recipients and relatives that responded to the surveys was low. It could be concluded that the care recipient respondents did not differ significantly from the total population of care recipients regarding age and gender, but no other information about those who did not respond was available. Thus, it was difficult to determine whether the study samples were representative of the total populations of care recipients and relatives. The evaluation of the intervention was based on a limited number of care recipients and family members and it is possible that different results could have been obtained if a larger proportion of care recipients and relatives had responded to the surveys.
It is possible that the quality of care indices were not sensitive enough to detect changes in care recipients’ and relatives’ views. Ceiling effects were found regarding care recipients’ and relatives’ ratings for some of the quality of care indices. It is therefore possible that the ratings at baseline were so high on these scales that additional improvements were difficult to detect in the follow-up measurements. However, ceiling effects were not found on all of the scales used and still no improvements were found. Perhaps it takes a longer time than 18 months for improved staff knowledge to affect the quality of care, as perceived by care recipients and relatives.

The same questionnaires were used in home care and in nursing home settings. Attempts to modify the quality of care questionnaires to be suitable for both settings were made, for instance care recipients and relatives from both environments participated in the focus group discussion prior to the questionnaire studies. However, it is possible that some of the questions were not relevant in both care settings. For instance, an evaluation of possibilities for going outdoors might be irrelevant for care recipients capable of going out by themselves. There is also a possibility that elderly individuals could not distinguish between services and care offered by municipalities and those offered by family members. For instance, their evaluation of social activities available may include an evaluation of activities provided by other actors than the municipality.

Finally, the validated target levels for the QWC questionnaire indicating the acceptable staff mean percentage scores for the measurement indices were based on healthcare staff in general and not on elderly care nursing staff. It is possible that the target levels are not exactly the same in these settings, since the work environment itself differs.

Considerations about the toolbox intervention design

The toolbox intervention seems to be in accordance with the description of a complex multifactor intervention as described by Rowlands et al. (2005) and Blackwood (2006). Several components, such as staff education, improvements of psychosocial work environment, and quality of care were included, which may cause difficulties in the evaluation process (Blackwood 2006, Rowlands et al. 2005). For instance, the mechanism of these components influencing each other and the outcome variables might be difficult to identify (Blackwood 2006, Rowlands et al. 2005). One of the goals of the toolbox intervention was that it should be applicable in staff work practices, which may have negatively influenced the study design and the intervention evaluation, as will be briefly described below.

The fact that the study groups were not randomized made it more difficult to rule out the possible effects of other changes occurring in the organizations during the study period. A randomization of the workplaces within a single municipality to intervention and reference groups would have been an
alternative. However, that would probably have led to leakage of information from intervention workplaces to reference sites, which perhaps was not the case in the present design, since the two municipalities were not geographically close to one other. Clearly, the presence of a reference organization was a strength, and made a comparison of the results from the intervention municipality possible, even though the baseline measurements for the two municipalities did not coincide.

The municipalities and the elderly care organizations involved in the project differed in several aspects. An attempt was made to compare these organizations. However, there are several characteristics that could have influenced the results of the study. For instance, we had no measures for staff-care recipient ratios, care recipient case mix, i.e., care requirements or municipalities’ criteria for offering services for elderly individuals in these municipalities. It is possible, for instance, that the care recipient case mix differed between the measurement points or between the municipalities, which could have influenced staff ratings of work strain or stress.

In the present intervention the reference municipality also received a part of the intervention, since the staff’s, care recipients,’ and relatives’ questionnaire studies were carried out in both municipalities. The respective results were presented to both organizations and it is possible that the reference organization used the results for development work. However, the ratings of work environment did not improve in the reference municipality. This strengthens the differences found in the post measurements and multivariate analysis and the possibility that the differences were due to the toolbox intervention.

The fact that several outcome variables were evaluated was a strength in the present intervention. Most of the earlier educational interventions in elderly care have been evaluated on only one outcome variable (Aylward et al. 2003). However, the fact that several concepts were included may lead to superficial conceptualization and interpretation of the results. It is not possible to completely define these terms and fully analyze all the possible aspects of these concepts in one thesis.

A strength of the intervention evaluation was also the two perspectives on quality of care (care recipients’ and their family members’), since a large proportion of care recipients were not able to answer the questionnaire.

**Statistical considerations**

The powers of Studies II-IV were estimated to be sufficient to detect differences between the study groups when differences existed within the populations. No power calculation was carried out for Study I. It is possible that the power was low regarding the hospital study, since we only had 38 respondents.
The large number of statistical tests conducted in the present thesis might explain the number of significant findings, since multiple tests increase the chance of finding differences between studied groups even though no true differences exist in population (Kazdin 2003). However, the number of significant differences was not that high in the present studies, and in general the findings were consistently in the hypothesized direction. This indicates that our findings were systematic and not based on chance.

Ethical considerations

The TOOL project was approved by research ethics committees, but no approval was sought for the relatives study at USÖ, since that was a hospital internal quality project. There are some ethical issues that need to be discussed. First of all, the questionnaire surveys were anonymous, but the work units in the elderly care organizations were quite small. The staff questionnaire asked the respondents to answer some background questions such as occupation, age, and years of work experience. It is possible that staff members who were a minority of some kind at their workplaces were suspicious of the anonymity. The same could have been the case for care recipients and their relatives. However, the questionnaires were accompanied by an introductory letter explaining that results would only be analyzed at group level.

Participation in the questionnaire studies was voluntary. However, supervisors distributed the questionnaires to staff members, which may have made staff feel obligated to respond. In a similar way care recipients might have been afraid that staff would find out whether they answered the questionnaire or not. However, each respondent received a postage-paid return envelope. Each completed questionnaire was enclosed in the envelope and sent directly to a data registration company. Supervisors or staff members had no knowledge of which individuals responded.

Future research

It is suggested that an educational toolbox, consisting of practical instruments adapted to local needs, could be an effective intervention to improve staff competence and work environment. However, the toolbox concept should be further investigated in other organizations in order to further evaluate the impact on staff competence and work environment as well as on quality of care. A randomized controlled study design would allow a stronger evaluation of the impact.

Further analyses at the workplace level are also needed to investigate characteristics of intervention workplaces using the toolbox to a greater extent. These analyses could contribute to further knowledge regarding
whether extensive toolbox use improves competence and work environment ratings more than less extensive use.

There is a need to further assess whether there is an association between staff competence and care recipients’ and relatives’ ratings of quality of care, and what the possible mechanisms are between these factors. It should also be further investigated whether staff change their working behavior after improving their knowledge and skills, and what circumstances would increase the chances of staff changing their behavior.

It is suggested that future studies should combine subjective and more objective measures of quality of care in order to achieve a greater understanding of the possible effects of educational interventions on the quality of care.

Future studies should also investigate the psychosocial work environment and quality of care between home-based care and nursing homes. Perhaps there are more specific interventions in each environment that could be considered in order to decrease negative staff outcomes such as exhaustion, and to improve quality of care.

Studies focusing on possible non-response bias when investigating care recipients’ and their family members’ perceptions of quality of care are also needed.

The preliminary findings that higher costs were apparently correlated with higher ratings by staff and relatives in some of the areas assessed need further exploration. Reliable cost measures that can be compared between different care units and between care providers are crucial for researchers, but also for the care providers when investigating the efficiency of elderly care.

**Conclusions**

A substantial need was found for competence development among elderly care nursing staff, both in home-based care and nursing homes. High work-related exhaustion levels were also found in both care settings and work-related exhaustion was found to the strongest negative predictor of staff ratings of work satisfaction i.e. higher ratings of exhaustion predicted lower ratings of work satisfaction. The findings also provided specific information about causes of emotional and physical work strain as well as about aspects of the psychosocial work environment that were rated as limited. These factors should be taken into consideration in future efforts to improve the work situations of elderly care staff.

The basic elements of elderly care, such as personal hygiene, meals, and physical transfers, were rated high by care recipients and their relatives. Other aspects, such as information received from staff, activities provided to care recipients, and relatives’ opportunities to participate in care provision were rated lower by the respondents. However, there are several possible methodological limitations, such as a rather small proportion of care recipi-
ents and relatives responding to the surveys, which need to be taken into consideration when interpreting the findings with elderly care recipients and their family members. These methodological challenges should also be taken into consideration in future studies with care recipients and their relatives.

It is suggested that the educational intervention, the “toolbox” that is adapted to local needs, might be an important and sustainable intervention to improve nursing staff competence, psychosocial work environment, and work satisfaction in elderly care. However, despite the positive effects on staff’s skills and work environment, no significant impact on care recipients’ and their family members’ ratings of the quality of care were found. This indicates a need to further expand our understanding of the possible link between nursing staff competence, the psychosocial work environment and the quality of care provided to elderly people.
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Sammanfattning (in Swedish)

Det övergripande syftet med denna avhandling var att utveckla, implementera och utvärdera en utbildningsintervention för personal inom kommunal äldreomsorg. Tidigare studier har visat att personalen har låg formell kompetens och att möjligheterna till vidareutbildning är begränsade. Samtidigt har de kommunala resurserna allt mer koncentrerats till äldre med större vård- och omsorgsbehov, vilket har inneburit ett större krav på personalens kunskaper kring medicinskt komplicerade sjukdomar och demens.

Bristande kompetens har i tidigare forskning associerats med högre stress, lägre arbetsstillförrådstration och lägre vårdkvalitet. Det är därför angeläget att studera utbildningsinsatsens effekter på personalens psykosociala arbetsmiljö och vårdkvalitet. I denna avhandling utvärderades möjliga effekter av en utbildningsintervention på personalupplevd kompetens och psykosocial arbetsmiljö, samt på vårdtagarnas och deras anhörigas uppfattning av vårdkvalitet. Utvärderingen genomfördes i en prospektiv, kontrollerad studie, där resultat jämfördes mellan en interventionskommun och en referenskommun.


Personal som arbetade i hemvård respektive särskilda boenden ingick i interventionen. Studie II syftade till att jämföra skattningar av kompetens, arbetsbelastning, stress och arbetsstillförrådstration mellan personal som arbetar inom hemvård respektive på särskilda boenden. Personalens svar på enkätskripterna i interventions- respektive referenskommunerna 2003 användes som datamaterial. Resultaten visade att en signifikant större andel personal i hemvården skattade sin kompetens som otillräcklig jämfört med personal som arbetade på särskilt boende. Hemvårdspersonal upplevde dock signifikant lägre arbetsbelastning, både fysisk och psykisk, jämfört med personal på särskilda boenden. Personalens skattningar av arbetsrelaterad utmattning,
psykisk energi och arbetstillfredsställelse skiljde sig inte signifikant mellan de olika vårdmiljöerna. Arbetsrelaterad utmattning var den starkaste (negativ) förklaringsfaktorn för arbetstillfredsställelse i båda miljöerna.


Ett antal slutsatser kan dras utifrån resultaten i avhandlingen. Det fanns ett påtagligt kompetensutvecklingsbehov hos äldreomsorgens personal både i hemvården och i särskilda boenden. Personalens arbetsrelaterade utmattning var hög och arbetsrelaterad utmattning var den starkaste prediktorn (negativ) för personalens skattningar av arbetstillfredsställelse. Det innebär att högre skattningar av utmattning predicerade lägre skattningar av arbetstillfredsställelse.

Framtida interventioner som syftar till att öka arbetstillfredsställelse bör fokusera på att stödja kompetensutveckling och motverka arbetsrelaterad utmattning både i hemvården och i särskilda boenden. Resultaten gav också tydlig information om vilka aspekter av arbetet som upplevdes mest psykiskt och fysiskt påfrestande samt vilka komponenter av den psykosociala arbetsmiljön som uppvisade störst utvecklingspotential. Dessa fynd kan vara vägledande i framtida interventioner som syftar till att utveckla arbetssituationen för personal inom äldreomsorgen.

De grundläggande aspekterna av äldrevården, det vill säga personlig hygien, måltider och fysiska förflyttningar, skattades högt av både vårdtagare och deras anhöriga. Andra aspekter såsom information från personalen och aktiviteter som erbjuds till de äldre, skattades betydligt lägre. Anhöriga ansåg också att deras möjlighet att vara delaktig i vården av sin närstående var begränsad.

Sammanfattningsvis kan konstateras att en utbildningsintervention i form av en "verktygslåda" som är anpassad till arbetsplatsernas behov, kan vara en viktig och effektiv intervention för att utveckla personalens kompetens och psykosociala arbetsmiljö inom äldreomsorg. Däremot kunde inga effekter på vårdtagarnas eller anhörigas skattningar av vårdkvalitet noteras. Ytter-
ligare studier behövs för att undersöka om, och i så fall hur, personalens kompetens är relaterad till vårdkvalitet. I sådana studier borde olika aktörers upplevelser av verksamheten kompletteras med objektiva indikatorer på kvalitet.
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