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Work-related Social Support, Job Demands and Burnout

Studies of Swedish Workers, Predominantly Employed in Health Care

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*To my beloved parents,
Hans & Lena Sundin*

“Alone is not strong. It is crucial for our welfare and our health that we have someone to ‘hold our hand’ in the storm. Someone who cares. Who gives us support and appreciation, helps us to orientate ourselves in our life conditions and to interpret them, to encourage, to listen, to comfort, even to lend us a practical hand. It may be a close relative or a good friend. It may be a colleague at work. Or a neighbour. We feel better and can tolerate more if we have somebody to stand up for us. But also when we ourselves have somebody to stand up for. When we do not only receive - but also give - social support”

Lennart Levi, 2000, p. 82

ABSTRACT

During the past decade, levels of work-related stress have increased not only in Sweden but in all of Europe. Health care workers in general and nurses in particular have been identified as having a risk of experiencing stress and burnout. Since the objective of health care work is to care for and help other human beings, the demanding elements of the job may involve both generic (e.g. high workload) and occupational specific aspects, e.g. intense interpersonal interactions with patients, being exposed to sickness and death and having substantial responsibilities of providing right treatment to patients, with no room for errors. One way to navigate the demands of the environment is to utilize the help and support provided by co-workers and supervisors. The four empirical studies included in this thesis emphasize the concepts of *work-related social support*, *job demands* and *burnout* and the associations between these concepts, predominantly among health care workers.

The majority of previous social support research has investigated how social support affects health. Fewer studies have focused on identifying factors that relate to social support while assessing social support as a dependent variable. The main aim in **Study I** was to assess different correlates (socio-demographic, individual and organizational/psychosocial) to work-related social support using a diverse sample of private and public employees (n=16144). The result indicated that organisational correlates, particularly perceived job control, were strongest associated with work-related social support. The main aim in **Study II** was to perform source-specific analyses of social support in relation to different sub-dimensions of burnout among a sample of registered and assistant nurses (n=1561). The results showed statistically significant correlations between co-worker (patient) support and all three burnout dimensions, whereas supervisor support was statistically significantly related to emotional exhaustion alone. In accordance with prior findings, high levels of job demands were most strongly related to high emotional exhaustion. The main aim of **Study III** was to develop and psychometrically evaluate a job demand scale that captures specific job demands within health care work using two occupational groups, i.e. (n=795) registered nurses and (n=527) assistant nurses. A congruent component structure was obtained in both occupational samples, consisting of four job demand indices 'pain and death', 'patient and relatives needs', 'threats and violence' and 'professional worries'. The main aim in **Study IV** was to longitudinally examine the association of generic- and occupational specific job demands and work-related social support on emotional exhaustion (EE) and depersonalization (DP) over time among a group of registered nurses (n=775). Those nurses with low and medium scores on EE and DP at T1 were included in the analyses. The results indicated that initial high professional worry was associated with high emotional exhaustion at T2. Unchanged high scores over time in professional worry and quantitative job demands, as well as impaired quantitative job demands over time were also associated to high emotional exhaustion at T2. Furthermore, initial poor co-worker support, unchanged poor co-worker support over time and improved co-worker support over time were associated with high depersonalization at T2.

This thesis demonstrates the significance of conducting source-specific analyses of social support in relation to burnout, as well as considering occupational specific job demands rather than solely concentrating on generic job demands. Lacking co-worker support seems relevant to acknowledge in order to avert the onset of burnout.

Key words: Health care, nurses, work-related social support, supervisor support, co-worker support, occupational specific job demands, job control, burnout, emotional exhaustion and depersonalization.

LIST OF PUBLICATIONS

The following four studies are presented in this thesis. In the summary, they will be referred to by their Roman numerals.

- I. Sundin, L., Bildt, C., Lisspers, J., Hochwälder, J., & Setterlind, S. (2006). Organisational factors, individual characteristics and social support: What determines the level of social support? *WORK: A Journal of Prevention, Assessment & Rehabilitation*, 27, 45-55.
- II. Sundin, L., Hochwälder, J., Bildt, C., & Lisspers, J. (2007). The relationship between different work-related sources of social support and burnout among registered and assistant nurses in Sweden: A questionnaire survey. *International Journal of Nursing Studies*, 44, 758-769.
- III. Sundin, L., Hochwälder, J., & Bildt, C. (2008). A scale for measuring specific job demands within the health care sector: Development and psychometric assessment. *International Journal of Nursing Studies*, 45, 914-923.
- IV. Sundin, L., Hochwälder, J., & Lisspers, J. A longitudinal examination of generic and occupational specific job demands, and work-related social support associated with burnout among nurses in Sweden. *Accepted for publication in WORK: A Journal of Prevention, Assessment & Rehabilitation*.

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All studies in this thesis have been approved by the ethical committee of Karolinska Institutet.

Study I (Dnr 2005/5:1).

Study II-IV (Dnr 01-451).

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LIST OF ABBREVIATIONS

BM	Burnout Measure
CI	Confidence Interval
COR	Conservation-Of-Resources model
DCSQ	The Swedish Demand-Control-Support-Questionnaire
DP	Depersonalization
EE	Emotional Exhaustion
JCQ	Job Content Questionnaire
JDC	Job Demand Control Model
JDC(S)	Job Demand Control (Support) Model
JD-R	Job Demand-Resources Model
KMO	Kaiser-Meyer-Olkin
MBI-ES	Maslach Burnout Inventory-Education Survey
MBI-GS	Maslach Burnout Inventory-General Survey
MBI-HSS	Maslach Burnout Inventory-Human Services Survey
OHS	Occupational Health Services
OLBI	Oldenburg Burnout Inventory
OR	Odds Ratio
PA	Personal Accomplishment
PBSE	Performance Based Self-Esteem
PCA	Principal Component Analysis
SMBM	Shirom-Melamed Burnout Measure
SWES	Swedish Work Environment Survey
UWES	Utrecht Work Engagement Scale
VIF	Variance Inflation Factor

INTRODUCTION

In the past few decades, Swedish and European working life has gone through abundant changes. Some of these changes, e.g. reorganizations and downsizing, are related to economic fluctuations as well as to technological advances; increased usage of information technology and development of new equipment. Apart from structural and organizational changes, additional challenges exist in regard to the reality of changing job conditions. Job demands, which used to be mainly physical in nature in the product industry (e.g. a high workload), have transitioned into becoming primarily mental in nature. Thus, traditional occupational stress models that were developed and tested on prerequisites describing the working life of the 1970's and 1980's may no longer be able to capture all the complexities of today's working life (Hellgren, Sverke & Näswall, 2008; Näswall, Hellgren & Sverke, 2008). It has been suggested that such models may need to be improved by adding complementary factors that more clearly capture the complexities of today's working life, as well as those factors that may represent the unique characteristics of specific occupations (Dollard, 2003; Halbesleben, 2008; Näswall, Hellgren & Sverke, 2008), e.g. health care work.

One of the sectors where employees have a high risk of experiencing stress and burnout is in human service work, e.g. health care work (Halbesleben, 2008). Nurses have been identified as one professional group that is particularly vulnerable to stress and burnout (Demerouti, Bakker, Nachreiner & Schaufeli, 2000). It is generally suggested that these workers have to deal with both generic and emotional job demands. Generic job demands, e.g. a high workload, are just as evident in other occupations, but health care workers also have to deal with emotional job demands that are unique to these particular occupations as the objective of work is to care for and help other human beings (Dollard, 2003; Halbesleben, 2008). The Swedish health care sector went through major transitions during the 1990's, e.g. downsizing and reorganizations (Hertting, Petterson & Nilsson, 2005). Some of these transitions left deteriorating health effects that can still be observed today. A high rate of absence due to sickness was specifically notable for women employed in health care and education during the last years of the 1990s and the beginning of 2000s (Hertting et al., 2005; RFV 2004). It was primarily an increase in mental ill-health, which was stated as the cause for long-term sick-leave among women (Hertting et al., 2005).

One important factor for our sense of belonging and health is being part of a social network and receiving good support from its members, thus helping us to handle the stressors of daily work and life (Cohen, Underwood & Gottlieb, 2000). Generally, there is empirical support for an association between social support and burnout (Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998; Stewart, 1993). However, most of the published burnout literature has been based on cross-sectional studies and has yielded inconsistent results (Halbesleben, 2006). One possible explanation of these inconsistencies may lay in the multidimensionality of the constructs of social support and burnout. According to Halbesleben (2006), there is definitely a need for research examining how specific sources of social support relate to separate sub-dimensions

of burnout. The main aim of the present thesis is to provide a theoretical and empirical description of three key concepts, namely; *work-related social support*, *job demands* and *burnout*. Furthermore, to present some empirical findings of how these three concepts may relate to each other, primarily among employees in the health care sector.

Welcome!

BACKGROUND

The purpose of this literature review is to describe theoretical and empirical research on *work-related social support*, *job demands* and *burnout*, and to present a short summary of some of the advances that have been made in the field. These three key concepts are in themselves very large and complex and it would be possible to write a thesis on each of them. Thus, the literature review presented here can only provide a shorter overview of the main research aspects regarding each concept. Since a common thread throughout the whole thesis is the concept of work-related social support, specific emphasis will be on describing the concept's historical background, its main theoretical perspectives, and its conceptual and methodological challenges. This main part of the background will thereafter be followed by a shorter summary of job demands and burnout. Furthermore, since three of four studies were conducted among healthcare workers and focused on specific job conditions that are inherent in such work settings, the last part of the background will focus on some of the challenges that characterize health care workers' daily work environment.

WORK-RELATED SOCIAL SUPPORT

SOCIAL SUPPORT –SOME HISTORICAL HIGHLIGHTS

We spend a lot of our time with other people, either at work or outside work. The time we spend with others has an important impact on our sense of belonging and self-worth, on our identity and mental and physical health. Occupational health research aim to investigate which factors may reduce stress and have beneficial health effects. Social support, which generally refers to social resources that are provided by others (Cohen & Syme, 1985), is one factor that has been salient in such research. Cohen and Syme (1985) propose that interest in social support research is associated with the role played by social support in the aetiology of illness and disease, as well as in treatment and rehabilitation.

Some of the early roots in social support research date back to Durkheim's work on the association between weak social ties and suicide risk (cf. Cohen, Gottlieb & Underwood, 2000) and Bowlby's (1969) theories of attachment. Many social support researchers, however, would probably concur that the foundation of today's research was not really laid until the 1970s (Vaux, 1988). The groundbreaking work of e.g. Caplan (1974), Cassel (1974a, 1974b, 1976) and Cobb (1976) contributed to the onset of more structured analyses of social relationships, emphasizing their health implications (Sanger, 2003). In general, their main assumptions stated that individuals with strong social ties are sheltered from possible detrimental effects of stressful situations and major life transitions due to network members' ability to provide feedback, tangible support and to facilitate coping strategies (Cohen et al., 2000). In the classic Alameda study, Berkman and Syme (1979) showed a significant link between weak social ties and a higher mortality risk, over and above other known risk factors.

During the 1980s and beginning of the 1990s, the interest in social support as a concept intensified and many of its conceptual complexities were highlighted in

extensive scholarly books (see e.g. Sarason & Sarason, 1985; Veiel & Baumann, 1992). During this time, the relationship between social support and; work stress (House, 1981); health (Cohen & Syme, 1985); communication (Albrecht & Adelman, 1984, 1987); intervention (Vaux, 1988) and risk for cardiovascular disease (Berkman, 1982; Shumaker & Czajowski, 1994) were further examined. Much of this research was generally rooted in American society. However, during the same time period, important studies were also conducted in Sweden and Scandinavia. One way these studies contributed to the social support literature, was by strengthening the collective findings of an association between higher mortality rates and risk for the onset of cardiovascular disease among men and women with low social integration, few social networks and weak emotional support (see, e.g. Hanson, Isacsson, Janzon & Lindell, 1989; Johnson, 1986; Johnson & Hall, 1988; Kaplan, Salonen, Cohen, Brand, Syme & Puska, 1988; Orth-Gomér & Johnson, 1987; Orth-Gomér, Rosengren & Wilhelmsen, 1993). In addition, research conducted in Sweden also contributed with valuable information of how to analyse social support in population surveys (Orth-Gomér & Undén, 1987; Undén, 1991), as well as in relation to the job demand-control model (Johnson, 1986; Johnson & Hall, 1988; Karasek, 1979; Karasek & Theorell, 1990).

SOCIAL NETWORKS, SOCIAL INTEGRATION AND SOCIAL SUPPORT

The concept of social support may seem easy to comprehend at first glance. However, the concept's complexities have been discussed for years. In 1994, Ray and Miller wrote: "Although social support has been one of the most widely studied social phenomena in the past 20 years, it has also been one of the most difficult to pin down conceptually and operationally" (p.360). Thus, despite a myriad of empirical research examining the role social support play in relation to health and in the stressor-strain relationship (e.g. Cohen & Wills, 1985; House, Landis & Umberson, 1988; La Rocco, House & French, 1980; Schwarzer & Leppin, 1989; Uchino, Cacioppo & Kiecolt-Glaser, 1996), there still exist major theoretical and methodological discrepancies in how social support should be defined and measured (Antonucci, 1985; Cohen & Syme, 1985; Ganster, Fusilier & Mayes, 1986; Hupcey, 1998; Johnson, 1986; Orth-Gomér & Undén, 1987; Payne & Jones, 1987; Shumaker & Brownell, 1984; Shumaker & Hill, 1991; Winnubst & Schabracq, 1996). Part of this confusion may relate to the fact that the terms social networks, social integration and social support are being used interchangeable (Berkman, Glass, Brissette, Seeman, 2000; House et al., 1988) making it difficult to compare results from various studies.

A common distinction is to differentiate between *structural* and *functional* aspects of social relationships (House, 1981; House et al., 1988; Stewart, 1993). From a *structural* perspective, social relationship is often described as *social networks*. Social networks refer to "the web of social ties that surrounds an individual" (Berkman, 1984, p.414) and is quantitative in nature. Hence, in social network analysis, the structural elements of social ties are examined, e.g. geographic proximity, homogeneity and accessibility (cf., Berkman, 1984; House et al., 1988; Brissette, Cohen & Seeman, 2000). There is, however, nothing that states that social networks per se are supportive (Berkman, 1984). Thus, being involved in a social network does not necessary mean that the individual receives adequate support from

it (Lazarus & Folkman, 1984). The extent to which an individual is integrated, embedded or isolated within his/hers social surroundings is described as *social integration* or social isolation (cf. Cohen et al., 2000; House et al., 1988; Nordin, 2006). The level of integration depends on the number of relationships the individual participates in, and the frequency of contacts he/she has in those relationships.

The *functional* aspects of social relationships are often distinguished from the mere act of engaging in a social network (Cohen & Wills, 1985; Orth-Gomér & Undén, 1987). When the functional aspects of social relationships are examined, social support is being described (cf. House et al., 1988). Thus, *social support* may refer to how an individual appraises social interactions occurring within a social network (Lazarus & Folkman, 1984). It is evident that functional aspects of social relationships are multidimensional in character (Wills & Shinar, 2000). Among the most commonly described are: emotional, instrumental and informational support (Nordin, 2006). According to Sanderson (2004) *emotional support* refers to “the expression of caring, concern, and empathy for a person as well as the provision of comfort, reassuring, and love to that person” (p.183). *Instrumental (tangible) support* refers to “the provision of concrete assistance, such as financial aid, material resources or needed services” (p.184). Furthermore, *informational (appraised) support* refers to “advice and guidance about how to cope with a particular problem” (p.184).

Some of these types of support functions have also been part of how various researchers define social support. For example, in House’s (1981) definition, social support is seen as “a flow of emotional concern, instrumental aid, information, and/or appraisal (information relevant to self-evaluation) between people” (1981, p.26). He emphasises the emotional side of social support since it is present in – and related to – other types of support functions. Another example is Cobb (1976) who defines social support as information leading the subject to believe that he: is cared for and loved...is esteemed and valued...belongs to a network of communication and mutual obligation” (p.300). Thus, in Cobb’s definition of support; emotional, esteem and network types of support are emphasized. Other researchers, such as e.g. Karasek and Theorell (1990) refer to social support as “overall levels of helpful social interaction available on the job from both co-workers and supervisors” (p.69), hence, primarily highlighting the *source* of social support.

Support provided by professionals/formal sources of support (e.g. health/welfare professionals) may be distinguished from the support provided by laypersons/informal sources of support (e.g. spouse, relatives, friends, supervisors and co-workers) (cf. House, 1981). Among the support that is provided by different laypersons, *work-related sources of social support* may be especially important to examine in occupational studies, specifically in those aiming to find solutions to reduce stress and/or improve health. The importance of supervisor support and co-worker support is linked to their ability to provide a sense of belonging and for their ability to understand, and address work-related stressors (cf. Halbesleben & Buckley, 2004; House, 1981; Johnson, 1986; Johnson & Hall, 1994; Ray & Miller, 1994; Taylor, 2008). Maslach (2003) argues that the individuals best capable of providing

job-related support are the ones on the job. House (1981) also proposes that these sources of support may be distinctively effective since they are typically based on mutual respect, and the provision of support may perhaps seem more meaningful and easier to acknowledge if it comes from a valued peer. Furthermore, House (1981) emphasizes that “these sources are the most truly preventive forms of social support in that, if effective, they preclude the need for more formal support or treatment”(p.24). From previous studies, it has however been difficult to pin down which of these two work-related sources of support is the most effective for our health and in the stressor-strain relationship. The importance of both supervisor support and co-worker support has previously been highlighted in relation to various health outcomes. Jason (2007) argued that it is therefore imperative to analyze both sources of social support.

In this thesis, only work-related sources of support will be investigated. Here, work-related social support broadly refers to; overall levels of helpful social interactions perceived as being available from supervisors, co-workers and others closely involved in the work process. These social interactions are primarily of emotional content (cf. House, 1981; Karasek & Theorell, 1990).

SOCIAL SUPPORT AND HEALTH

Previous studies have shown significant associations between high levels of social support and e.g. lower blood pressure, lower heart rates (Undén, Orth-Gomér & Elofsson, 1991), more effective immune systems (Uchino et al. 1996), and among older adults, lower levels of cortisol (Seeman, Berkman, Blazer & Rowe, 1994). However, the opposite could also be put forward since a large amount of research has linked social isolation and weak social ties to various detrimental health outcomes. For example, there is confirmation of an association between low social integration and an increased risk for mortality (Berkman & Syme, 1979; Hanson et al., 1989; Kaplan et al., 1988; Orth-Gomér & Johnson, 1987). Further, low levels of social support and/or low social integration have been linked to an increased risk of cardiovascular disease (Johnson, 1986; Johnson & Hall, 1988; Karsek & Theorell, 1990). Although previous research has shown a relationship between social support and health, the answer to *how* this relationship occurs has not been thoroughly examined and is not yet fully understood (Schwarzer & Leppin, 1989; Stewart, 1993). Generally, the proposal is that social support affects an individual's emotions, cognitions and behaviours (Cohen et al., 2000), which in turn may affect cardiovascular, neuroendocrine, and immune functions and result in different health outcomes.

There are different theoretical models that describe how these health beneficial relationships may occur. The two most frequently discussed are: the main/direct effect model and the moderator (buffering) effect model. In the *main/direct effect model*, the underlying theoretical assumption is that social support has beneficial health effects regardless of stress level (Cohen & Wills, 1985; Cohen et al., 2000). Put in other words, individuals will benefit from social support, in both high-stress and low-stress situations (Sanderson, 2004). For example, being integrated in a social network may affect an individual's health through changes in health behaviour due to, e.g. social control and peer pressure (Cohen et al., 2000). Furthermore, a social support provider may also help reduce the effects of different symptoms, or help treat symptoms in more efficient ways by providing good information and advice which may enhance recovery from illness (cf. House, 1981; Payne & Jones, 1987). The *moderator (buffering) effect model* suggests that social support will have benign health effects when individuals are subjected to stress (Cohen & Wills, 1985). In other words, individuals subjected to high levels of stress will be the ones that benefit from support the most (Cohen et al., 2000). The role of social support may then be involved in individuals' cognitive appraisals (Lazarus & Folkman, 1984) of a stressful encounter by increasing coping abilities (Stewart, 1993). Cohen et al., (2000) note that social support may play various roles affecting the link between stressors and illness. Firstly, the perceived availability of social support may influence the primary appraisal of a stressful event. Thus, the recipient of support might not perceive the situation as so threatening (Cohen et al., 2000; Payne & Jones, 1987). Secondly, support may influence responses to a situation that has previously been perceived as being harmful or threatening (Cohen et al., 2000). Payne and Jones (1987) propose that receiving, e.g. informative and instrumental support might help the individual decide what to do about the situation, which resources are needed and where to acquire them in order to solve the problem. Finally receiving adequate appraisal

support (feedback) helps the individual to evaluate if the action taken and the resources used have been successful or not (Payne & Jones, 1987).

The moderator (buffering) effect of social support has been widely studied within the occupational stress literature especially since Johnson's (1986) empirical work resulted in the inclusion of social support into Karasek and Theorells (1990) job-demand-control model (which will be discussed later in this section). Despite a lot of conducted research investigating the moderator/buffering hypothesis, empirical results have been inconsistent. Some studies have found that support does buffer the impact of stress on health, but the main/direct effect has also been supported. Thus, there is empirical evidence for both effects (Cohen & Wills, 1985).

What about Causality?

The theoretical premise states that adequate social support, either via direct or buffering links, has beneficial health effects. However, this statement contains an underlying assumption about causality, i.e. that social support would cause good health, despite the fact that most of the literature is based on cross-sectional studies. Thus, it is only possible to disclose that a relationship between support and health exists; no assurance can be made to provide any real answers about causality from such research (cf. Sanderson, 2004). There do, however, exist convincing results, not least from prospective studies (e.g. Berkman & Syme, 1979), which propose that the link goes from social support to health and this is probably also the most plausible one. Nonetheless, the reverse relationship could exist, e.g. "Do people become ill and then become isolated, or is this sequence reversed?" (Johnson & Hall, 1994, p.156). House et al., (1988) note that the "determinants of social relationships, as well as their consequences, are crucial to the theoretical and causal status of social relationships in relation to health" (p.544). In order to gain a more comprehensive picture about the underlying mechanisms that are at play in the social support-health relationship more research is required on the determinants of social support (cf. Lakey & Cohen, 2000). Understanding how social support occurs and the determinants of supportive actions and people is a necessity in order to create successful interventions of work-related stress.

JOB DEMANDS

THE JOB-DEMAND-CONTROL-(SUPPORT) MODEL

One of the most dominating and frequently used models to examine occupational stress is the job demand-control model (JDC-model) (van der Doef & Maes, 1999), which was developed by Karasek (1979) and Karasek and Theorell (1990). The assumption that psychological job demands and decision latitude will interact with each other and affect the foundations for learning and personal development and/or the likelihood to develop psychological strain, is the central tenet of the model (Karasek & Theorell, 1990). Karasek (1979) views *job demands* as psychological stressors at work, e.g. working hard and fast and having a high workload. *Decision latitude* on the other hand refers to the opportunities an organization gives workers to use their skills and to make decisions about their own work. In other words, the potential to control various job demands (Karasek & Theorell, 1990; Theorell, 2003). Decision latitude includes two factors, decision authority and skill discretion. *Decision authority* refers to the possibility of deciding what and how things should be done at work and *skill discretion* refers to the workers opportunity to use their knowledge and skills to control various aspects of the work situation (Theorell, 2003).

By combining different levels of psychological job demands and decision latitude, Karasek (1979) and Karasek and Theorell (1990) were able to identify four different psychosocial work experiences in various occupations, i.e. *low-strain jobs* (low job demands and high decision latitude), *passive jobs* (low job demands and low decision latitude), *active jobs* (high job demands and high decision latitude) and *high-strain jobs* (high job demands and low decision latitude). The main assumption of the model is that the most detrimental health effects may occur in high-strain jobs and that the greatest opportunities for learning and personal development may result from active jobs (Karasek & Theorell, 1990). In the late 1980s, Johnson's (1986) and Johnson and Hall's (1988) empirical work on the link between social support, job control and job demands in relation to prevalence of cardiovascular disease contributed to the inclusion of social support in the JDC-model. Thus, the model expanded from solely investigating the relationship between the individual and the job, to include personal and collective interactions on the job as well (Johnson & Hall, 1994). As a result, the *iso-strain hypothesis* was developed, assuming that the most harmful work experiences will be related to high psychological job demands, in combination with low control as well as low social support (van der Doef & Maes, 1999; Karasek & Theorell, 1990).

The JDC(S)-model is a legitimate model that has been applied and has found support in a large amount of empirical research, perhaps especially in relation to cardiovascular disease (Belkic, Landsbergis, Schnall & Baker, 2004; Karasek & Theorell, 1990). The model is simple and generic which makes it possible to adapt its theoretical assumption of "balance/imbalance between demands and resources" to many different organizations. Although, this could be considered as one of the model's main advantages, this has also been the core of the criticism that accompanies it. Specifically, the conceptualization and measurement of the key concepts in the model, as well as how interaction effects between job demands and control (and support)

should be interpreted, has been criticized (see e.g. de Jonge, Janssen & van Breukelen, 1996; de Jonge & Kompier, 1997; de Jonge, Mulder & Nijhuis, 1999; Kasal, 1996; Kristensen, 1995, 1996; Mikkelsen, Ogaard & Landsbergis, 2005; Söderfeldt, Axtelius & Bejerot, 2001). Some researchers (e.g. de Jonge et al., 1999; Peeters & Le Blanc, 2001) suggest that the psychological job demand dimension is too generic and cannot capture the multifaceted nature of job demands that may be evident in different occupations. Hellgren, Sverke and Näswall (2008) further propose that our working life has gone through major transitions in recent decades, which has not only transformed the way we structure our work, but also the actual content of work. They note that established stress models may need to be re-examined, and perhaps complemented with additional factors in order to adequately reflect today's working life.

In this thesis job demands refers to “those aspects of the job which require additional/sustained physical, psychological or emotional effort” (van Vegchel, de Jonge & Landsbergis, 2005, p. 536), which potentially evoke stress-reactions, when they overwhelm individuals' personal limits and abilities (adapted from Demerouti, Bakker, Nachreiner & Schaufeli, 2000, p.456). Different job demands will be investigated in the present thesis. A further description of various occupational specific job demands in health care work will be described later in this literature overview.

Another quandary related to the JDC(S)-model concerns the concept of decision latitude, and whether it should be analysed as a composite measure of decision authority and skill discretion or if these two should be examined as two independent components. Originally, the two components were combined due to their seemingly high correlation in most occupations (Karasek, 1979; Sanne, Torp, Mykletun & Dahl, 2005), but research has later shown that this correlation clearly can vary across occupations (Theorell & Karasek, 1996) and as such produce low internal homogeneity when separate occupations are analysed (Sanne et al., 2005). The internal consistency in measures of psychological demands and social support has been good in many different groups (Theorell, 1996) and does not seem to vary as much between occupational groups (Sanne et al., 2005). Sanne et al., (2005) concluded that when separate occupations are being analyzed, the composite index of decision latitude should be divided into two separate sub-scales of skill discretion and decision authority. This is a notion that is also supported by Rafferty, Friend & Landsbergis (2001) due to the argument that the different control factors may relate differently to various criterion variables, e.g. burnout. In the present thesis, decision authority and skill discretion have been analyzed as two independent factors in line with these proposals.

Furthermore, in the JDC(S)-model there are a number of different ways the assumed interaction between job demands, decision latitude (and social support) have been investigated. Various formulations defining how an interaction effect may be analyzed, have been excellently described in van Vegchel et al. (2005) and will not be further elaborated upon here. However, one of the main criticism that has been put forward regarding the interaction effect in the JDC(S)-model concerns the underlying assumption of the strain-hypothesis. The main concern regards whether negative outcomes, such as strain, should be attributable to additive or interactive effect of job

demands and decision latitude. Is a negative outcome due to high demands or low decision latitude or an interaction of them both (van der Doef & Maes, 1999)? According to de Jonge and Kompier (1997), the hypothesis that the combination of psychological job demands, decision latitude and social support would somehow engage stronger responses, i.e. either more motivation at work or more physical symptoms is rarely supported. The occurrence of independent effects of demands, control and social support on various criterion variables is more commonly seen. One possible explanation for these results may relate to the characteristics of a sample, since interaction effects primarily have been supported in large-scale heterogeneous samples and the main effects of demands and control in homogeneous samples (Dollard, 2003). The measures of job demands, job control and social support have primarily been examined independently in relation to the criterion variables in the present thesis.

BURNOUT

Some of the earliest publications of burnout appeared in the 1970s, e.g. Freudemberger (1974, 1975). In these early publications burnout was primarily viewed as a state of exhaustion among volunteer, human service workers. Later, the definition of burnout as a three-dimensional psychological syndrome came to dominate the research literature (Densten, 2001; Schaufeli & Enzmann, 1998), perhaps especially since the development of the Maslach Burnout Inventory (MBI-HSS) in the 1980s. In its initial definition, burnout was viewed as a “psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with other people in some capacity” (Maslach, 1993, p.20), i.e. the definition was restricted to human services and health care work. *Emotional Exhaustion (EE)*, which is viewed as the individual strain dimension, refers to being depleted of physical and emotional resources. *Depersonalization (DP)*, which is the interpersonal dimension of burnout, is viewed as a process whereby employees develop negative, uncaring and detach responses to other people, e.g. care recipients, as a way of coping by distancing themselves from the source of their exhaustion. *Reduced Personal Accomplishment (PA)*, which is the self-evaluation dimension, is viewed as diminished feelings of competence and achievement at work (Halbesleben & Buckley, 2004; Maslach, 1993; Maslach & Leiter, 2008).

As burnout research progressed over the years, so did also the definition and measurement of the MBI. Some of the advances that took place were the expansion to two additional burnout inventories, namely one for educational professions (MBI-ES) and one for general occupations (MBI-GS) (Maslach, Jackson & Leiter, 1996). Thus, this development also meant that the restricted assumption that burnout only developed in human service and health care work was abandoned. A later definition of burnout was presented as “a psychological syndrome that involves a prolonged response to chronic interpersonal stressors on the job” (Maslach & Leiter, 2008, p.498). The three sub-dimensions of burnout were now described as overpowering exhaustion (emotional and physical), feelings of cynicism (negative, callous, detached responses from the job), and a sense of ineffectiveness and lack of achievement and productivity (Maslach & Leiter, 2008). These three sub-dimensions may develop as a response to a mismatch between the person and the job in six key areas, which define potential risk factors in the work environment; workload, control, reward, community (social support), fairness and values (Maslach & Leiter, 1997; 2008). Relatively recently, the positive antipode of burnout has emerged in the literature. *Work engagement* may be characterized by energy, involvement and efficacy as measured by the MBI or as vigor, dedication and absorption measured by the Utrecht Work Engagement Scale (UWES) (Schaufeli, Salanova, González-Romá & Bakker, 2002; Schaufeli, Leiter & Maslach, 2009). Schaufeli et al. (2009) propose that the shifting focus in burnout research coincides with the manifestation of Positive Psychology.

Maslach's definition of burnout has dominated the literature and has been used in approximately 90% of all burnout studies (Schaufeli & Enzmann, 1998). Although, it's major dominance, there is still no consensus of how burnout should be defined and measured in the scientific literature (cf. Shirom, 2005). This may be related to some of the main challenges surrounding the burnout concept e.g. the concepts dimensionality, whether it consists of two or three sub-dimensions and how these dimensions are interrelated (Cox, Tisserand & Taris, 2005) and also how they temporally related to each other (Taris, Le Blanc, Schaufeli & Schreues, 2005). Furthermore, questions regarding whether burnout is dependent on the context or is context free, are still being actively debated and investigated (cf. Cox et al., 2005).

In general, there seems to be support for a three-factor structure of burnout as measured by the MBI. These three sub-dimensions of burnout have been identified in national (e.g. Hallberg & Sverke, 2004) and international samples (Lee & Ashforth, 1990; Taris, Schreurs & Schaufeli, 1999), as well as across various occupations and nations (Maslach et al., 1996; Schutte, Toppinen, Kalimo, & Schaufeli, 2000). For example, Hallberg and Sverke (2004) assessed the construct validity of the translated Swedish version of MBI-HSS (Human Services Survey) using two samples of Swedish health care workers. They found strong construct validity and suggested that there are indeed three distinct and reliable dimensions of MBI-HSS (Hallberg & Sverke, 2004). In a recent comprehensive validity study, Worley, Vassar, Wheeler and Barnes (2008) reviewed the burnout literature and performed a meta-analysis of 45 studies summarizing the factorial structure of scores from the MBI-HSS and MBI-ES. The results indicated that there was support for a three-factor structure across countries and occupations. Despite the findings of three dimensions, previous research also tends to indicate that emotional exhaustion and depersonalization are strongest and most consistently related to each other and that personal accomplishment seems to be a distinct factor (cf. Cordes & Dougherty, 1993; Demerouti et al., 2001; Hakanen, Schaufeli & Ahola, 2008; Worley et al., 2008).

Furthermore, the possible causal associations between these three sub-dimensions of burnout have been inconclusive. According to Taris et al. (2005) there are primarily three models that are most important for the description of the causal development of burnout. Firstly, the Leiter and Maslach model (1988), in which high emotional exhaustion are assumed to lead to high levels of depersonalization, which in turn would lead to lower levels of personal accomplishment $(+EE) \rightarrow (+DP) \rightarrow (-PA)$. Secondly, the phase model by Golembiewski, Munzenrider and Stevenson (1986) which assumed a direction from $(+DP) \rightarrow (-PA) \rightarrow (+EE)$. Thirdly, the Lee and Ashforth model (1993) which is a variation of Leiter and Maslach (1988) model and states that $(+EE) \rightarrow (+DP)$ and $(+EE) \rightarrow (-PA)$. Taris et al., (2005) tested all three models and an additional version of the Leiter and Maslach (1988) model and the Lee and Ashforth (1993) model longitudinally in two different occupational samples of human service professions. The results from this study indicated that higher levels of emotional exhaustion trigger higher levels of depersonalization. Further, higher levels of DP lead to higher levels of EE and lower levels of PA.

THEORETICAL PERSPECTIVES IN BURNOUT RESEARCH

Despite the evident dominance of Maslach's conceptualization of burnout, there exists a large diversity of theoretical approaches to burnout investigation. Schaufeli and Enzmann (1998) summarized the burnout literature and concluded that it is possible to distinguish, for example, between individual, interpersonal and organizational approaches to burnout. *Individual approaches* accentuate the function of factors and processes within the individual. *Interpersonal approaches* emphasize on demanding relationships with others at work. *Organizational approaches* focus on the significance of the organizational context (Schaufeli & Enzmann, 1998). Only the first two approaches, which are relevant for the studies of the present thesis, will be described below.

Individual approaches to burnout

Generally, the *individual approaches* to burnout examine it from various psychological perspectives (Schaufeli & Enzmann, 1998). Some individual burnout approaches have been presented by e.g. Pines (1993), who illustrate an existential and motivational approach to burnout i.e. that only highly motivated individuals burnout. Here, burnout is viewed as "a state of physical, emotional, and mental exhaustion caused by long-term involvement in emotionally demanding situations" and is measured by the Burnout Measure (BM) (Melamed, Shirom, Toker, Berliner & Shapira, 2006, p.330). Thus, this definition of burnout is not context-specific, e.g. does not specifically relate to the work situation (Shirom, 2003).

Another example of an individual approach to burnout is the Conservation Of Resources-model (COR-model) (Halbesleben, Wakefield, Wakefield & Cooper, 2008), which was developed by Hobfoll (1989), Hobfoll and Freedy (1993), as well as Hobfoll and Shirom (1993). The COR-model was initially perceived as a general stress theory, but has lately been applied to the burnout field. The central tenet in the COR-model is the assumption that individuals are highly motivated to obtain, retain, and protect their resources. Resources are things' individual value, like objects, conditions (e.g. supportive social network), personal characteristics (e.g. social skills) and energies (e.g. money). If resources are threatened, lost or if resource gain does not follow resource investment, psychological stress may occur. Then, if coping is unsuccessful, burnout may develop over time (Schaufeli & Enzmann, 1998). The Shirom-Melamed Burnout Measure (SMBM) is based on the COR-theory and burnout refers here to depleting and draining three interrelated, individual resources; physical fatigue (low levels of energy and tiredness), emotional exhaustion (having lacking energy to invest in relations at work) and cognitive weariness (feelings of slow thinking and minimized mental alertness (Melamed et al., 2006).

Furthermore, Hallsten (2005) and Hallsten, Bellaagh and Gustafsson (2002) argue that burnout is context-free and may develop among both employed and unemployed individuals. The underlying argument in Hallsten's (2005) theoretical model of burnout rests on the concept of performance-based-self-esteem (PBSE), which is conceptualized as contingent self-esteem. In other words, individuals that are high in PBSE, have a high motivation to perform and accomplish tasks in order to feel valued.

Thus, the high motivation to perform in order to feel valued will drive the individual to engage heavily in work and if there is a “mismatch” between the individual and his/her work conditions, a burnout process may start. Hallsten (2005) further makes a distinction between burnout and worn-out, stating that only individuals high in PBSE will burnout.

Interpersonal approaches to burnout

Interpersonal approaches emphasize demanding relationships with others at work. One of the predominant approaches is Maslach’s (1993) three dimensional view of burnout. This approach has been previously described and will not be further elaborated here. However, some burnout models have been developed relatively recently. These have partly developed as a response to a growing criticism of the Maslach (1993), Maslach & Leiter (1988) model of burnout and/or the job-demand-control-model (Karasek & Theorell, 1990). One such example is the development of the Job Demands–Resources model (JD-R) of burnout (Demerouti et al., 2001).

The central tenet in the (JD-R) is the assumption that psychosocial work characteristics can be classified in large two groups, job resources and job demands, regardless of what kind of job that is being examined. Job resources may be social, organizational, psychological and physical aspects of a job and may be both extrinsically motivating (help dealing with job demands and to attain goals at work) and intrinsically motivating (satisfying basic needs of e.g. belongingness and autonomy). Job demands refer to those aspects of a job that require continual physical and/or psychological exertion and are related to certain physiological and/or psychological costs (Hakanen et al., 2008). The assumption is that high job demands may diminish individuals’ physical and mental resources and thus lead to exhaustion. In addition, inadequate job resources may prevent accomplishing work-oriented goals, thus leading to frustration and as a response, disengagement from work (Peterson, 2008). The JD-R model is measured by the Oldenburg Burnout Inventory (OLBI) (cf. Demerouti et al., 2001; Halbesleben & Demerouti, 2005), which was recently translated into Swedish and examined among health care workers by Peterson (2008). The OLBI, differs from the MBI since it focuses on two burnout dimensions, as described in the JD-R model. A further difference is the dimension of exhaustion, which here includes assessments of emotional, cognitive and physical components (Halbesleben & Demerouti, 2005).

Despite numerous disparities among theoretical burnout approaches, there are some common denominators described in the literature (Schaufeli & Enzmann, 1998). The idea of having a strong initial motivation is frequently suggested in many burnout theories. Health care professionals have, for example, a strong impetus to help their care recipients. Furthermore, the notion of having an unfavourable job environment is often described. If such an environment is in sharp contrast or “mismatched” with highly motivated professionals and if the individual also has inadequate coping strategies, it is plausible that burnout will be the result.

In the wake of lively public debate about the potential causes of large increase in sickness absence during the late 1990s and the first years of the twenty-first century, the concept of burnout as a clinical diagnosis was also highlighted. As a result, the National Board of Health and Welfare in Sweden published an expert report in 2003, where diagnostic criteria for *exhaustion syndrome* according to ICD and DSM criteria (ICD-10, F43.8A) were proposed (cf. National Board of Health and Welfare, 2003; Stenlund, 2009; Åsberg, Nygren, Herlofson, Rydlander & Rydmark, 2005). However, in the present thesis burnout is viewed in line with Maslach's (1993) conceptualization of burnout as a multidimensional concept with three sub-dimensions.

WORK CONDITIONS IN HEALTH CARE SETTINGS

Health care is often described as a particularly stressful occupation (Halbesleben, 2008). There are a number of underlying arguments for making such a proposal, which relate to the structural organization of work as well as to the actual content of work. In Sweden, during the 1990s, the health care sector went through fundamental changes. In the wake of the recession and economic crises, the number of health care workers was reduced by approximately 24% (Hertting, 2003). Hertting (2003) states that unqualified jobs in the health care sector were gradually reduced, which indicated that the support structure for registered nurses and physicians was lost during the 1990s (Hertting, et al., 2005). Other aspects of changes in health care have been rapid developments in new technology and shortened lengths of stay for patients (Aiken, Clark, Sloane, Sochalski, Busse, Clarke et al., 2001). Furthermore, concerns regarding potential detrimental health effects of various work-related stressors have been addressed in relation to nursing shortages and turnover rates, nationally as well as internationally (see e.g. Erlen, 2001; Fochsen, Sjögren, Josephson & Lagerström, 2005; Fochsen, Josephson, Hagberg, Toomingas & Lagerström 2006; Hayes, O'Brian-Pallas, Duffield, Shamianc, Buchand, Hughes et al., 2006). According to Schaufeli & Enzmann (1998) human service occupations, e.g. health care, have some "structurally built-in sources of frustrations that potentially foster burnout" (p.141). The work in such organizations may be unsupportive (chronically lacking resources), the nature of the job may involve poor feedback, unclear objectives and goals, and high emotional demands with lacking reciprocity e.g. difficult and troubled recipients who take the efforts made by professionals for granted (Schaufeli & Enzmann, 1998).

Demanding Health Care Work

In a literature review McVicar (2003) identified six main themes of major workplace stressors relating to nursing practice; workload/time pressure, emotional demands and needs of patients and their families, leadership/management issues/lack of adequate supervisory support, shift work, lack of reward and relationships with other clinical staff (p.636). Hallin and Danielsson (2007) illustrated in a qualitative study of Swedish registered nurses' experiences of daily work that being a nurse is to constantly try to balance strain and stimulation, and that the increased number of patients has reduced the nurses' capacity to prioritize and plan work. Allvin, Jacobson & Isaksson (2003) describe nursing work as boundaryless, albeit not in the sense of having boundaryless freedom at work, but rather in the sense of having boundaryless demands at work concerning e.g. worktasks, responsibilities and loyalty. It is possible that health care workers high ideals and expectations could collide with reorganization and downsizing, which has reduced resources but not the demands and responsibilities of work. These developments may leave health care workers questioning their own abilities and worth, and create a sense of inadequacy (Glasberg, 2007). Collectively, these studies emphasize the manifold job demands that may be salient in nursing work, as well as portraying that such demands may originate from various levels in the organization, from the involvement in different emotional and social relationships and from a "miss-match" between individual drive, goals and aspirations and available resources in the organization. Such a "miss-match" combined with insufficient coping strategies may over time result in burnout (Maslach & Leiter, 1997).

Nurses are considered particularly vulnerable to stress and burnout (Spence Laschinger & Finegan, 2008). It is generally suggested that these workers, apart from merely experiencing generic job demands (e.g. a high workload) that are just as evident in other occupations, they also have to deal with additional job demands that are unique to these particular occupations, e.g. confrontation with death and dying (Garrosa, Moreno-Jimenez, Liang, & Gonzalez, 2008; Poncet, Toullic, Papazian, Kentish-Barnes, Timsit, Pochard et al., 2007), contact with chronically ill or terminally ill patients (Schaufeli & Enzmann, 1998), conflictive interactions (Estryn-Behar, van der Heijden, Camerino, Fry, Le Nezet, Conway & Hasselhorn, 2008; Garrosa et al., 2008), and threats and violence (Estryn-Behar, et al., 2008). Such demands are inherently emotional because the aim of the work is to care for and help other human beings (Dollard, 2003; Halbesleben, 2008). An additional demanding aspect of health care work regards the pressure not to make any mistakes at work (Maslach & Jackson, 1982). The nature of health care work is special in this sense, since making a mistake at work may result in serious individual costs in case of human suffering, which is not as pronounced in most other occupations. Today, we have relatively good knowledge of an association between generic stressors and strain, but further insight is needed regarding the association between specific stressors and strain (de Jonge & Dormann, 2003).

Social Support in Nursing and Health Care

One important factor for our sense of belonging and for our health is being part of a social network and receiving adequate support from its members, thus making us feel good in general and perhaps helping us handle the stressors of daily working life and our life outside work (cf. Cohen, et al., 2000). In nursing, social support is relevant to consider from various perspectives. As part of the professional role, nurses act themselves as significant providers of social support to their care recipients, e.g. by influencing the patient's health, health behaviour and participation in care (Stewart, 1993). However, nurses are also recipients of support, where significant support providers are their co-workers and supervisors. These two work-related sources of support are often described as being particularly important due to their understanding of, and their ability to address, work-related stressors (Halbesleben & Buckley, 2004; Ray & Miller, 1994).

Previous burnout studies have shown support of an association between social support and burnout (Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998; Stewart, 1993), although this relationship has been inconsistent (Halbesleben & Buckley, 2004). Some of these inconsistencies may perhaps relate to conceptual and methodological aspects of social support. In a literature review of 18 studies (references marked with an asterisk indicate studies included in the review) Sundin, (manuscript) examined the relationship between the indices in the (JDC(S)-model and the three sub-dimensions of burnout (MBI-HSS) among human service samples. Specific emphasis was on how the concept of social support had been measured in such studies. Further, how different sources of social support were associated with the three burnout dimensions. The results showed that few of the reviewed articles clearly stated which sources of social support were under investigation. Seventy-two per cent of the reviewed articles

only used a composite index to measure work-related support although data were collected on various social support providers and could have been entered as independent predictors in the analyses. Eighty-eight per cent of the articles investigated the moderating (buffer) effect of social support on various dimensions of burnout, but only 30% could supported such effects. There was, however, some agreement that there existed some main effect between social support and three sub-dimensions of burnout, indicating a stronger relationship with emotional exhaustion and depersonalisation than with personal accomplishment. Few studies could underpin a main effect of social support on personal accomplishment. Bourbonnais, Comeau, & Vézina, (1999), de Jonge, Janssen, & van Breukelen, (1996), Janssen, Peeters, de Jonge, Houkes, & Tummers, (2004) and Tummers, Landeweerd, & van Merode, (2002) all found a significant main effect between social support and emotional exhaustion. However, in all of these studies social support was measured as a composite scale not distinguishing between supervisor and co-worker support. Janssen et al. (1999) investigated all three burnout dimensions and supervisor- and co-worker support as two independent indices, and found that high supervisor- and co-worker support were associated with lower levels of emotional exhaustion; further that higher levels of co-worker support were associated with less depersonalization. The findings from this literature review (albeit far from “all-inclusive”), indicate some tendencies, i.e. there is still a need for researchers to make further refinements of what they are actually measuring when they include the concept of social support in their analyses. Payne and Jones (1987) suggest that separating and investigating specific sources of social support would be one important contribution to make social support research more systematic. This notion is also supported by Halbesleben (2006), who argues that the specific nature of the associations between different sources of social support and separate burnout dimensions has not been thoroughly investigated. In a meta-analyses conducted by Halbesleben (2006) it was found that social support was differently associated to burnout dimensions *only when taking into account the specific source of support*.

AIMS OF THE THESIS

The overall aim of the present thesis is to describe and further explore the concepts of work-related social support, job demands and burnout, predominantly among health care workers.

SPECIFIC AIMS

- To identify and assess different correlates to work-related social support using a large and diverse sample of private and public employees (*Study I*).
- To identify and assess the relationship between various work-related sources of social support and different sub-dimensions of burnout among a sample of registered and assistant nurses (*Study II*).
- To identify and evaluate a job demand scale specifically developed for health care workers using two occupational groups, registered- and assistant nurses (*Study III*).
- To identify and longitudinally examine the association of generic- and occupational specific job demands and work-related social support on two sub-dimensions of burnout among registered nurses (*Study IV*).

METHOD

This thesis includes four empirical studies based on data collected from two projects: the “*Stress Profile*” measurement and “*Mental health among non sickness absent women in public organizations*”. *Study I* was based on questionnaire data collected by the Stress Profile between January 2000 and May 2003. *Study II-IV*’s data were collected in spring 2002 and approximately one year later in 2003 in the project mental health among non sickness absent women in public organizations.

DATA COLLECTION AND PARTICIPANTS

STUDY I

The Stress Profile Measurement

The Stress Profile (Setterlind, 2004; Setterlind & Larsson, 1995) is a comprehensive psychosocial instrument comprising 224 items measuring stress in a broad range of areas in respondents’ working - as well as private life. It covers four key sections, i.e. *external stressors*; e.g. work- and family oriented, *internal stressors*, e.g. impatience, time urgency, *coping strategies*, e.g. problem-focused, emotional-focused and *stress reactions*, e.g. physical, behavioural, cognitive and emotional. These are divided into 16 main fields and subdivided into 60 indices. The Stress Profile was developed and standardized throughout a period of five years in over 50 different Swedish companies and organizations among approximately 4000 men and women (Setterlind & Larsson, 1995). It has been in use since 1986 (Setterlind, 2004) and approximately 50,000 individuals had responded to the instrument since then (Lisspers, 2004).

Procedure

Certified personnel from occupational health services (OHS) generally administer the data collection. OHS informs the management, union representatives and the personnel about the structure of the instrument, how the results will be analyzed, presented and implemented. Information about voluntary participation and confidentiality of the results is presented. When a workplace has agreed to participate, the management and the personnel generally answer the Stress Profile at their workplaces. Data are then decoded securing individual anonymity and the Stress Profile is presented back to the company on an organizational level. Further, decoded data is added to an aggregated national research database. A sample (n=16144) from this national research database constituted the empirical data in *Study I*.

Ethical Approval

Study I (Protokoll 2005/5:1) was approved by the Ethics Committee of the Karolinska Institutet. The respondents had been informed about the objectives with the projects, how the results were going to be analyzed and presented and about voluntary participation and confidentiality.

Participants

From January 2000 to May 2003, 18556 individuals from a diversity of Swedish organizations and companies responded to the Stress Profile. A selection from these individuals constituting $n=16144$ respondents were chosen as the empirical data in *Study I*. These individuals reported being salaried employees or self-employed individuals at the time of the measurement. Individuals being e.g. temporary employed, in training/education, on sick-leave and parental leave were not included in the analyses. The selected participants' demographics are presented in Table 1.

Table 1. Demographic data in percent for participants in Study I.

Variables		Women $n= 9,406$	Men $n= 6,698$
<i>Gender</i> ¹⁾		58	42
<i>Age group</i>	20-29	8	8
	30-39	25	28
	40-49	31	30
	50-59	32	29
	60-65	4	4
<i>Educational level</i>	Grade 9 or lower	13	9
	Upper sec. school	34	43
	University graduate	53	48
<i>Position</i>	Manager	21	44
	White-collar	44	36
	Blue-collar	18	13
	Other	16	7
<i>Type of employer</i>	Municipality	32	12
	National government	12	15
	County council	14	3
	Private	39	66
	Business owner	2	3
<i>Living area</i>	Metropolitan area	42	40
	Middle-sized city	17	16
	Small city	17	19
	Rural area	24	24

Notes: ¹⁾ Gender data missing $n=40$

STUDY II-IV

Mental health among non sickness absent women in public organizations

The empirical data constituting *Study II-IV* were derived from the project “*Mental health among non sickness absent women in public organizations*” conducted by the county council of Stockholm, Stockholm Center of Public Health, Unit of Mental Health (Bergsten-Brucefors, Hochwälder, Jeanneau & Fosselius, 2004). The overall objective of the project was to identify and describe risk- and protection factors that buffered against the development of mental ill-health among nurses in three hospitals and two primary health care centres in the Stockholm area. The main focus was on factors in the working environment, but individual factors and factors in the respondents’ private life were also addressed. The project’s main focus was on women, however, all individuals that were registered as permanently employed nurses at the work places were asked to participate in the project, thus also including men. The overall rationale to focus on women in the project was based on the notable deterioration of women’s mental health during the last years of the 1990’s, particularly within the public sector (cf. Bergsten Brucefors et al., 2004). In the present thesis, both men and women were included in the analyses.

Procedure

Three hospitals and the two primary health care centres participated in the studies. These were non-randomly selected for the project. Rather, the selection was based on accessibility as well as on a geographical incentive to obtain a good representation of large-scale and small-scale organizations from both the north and the south of Stockholm. The purpose of the project was presented and discussed together with the directors of the hospitals, the operation managers at the primary health care centres and union representatives from different workplaces. After these representatives had given their consent to participate in the project, all individuals that were registered as permanently employed nurses at the work places were asked to participate in the project by answering a questionnaire. The data were collected during spring 2002 and then again approximately one year later in spring 2003. The same questionnaire was administered to the participants at both times, although in the second wave some supplementary questions were also added, e.g. the short Swedish version of the demand-control-support questionnaire. The whole questionnaire entailed detailed questions regarding the participants; social background, sickness absence, workload outside work, general health, their perception of work, job demands, job control, social support, sense of coherence, life events, burnout, empowerment and activities during leisure time (Bergsten-Brucefors et al., 2004). These questions were derived from a number of validated and reliability tested instruments. In Figure 1, a flowchart of the respondents is presented.

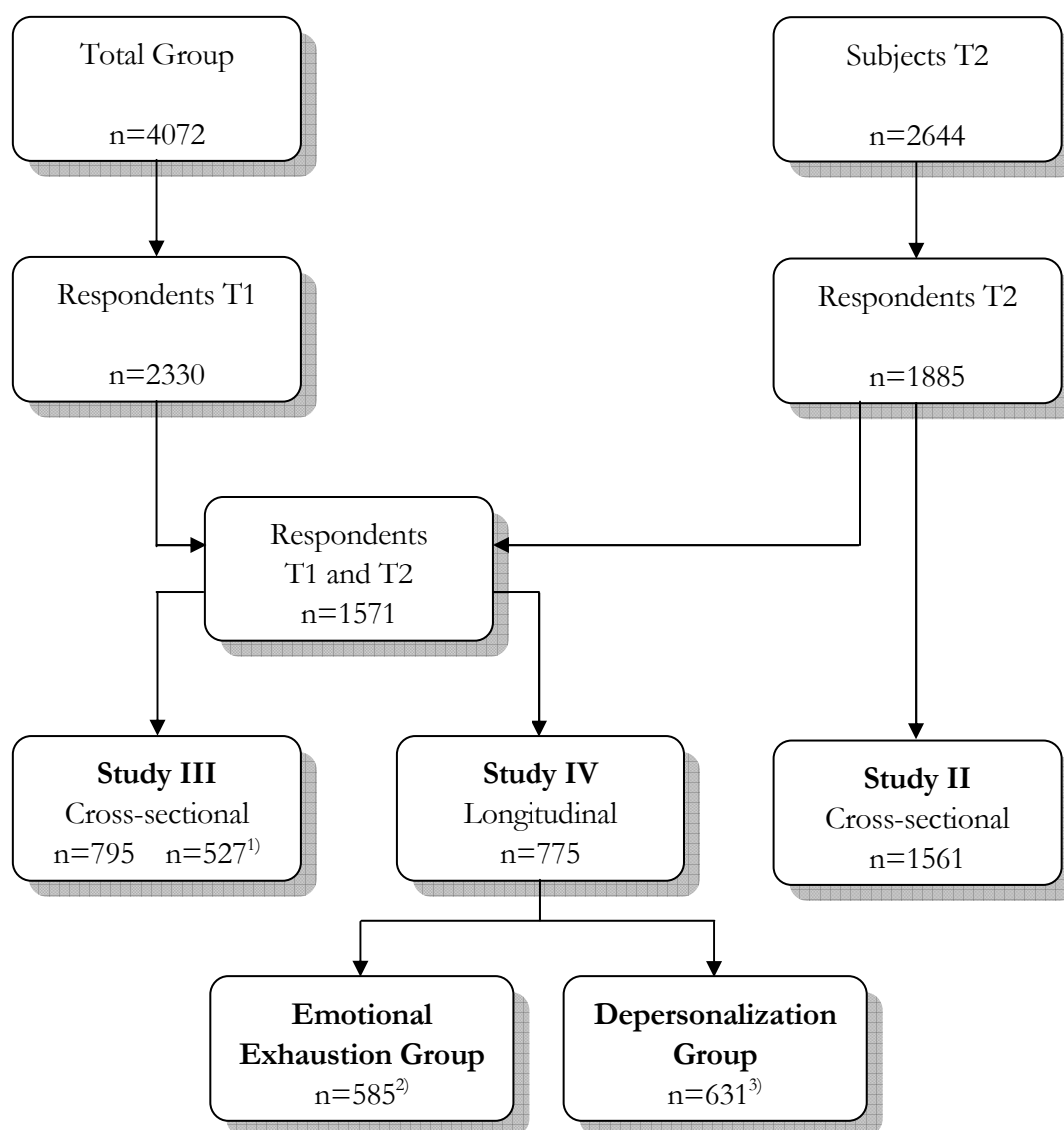


Figure 1. Flowchart of respondents who answered the questionnaire at Time 1 and 2.

(1) n=795 registered nurses and n=527 assistant nurses, (2) n=585 registered nurses with low and medium scores in emotional exhaustion at T1, (3) n=631 registered nurses with low and medium scores in depersonalization at T1.

The first questionnaire was sent to the home address of all individuals that were registered as permanently employed nurses at the participating workplaces in spring 2002. The questionnaire was accompanied by information about the project, voluntary participation and confidentiality and an envelope for return. The employees on sick-leave at the time of the survey were asked to complete the questionnaire bearing in mind the time they were working. As illustrated in Figure 1, a total of 4072 questionnaires were sent out after two reminding letters, the second one with a new questionnaire. Two thousand three hundred and thirty questionnaires were returned together with informed written consent of the respondents' willingness to participate in the project. The overall response rate was 57%. At the second wave, the questionnaire was sent to the same employees that had responded in the first wave plus new subjects who had not participated in the first wave of the survey. In total 1885

employees decided to respond. As exemplified in Figure 1, 1571 employees responded to the questionnaire at both Time 1 and Time 2, which is a response rate of 67%. The data in *Study II- Study IV* constitutes of respondents selected from the second wave of the survey (*Study II*) and from the respondents that had answered the survey at both waves (*Study III-IV*). The rationale for these selections was based on the research questions and on the fact that the short Swedish version of the Demand-Control-Support Questionnaire (DCSQ) was only included in the second wave of the survey.

Ethical Approval

Study II-IV (Dnr 01-451) was approved by the Ethics Committee of the Karolinska Institutet. The respondents were informed about the objectives with the projects, how the results were going to be analyzed, presented and about voluntary participation and confidentiality. The respondents also filled in a written consent form stating their willingness to participate in the project.

Participants

Those employees confirming themselves that they were employed and were working as registered nurses and assistant nurses were included in the analyses. Thus, chief nurses, midwives, nurses in training and administrative staff have not been included in the analyses in the present thesis. An overview of the participants in *Study II-Study IV* is presented in Tables 2-4. As presented in Figure 1, a selection of 1561 registered and assistant nurses from the total group at the second measurement were examined in *Study II*. The participants' demographics are presented in Table 2.

Table 2. The participants in Study II

Variables	Study II
Number of total participants	1561
Number of women (%)	1449 (95%)
Number of men	81
Gender data missing (n)	31
Mean age in years	43.87
Number of registered nurses (%)	941 (60%)
Number of assistant nurses (%)	620 (40%)

The participants in *Study III* (see Figure 1) were selected from the group of employees that had responded to the same questionnaire at Time 1 and Time 2 and who also had reported that they themselves were employed as registered nurses and assistant nurses at Time 2 (n=1322). Of these 1322 employees 795 were employed as registered nurses and 527 as assistant nurses. These two professional groups were analyzed separately in *Study III* and their demographics are presented in Table 3.

Table 3. The participants in Study III.

Variables	Study III	
	Registered Nurses	Assistant Nurses
Number of total participants	795	527
Number of women (%)	738 (95%)	492 (95%)
Number of men	40	24
Gender data missing (n)	17	11
Mean age in years	43.11	46.13

Since *Study IV* was a longitudinal study (see Figure 1), those registered nurses that had responded to: both questionnaires, were not on sick-leave and had reported that they worked as registered nurses at Time 1 were included in the analyses (n=775). In order to control for initial burnout score in the examination of predictors association with burnout at Time 2, those registered nurses with initial high (≥ 27) scores on emotional exhaustion (n=136) and high (≥ 10) depersonalization (n=94) were excluded from the analyses. Thus, 585 registered nurses were left in the emotional exhaustion group and 631 in the depersonalization group. These separate groups' demographics are presented in Table 4.

Table 4. The participants in Study IV

Variables	Study IV	
	Emotional Exhaustion(EE)	Depersonalization(DP)
Burnout data missing T1	54	50
Excluded high EE (≥ 27) T1	136	-
Excluded high DP (≥ 10) T1	-	94
Number of participants	585	631
Number of women (%)	535 (94%)	588 (95%)
Number of men	36	28
Gender data missing (n)	14	15
Mean age in years	42.56	42.51

The overall participating registered and assistant nurses in *Study II-Study IV* were non-randomly selected for the investigations. This is not unique to the present study, but rather in line with numerous studies in the field. Nonetheless, as Table 5 illustrates, when the survey data was compared with national representative data of registered- and assistant nurses' age and gender distribution, the findings suggest that the sample data are relatively in line with Swedish representative data.

Table 5. A comparison between representative national data and survey data considering registered and assistant nurses' gender distribution and mean age, year 2002.

Variables	<u>Representative data</u>		<u>Survey Data</u>	
	Registered Nurses	Assistant Nurses	Registered Nurses	Assistant Nurses
Percentage of women	92%	95%	94%	95%
Percentage of men	8%	5%	6%	5%
Mean age for women	44	46	42	44
Mean age for men	42	39	38	41

Notes: Representative national data, collected from total number of county council employees in 2002 (Landstingsförbundet, 2003). Survey data, collected from the total group of respondents in 2002, e.g. the first data collection.

On a more detailed level, it was found that the survey sample was comparatively in line with a representative sample of Swedish nurses concerning various psychosocial work factors. Table 6 demonstrates such a comparison.

Table 6. A comparison between representative national data and survey data considering employed registered and assistant nurses' psychosocial work conditions, in 2003.

The Swedish Work Environment Survey	<u>Representative Data</u>		<u>Survey Data</u>	
	Registered Nurses	Assistant Nurses	Registered Nurses	Assistant Nurses
Must skip lunch breaks/work overtime/take work home (every week)	38.6%	22.1%	33.9%	19.1%
Are hardly able to take short breaks to chat (at most 1/2 of the time)	79.0%	68.4%	71.0%	68.2%
At most 1/2 of the time can set their own work pace	79.2%	72.3%	68.7%	69.8%
Seldom can decide when various tasks should be done (mostly not/never)	70.2%	73.8%	77%	72.1%
Seldom are involved in the planning of their own work (mostly not/never)	36.1%	32.9%	38.8%	36.1%
Mostly not/never receive support from supervisors	29.9%	29.1%	28.2%	29.7%
Mostly not/never receive support from co-workers	9.8%	5.4%	7.5%	6.2%

Notes: Representative data of nurses that were randomly collected in the Swedish Work Environment Survey 2003, total men and women (Statistics Sweden, 2003) SYK SNI-code 323 for Registered Nurses and SNI-code 5132 for Assistant Nurses. Survey data collected 2003, registered nurses and assistant nurses, total men and women.

Thus, based on the previous two tables, it seems reasonable to assume that the survey data constituting *Study II-Study IV* does not represent any extreme groups of Swedish registered nurses and assistant nurses, but rather are comparatively in line with how a representative sample of Swedish registered and assistant nurses perceive their psychosocial work environment. These findings ought to improve generalization of the results in this thesis.

INSTRUMENTS

Various instruments were used in the four studies and these will be presented in this section.

THE STRESS PROFILE

The Stress Profile (Setterlind & Larsson, 1995) has been used in national (Grossi, Theorell, Jürisso & Setterlind, 1999; Hallman, Burell, Setterlind, Odén & Lisspers, 2001; Hallman, 2003; Kabbe, Setterlind & Svensson, 1996; Larsson & Setterlind, 1990, 1991) and international (Albertsen, Neilsen & Borg, 2001) research studies. Furthermore, the Stress Profile has been used in various applied company- and organizational projects (Setterlind, 2004) by the occupational health services and shown high face validity. A number of validity tests were performed during the development phase of the profile in order to adjust original scales to Swedish conditions (Setterlind & Larsson, 1995). Validity tests such as construct, criterion-related and content, have been performed concerning e.g. the job demand-control-support model (Johnson & Hall, 1988; Karasek & Theorell, 1990), and burnout (Maslach & Jackson, 1981) (cf. Hallman, 2003; Setterlind, 2004). The questionnaire has also been reliability tested (Cronbach alpha, Spearman-Brown split-half, test-retest) and has shown that most of the reliability coefficients of the main fields are over .80 and all are over .70 (Hallman, 2003; Setterlind & Larsson, 1995).

Individuals respond to each item in the Stress Profile on a Likert scale ranging from (1) to (5). All indexes are calculated in the same direction. (1) signifies a low degree of strain alternatively good/positive characteristics, e.g. a low degree of job demands or a high level of social support. An increase in numerical value describes impairment in the index under investigation. Thus, (5) characterizes a high degree of strain, e.g. high job demands or low levels of social support. The rationale for this is based on how results are translated back into practice. In order to give comprehensible feedback the Stress Profile is illustrated as a continuum ranging from green (representing good areas/low numerical scores) to red areas (signifying areas that need improvement/high numerical scores). A selection of indices considering the psychosocial work environment and individual characteristics were chosen in *Study I*.

THE SWEDISH WORK ENVIRONMENT SURVEY (SWES)

The Swedish Work Environment Surveys (SWES) is a large questionnaire survey that is sent biannually to a representative sample of the Swedish working population in the ages of 16-64 years (cf. Statistics Sweden). The questionnaire consists of well-validated measures and a selection of items measuring work-related social support and quantitative job demands was included in the present thesis.

THE SWEDISH DEMAND-CONTROL-SUPPORT QUESTIONNAIRE (DCSQ)

One of the most influential psychosocial work environmental models is the Job demand-control-(support) model developed by Karasek (1979), Karasek & Theorell (1990), Johnsson (1986) and Johnsson & Hall (1988). The Job demand-control-support model is measured by the Job Content Questionnaire (JCQ) (Karasek, 1979). The (JCQ) consists of 22 items measuring the core dimensions in the job demand-control-support model (Sanne et al., 2005), i.e. psychological demands, decision latitude, supervisor- and co-worker support (Karasek & Theorell, 1990). The questionnaire has been among the most frequently used instruments to assess psychosocial job exposures association to cardiovascular disease (Landsbergis & Karasek, 2000). In Sweden and in other Scandinavian countries, it is common to use a shorter and modified version of the Job Content Questionnaire (JCQ) called the Demand Control Questionnaire (DCQ) or Demand Control Support Questionnaire (DCSQ) (Landsbergis & Theorell, 2000; Sanne et al., 2005). It is this short version that has been applied in the present thesis. The DCSQ consists of 17 items: five items measure *psychological job demands* (e.g. does your work demand too much effort?), six items measure *decision latitude*, which can be separated into two separate indicators, i.e., skill discretion and decision authority. Four items measure *skill discretion* (e.g. do you have the opportunity to learn new things through your work?) and two items measure *decision authority* (e.g. do you have a choice in deciding how you do your work?). The *social support/supportive work atmosphere* index consists of six items (e.g. there is a calm and pleasant atmosphere at work) (Bernin, 2002). Psychological job demands and decision latitude are based on a frequency response format ranging from (1) never, to (4) often, where higher numerical scores indicate a higher degree of the construct being measured. Social support/supportive work atmosphere is intensity based, ranging from (1) strongly disagree, to (4) strongly agree. Throughout this thesis, the terminology social support/supportive work atmosphere has been used interchangeably when this specific index is described. The main reason for this concerns the content of the index. The six items included in this index are clearly related to the social atmosphere in the workplace (Landsbergis & Karasek, 2000) and does not involve source-specific measures of social support.

THE MASLACH BURNOUT INVENTORY HUMAN SERVICES SURVEY (MBI-HSS)

Burnout was measured by a Swedish version of Maslach Burnout Inventory -Human Services Survey (MBI-HSS) (Söderfeldt, Söderfeldt, Warg & Ohlson, 1996). The MBI-HSS was developed by Maslach and Leiter at the beginning of the 1980's and is the most commonly used instrument to measure burnout (Densten, 2001). The MBI-HSS consists of 22 items which are separated into three sub-dimensions of burnout. *Emotional Exhaustion* (EE) is measured by 9 items (e.g. "I feel emotionally drained from my work"), *Depersonalization* (DP) is measured by 5 items (e.g. "I feel like I treat some patients as if they were impersonal objects") and *Personal Accomplishment* (PA) is measured by 8 items (e.g. "I deal with emotional problems very calmly). The participants indicate to what frequency they have experienced the items based on a response format that range from (0) never, to (6) every day, where a higher numerical value indicated a higher level of burnout, except for Personal Accomplishment where the scale goes in the opposite direction. A high value of burnout is identified if a respondent's score is in the upper third of a normative distribution for a specific occupation (Maslach et al., 1996), except for personal accomplishment that is inverted.

Demerouti et al. (2000) suggested that earlier studies using the MBI-HSS faced problems concerning reproducibility of its factor structure and inadequate internal consistencies for the depersonalization sub-dimension. A further concern regards the correlation between the three sub-dimensions, specifically between emotional exhaustion and depersonalization, since the original theory was based on the notion that the three sub-dimensions were independent of one another (Worley et al., 2008). Some of these inconsistencies are still debated today. However, in general, there seems to be support for MBI as consisting of three sub-dimensions, in national (e.g. Hallberg & Sverke, 2004; Söderfeldt et al., 1996) and international samples (Lee & Ashforth, 1990; Taris et al., 1999), as well as across various occupational groups (Maslach et al., 1996; Schutte et al., 2000).

VARIABLES

STUDY I

Study I was conducted to identify and assess different correlates to work-related social support using a diverse sample of private and public employees. Demographic, individual and organizational/psychosocial variables were all derived from the Stress Profile. Demographic variables; *age*, *gender*, *educational level*, *occupational position* and *type of employer* were included in the analyses. Furthermore, individual characteristics; *self-esteem* was measured by three items, e.g. I am quite satisfied with myself the way I am, (1) high self-esteem and (5) low self-esteem. Two items assessed *mistrust*, e.g. I tend to distrust people I don't know, (1) low degree of mistrust and (5) high degree of mistrust. Organizational/Psychosocial characteristics; *total job demands* consisted of six items e.g. having too much to do, working hard, (1) low job demands and (5) high job demands. *Job control* consisted of three items, e.g. being free to make decisions of how to organize work (1) high job control and (5) low job control. *Job Content* involved three items measuring work as being interesting, stimulating and rewarding, (1) stimulating work and (5) tedious work. Work-related social support; *supervisor support* was measured by two items, (e.g. supervisor shows care, concern and gives us support when we need it) and *supportive work atmosphere* by two items (e.g. our workplace is characterised by good team spirit, good comradeship). These two support indices were the criterion variables, (1) good social support to (5) poor social support.

STUDY II

Study II was conducted to examine the associations between various work-related sources of social support and different sub-dimensions of burnout after demographic variables, workload outside the work situation, job demands and job control had been accounted for. *Demographic variables*; age, gender, marital status, sick-leave status, *Workload outside work*; number of children, number of children under age of seven years, taking care of and supporting relatives, domestic load, *Job demands*; quantitative job demands, emotional job demands, *Job control*; skill discretion, authority over decisions, *Work-related social support*; supervisor support, co-worker (patient) support, and social support/supportive work atmosphere, were investigated. The three sub-dimensions of burnout (MBI-HSS) constituted the criterion variables. Job demands, skill discretion, decision authority and social support/supportive work atmosphere were derived from the DCSQ. The two additional work-related sources of social support were derived from SWES and emotional job demands was measured by an index specifically constructed for the present study.

STUDY III

The overall aim with *Study III* was to develop and evaluate a occupational specific job demand scale using 28 items which had previously been identified as demanding work elements in health care work (Michélsen, Löfvander, Eliasson, & Schulman, 1999) (see Appendix). The job demands were measured on a scale ranging from 1 (no, almost never) to 4 (often). Higher numerical scores indicated a higher degree of the construct being measured. *Psychological job demands*, *skill discretion*, *decision authority* and *social support/supportive work atmosphere* were derived from the DCSQ and were also examined in this study.

STUDY IV

The association of generic- and occupational specific job demands and work-related social support on two sub-dimensions of burnout, were longitudinally examined in *Study IV*. The four occupational specific job demands developed in Study III; *pain and death*, *patient and relative needs*, *threats and violence* and *professional worries* as well as one generic job demands measure, *quantitative job demands* were included in the analyses. *Quantitative job demands* was measured by one single item (Do you sometimes have so much to do that you have to skip lunch, work late, or take work home with you?). The response options ranged from (1) not at all, rarely during the past three months, to (5) every day. This item was derived from SWES. Furthermore, *supervisor support* ("Can you receive support and encouragement from your superiors when your work becomes hard?") and *co-worker support* ("Can you receive support and encouragement from your fellow workers when your work becomes hard?") were derived from SWES and measured on a Likert scale ranging from (1) never, to (4) always. The two criterion variables *emotional exhaustion* and *depersonalization* were derived from MBI-HSS.

The investigated variables are summarized in Table 7 for an overview of the four studies.

Table 7. A summary of investigated variables in the four studies.

VARIABLES	Study I	Study II	Study III	Study IV
Sociodemographics				
Gender	X	X	X	X
Age	X	X	X	X
Marital Status		X		
Educational level	X			
On sick-leave		X		X
Number of Children		X		
Helping, supporting relatives		X		
Domestic load		X		
Occupational Position	X			
Profession		X	X	X
Number of years in profession			X	X
Number of years at current workplace				X
Type of Employer	X			
Living area	X			
Individual characteristics				
Self-esteem	X			
Mistrust	X			
Organizational, Psychosocial job conditions				
Total job demands	X			
Quantitative job demands		X		X
Emotional demands		X		
Pain & Death			X	X
Patient & Relatives Needs			X	X
Threats & Violence			X	X
Professional Worries			X	X
Job Content	X			
Job Control	X			
Decision authority		X	X	
Skill discretion		X	X	
Social Support/Supportive work atmosphere	X	X	X	
Supervisor support	X	X		X
Co-worker support				X
Co-worker(patient) support		X		
Burnout				
Emotional Exhaustion		X		X
Depersonalization		X		X
Reduced Personal Accomplishment		X		

STATISTICAL ANALYSES

Several different statistical analyses have been conducted throughout this thesis. All statistical analyses have been conducted using SPSS (Statistical Package for the Social Sciences: SPSS Inc, Chicago, IL, USA). Version 11.5 was used in *Study I-III* and version 15.0 in *Study IV*. An alpha level of .05 was used for all statistical tests. In this section, a description of various statistical analyses conducted in each of the four studies are presented and subsequently summarized in Table 8.

STUDY I

Mean (M), Standard Deviation (SD), Cronbach's Alpha (α) (Cronbach, 1951) were initially calculated as part of the descriptive statistics. Further, Pearson's correlation coefficients (r) showed that the predictors were statistically significantly interrelated, wherefore regression diagnostics using variance inflation factor (VIF) and tolerance values, were conducted to detect potential effects of multicollinearity (Kleinbaum, Kuppe & Mueller, 1988). Mean item scores of included indices were used in the analyses. Two separated hierarchical multiple regression analyses were conducted. Organisational correlates were entered in the first step and were followed by individual characteristics and socio-demographic variables. The order of inclusion was decided according to the research question and the variables considered specifically important and/or previously shown to have significant associations with the dependent variable (cf. Newton & Rudestam, 1999).

STUDY II

In *Study II*, the predictors and the criterion variables' Mean (M), Standard Deviation (SD), Cronbach's Alpha (α) (Cronbach, 1951) were firstly described. For each respondent an average value on each scale was calculated after some items had been reversed in the right direction. Missing values of continuous items were replaced with serial means. Initially, factor analyses were conducted for predictors and criterion variables for verification of intended indices. Pearson's correlation coefficients were conducted to examine the correlations between indices within a group or block, as well as between the predictors and the three criterion variables; emotional exhaustion, depersonalization and personal accomplishment. Three separated hierarchical multiple regression analyses were then conducted, one for each of the three sub-dimensions of burnout. The order of inclusion was based on the research questions and previous burnout research (Rafferty et al., 2001). The data were also checked for multicollinearity using tolerance and the variance inflation factor (VIF) (see e.g. Kleinbaum et al., 1988).

STUDY III

Several statistical analyses were used to construct and evaluate a scale of occupational specific job demands in two groups of health care workers. Assessments guided by sample size of ≥ 500 cases (Comrey & Lee, 1992) and subject-to-item ratio ≥ 5 cases for each item (Hair, Anderson, Tatham & Black, 1998) were part of the initial examinations. Further, Pearson correlation (r) was computed to analyse the inter-item correlations $\geq .30$ (cf. Pallant, 2005) of the initial 28 items describing demanding work elements. Bartlett's test of sphericity $p < .05$ and Kaiser–Meyer–Olkin $\geq .60$ were used to conclude whether the correlations and the sample size were adequate for conducting a Principal Component Analysis. Kaiser's criterion, Catell's Scree test and Parallel Analysis (Tabachnick & Fidell, 2001; Pallant, 2005) were used to guide the decision about how many components to extract. A Varimax rotational technique was selected. The analyses were firstly conducted in the group of registered nurses and then replicated in the group of assistant nurses. Mean (M), Standard Deviation (SD), inter-item correlations and Cronbach's Alpha (α) (Cronbach, 1951) of the four identified components were assessed in both occupational groups. Furthermore, independent samples t-test was conducted to assess mean score differences between registered nurses and assistant nurses.

STUDY IV

To longitudinally assess the associations between predictors and emotional exhaustion and depersonalization at Time 2, the criterion variables were dichotomized according to normative values in a medical sample, i.e. physicians and nurses, in North America (Maslach et al., 1996). The cut-off for high burnout scores was set at (≥ 27) for emotional exhaustion and (≥ 10) for depersonalization. A median split was used for dichotomization of predictors and for creating four change categories over time. Missing values on separate items were replaced with median scores before the dichotomization. Univariate logistic regression analyses were performed to examine the relationship between separate predictors at Time 1 to the criteria at Time 2. Odds Ratios (OR) with 95% confidence intervals (CIs) was used to study the associations. Further, the categories of change were associated with the two criterion variables. Statistical significant values were subsequently entered into a multiple logistic regression analysis together with age, gender, marital status (Time 1), number of years in profession and number of years at current workplace (only measured at Time 2). The predictors that were not statistically significant were removed from the analyses.

A summary of statistical analyses performed in the four studies is presented in Table 8.

Table 8. Statistical analyses performed in the four studies.

Statistical Analyses	Study I	Study II	Study III	Study IV
Bartlett's Test of Sphericity			X	
Change score analysis and categorisation				X
Cronbach's Alpha Reliabilities	X	X	X	X
Independent samples t-test			X	
Kaiser-Meyer-Olkin (KMO)			X	
Logistic Regression, odds ratios (OR) 95% CI				X
Mean	X	X	X	
Median				X
Multiple Hierarchical Regression Analysis	X	X		
Parallel Analyses			X	
Pearson's product-moment correlation coefficient	X	X	X	
Principal Component Analysis (PCA)	X	X	X	
Tolerance Values	X	X		
Variance Inflation Factor (VIF)	X	X		

RESULTS

STUDY I

BACKGROUND

In previous social support literature, a large portion of the conducted research has examined the function social support play in association to health and in the stressor-strain relationship (e.g. Cohen & Wills, 1985; House et al., 1988; La Rocco et al., 1980). Fewer studies have focused on identifying factors that relate to social support while investigating social support as a dependent variable.

AIMS

The main aim in Study I was to investigate the relationship between organizational, individual and socio-demographic factors and the perception of having a supportive work atmosphere and receiving support from the supervisor in a sample of Swedish employees. The sample constituted of a large and diverse group of 16,144 public and private Swedish employees from a broad range of companies and organizations. A more specific aim with *Study I* was to examine whether adding information about individual and socio-demographic characteristics to organizational indices would significantly increase the explained variance of the two criterion variables.

MAIN RESULTS

The main results from the two separate multiple hierarchical regression analyses indicated that organizational indices had the largest impact on the perception of having a supportive work atmosphere and receiving support from the supervisor. Further, the inclusion of individual characteristics and socio-demographic variables only contributed with a minimal amount in increased explained variance in the dependent variables. Total job demands, job control and job content explained approximately 17% of the variance in having a supportive work atmosphere and approximately 22% in supervisor support. Of the three organizational indices, it was perceived job control in particular that showed the strongest relationship with social support. The strongest association was seen between job control and supervisor support.

STUDY II

BACKGROUND

Work-related stress is a widespread health problem in Europe and for Swedish women one of the most frequently reported sources of long-term sick-leave (Peterson, 2008). Prolonged exposure to work-related demands and lacking resources and recovery to meet such demands may result in burnout (cf. Maslach, Schaufeli & Leiter, 2001). Nurses are considered to be particularly vulnerable to stress and burnout (Spence Laschinger & Finegan, 2008). There are indications that work-related social support is associated to burnout (cf. Bourbonnais et al., 1999; de Jonge et al., 1996; Janssen et al., 1999; Rafferty et al., 2001; Tummers et al., 2002; Glasberg, 2007). However, the specific nature of such association has not been thoroughly investigated (Halbesleben, 2006).

AIMS

The second study aimed to investigate the cross-sectional relationship between different work-related sources of social support and three sub-dimensions of burnout. A sample of 1561 registered and assistant nurses from three hospitals and two primary health care centres in the Stockholm area answered a questionnaire survey. More specific aims were to examine whether different work-related sources of social support (i.e. supervisor support, co-worker- and patient support and having a supportive work atmosphere) had any significant main effects on emotional exhaustion, depersonalization and reduced personal accomplishment (above the variance that could be explained by demographic variables, workload outside the work situation, job demands and job control). Furthermore, to investigate if there were any tendencies of different patterns of relationships between the indicators of work-related social support and the three sub-dimensions of burnout.

MAIN RESULTS

The main results from Study II showed that work-related social support had significant main effects on all three sub-dimensions of burnout when the effect of demographic variables, workload outside work, job demands and job control had been accounted for, although these main effects were of modest character. The three sources of social support explained 5% of the variability of emotional exhaustion, 2% of depersonalization and 2% of personal accomplishment. The results also indicated that there were some tendencies of different patterns of relationships between the social support indicators and the three sub-dimensions of burnout. Supervisor support was only significantly related to emotional exhaustion, whereas co-worker (patient) support showed a significant relationship with all three sub-dimensions of burnout. In concordance with prior findings, job demands were most strongly related to emotional exhaustion, accounting for approximately 25% of the variability.

STUDY III

BACKGROUND

The job demand dimension in one of the most commonly used occupational stress models, the Job Demand-Control model, can be too generic and does not capture the multidimensionality of different job demands within health care work (de Jonge et al., 1999). In health care settings, work is principally based on interactions with patients and their relatives. Such work can be associated with emotional exertions (cf. Hansenfeld, 1992; Söderfeldt et al., 2001). Nurses may have to deal with the demands of e.g. facing death and caring for dying patients (Parikh, Taukari & Bhattacharya, 2004), facing and dealing with threatening and/or violent patients (Viitasara, 2004) as part of their working day. There is a need for occupational specific analyses of job demands in healthcare work as a complement to the investigation of generic job demands, primarily due to the multifaceted nature of job demands in such work environments (cf. de Jonge et al., 1999; Peeters & Le Blanc, 2001).

AIMS

The main aim in *Study III* was to develop and psychometrically evaluate a job demand scale (see Appendix) based on 28 different items describing various work-related elements which had been identified as demanding work elements in a previous interview study conducted among health care workers (Michélsen et al., 1999). A sample of 795 registered nurses and 527 assistant nurses from three hospitals and two primary health care centres in the Stockholm area participated in the study. More specific aims were to examine whether similar indices could be identified in two different occupational groups, whether occupational specific job demand indices were related to the indices in the job demand-control-support model and if there were any mean score differences between the two occupational groups regarding the developed job demand indices.

MAIN RESULTS

The main results from Parallel Analyses and Principal Component Analyses showed a congruent component structure in both occupational samples. Of the initial 28 items, 13 items were excluded resulting in a four-component structure consisting of 15 items. The four components were identified as; *Pain and Death* (6 items), *Patient and Relative Needs* (4 items), *Threats and Violence* (3 items), and *Professional Worries* (2 items). These explained 69.6% and 72.1% of the variance for registered nurses and assistant nurses, respectively, please view Table 9.

Table 9. Identified job demand indices with Principal Component Analysis

Items	Registered Nurses				Assistant Nurses			
	CI	C2	C3	C4	CI	C2	C3	C4
Pain and death								
Caring for dying patients	.853	.168	.085	.118	.874	.180	.163	.045
Numerous deaths in a row	.781	.136	.119	.191	.802	.231	.137	.200
Patients with severe chronic pain	.781	.198	.157	-.022	.767	.211	.249	-.067
Unexpected or dramatic deaths	.750	.077	.219	.229	.776	.219	.116	.139
Difficulties in giving/obtaining pain relief	.699	.216	.153	.008	.640	.323	.246	.021
Caring for patients with prolonged disease	.640	.329	-.004	-.081	.796	.215	.199	-.068
Patient and relative needs								
Identifying relatives' needs, not receiving support	.140	.816	.198	.131	.194	.838	.089	.190
Receiving, bearing relatives' worries and burdens	.309	.781	.063	.027	.369	.717	.155	.039
Identifying patients' needs, not receiving support	.114	.764	.192	.172	.189	.832	.171	.194
Receiving, bearing patients' worries and burdens	.296	.739	.045	.018	.348	.687	.216	-.015
Threats and violence								
Have experienced threats from patients	.091	.154	.881	.110	.135	.213	.854	.161
Have been exposed to violence from patients	.105	.128	.834	.079	.226	.137	.799	.123
Caring for aggressive and threatening patients	.304	.120	.761	.074	.405*	.153	.714	.064
Professional worries								
Feeling worried about being reported, disciplinary	.053	.090	.204	.859	-.015	.155	.173	.805
Feeling worried about making mistakes at work	.156	.140	.021	.855	.104	.092	.076	.829
Eigenvalues								
Explained variance (%)	3.76	2.74	2.29	1.65	4.21	2.83	2.24	1.53
Explained variance, Cumulative (%)	25.09	18.23	15.28	11.00	28.10	18.86	14.95	10.18
Explained variance, Cumulative (%)				69.60				72.08

Notes: Major loadings are written in bold type numbers.

The occupational job demand indices showed satisfactory internal consistencies ($\alpha=.62-.91$) and inter-item correlations ($r=.33-.84$) in both groups. As expected, the new job demand indices also showed the strongest relationship with the psychological job demand dimension in JDC(S). The statistically significant $p \leq .01$ correlation coefficients ranged from (.27 to .34) for registered nurses and from (.14 to .34) for assistant nurses. Furthermore, the results from the independent samples' *t*-test showed statistically significant mean scores differences between *patient and relative needs* ($M=2.50$, $SD=0.67$) for registered nurses and ($M=2.29$, $SD=0.69$), $t_{1275}=5.40$, $p<.0001$ (two-tailed) for assistant nurses, i.e. registered nurses reported that they more frequently identified patients' and relatives' needs and carried their worries and burdens than the assistant nurses. This was also the case for *professional worries* ($M=2.19$, $SD=0.67$) for registered nurses and ($M=1.78$, $SD=0.57$), $t_{1287}=11.88$, $p<.0001$ (two-tailed) for assistant nurses. On the other hand, assistant nurses reported experiencing *threats and violence* from patients more frequently than registered nurses. ($M=1.81$, $SD=0.63$) for registered nurses and ($M=2.01$, $SD=0.69$), $t_{1287}=-5.56$, $p<.0001$ (two-tailed) for assistant nurses.

STUDY IV

BACKGROUND

Study IV expands the results of *Study II* and *Study III*. In the occupational stress literature, there is relatively good knowledge about a connection between generic stressors and strain, but further insight is needed regarding the association between specific stressors and strain (de Jonge & Dormann, 2003). Nurses may face multifaceted job demands during their working day, which can be both generic and occupational specific in character. Although previous burnout research has indicated that both generic and client-related job stressors are related to burnout (Schaufeli & Enzmann, 1998) more research is needed. The same suggestion hold for the the association between specific sources of social support and separate burnout dimensions (cf. Halbesleben, 2006). There are also indications that there is a need for more longitudinal studies since both job stress studies among nurses as well as burnout studies have primarily been cross-sectional in character (Gelsema, van der Doef, Maes, Janssen, Akerboom & Verhoeven, 2006; Schaufeli & Enzmann, 1998). In addition to the above mentioned reasons, in Study III an occupational specific job demand scale was developed and as part of the scale's continuing assessment, the associations between separate job demand indices and sub-dimensions of burnout were examined.

AIMS

The main aim in the fourth study was to longitudinally examine the association of differential job demands and social support with two sub-dimensions of burnout among a sample of nurses in Sweden. 775 registered nurses were selected for the study. These nurses had responded to the same questionnaire at two different occasions, approximately one year apart. In order to control for high burnout scores at Time 1, respondents with high scores on emotional exhaustion and depersonalization were excluded from the analyses. Hence, respondents with initial low and moderate scores on emotional exhaustion and depersonalization were included in the logistic regression analyses. Initial scores, as well as four categories examining change over time in the predictors; unchanged low/improved/impaired/unchanged high, were associated with the two sub-dimensions of burnout.

MAIN RESULTS

The main results from the univariate analyses showed a stronger association between job demands and emotional exhaustion than between job demands and depersonalization. A statistically significant association was observed between high *professional worry T1* (OR 2.68; 95% CI 1.44-5.00) and *emotional exhaustion T2*, as well as between high *quantitative job demands T1* (OR 1.97; 95% CI 1.06-3.63) and *emotional exhaustion T2*. None of the five job demands at Time 1 were statistically significantly associated with depersonalization one year later. However, there was a significant association between low *co-worker support T1* (OR 2.09; 95% CI 1.04-4.20) and high *depersonalization T2*. These results were still evident in the multivariate

analyses, with the exception that quantitative job demands were no longer statistically associated with emotional exhaustion. These results are presented in Table 10.

Table 10. Multivariate analyses of the associations of predictors at Time 1 to Emotional Exhaustion and Depersonalization at Time 2 (Odds Ratios and 95% Confidence Intervals)

<i>Predictors at T1</i>	<u><i>Emotional Exhaustion T2</i></u>		<u><i>Depersonalization T2</i></u>	
	n	OR (95% CI)	n	OR (95% CI)
Professional Worries	533	2.56 (1.34-4.82)		
Co-worker support			580	2.58 (1.24-5.37)

Notes: Adjusted for age, gender and marital status at T1 and years in profession and years at current workplace at T2. Values in bold type indicate statistically significant odds ratios (ORs) (95% CI).

In order to analyze the associations between changes over time in the predictors and the two sub-dimensions of burnout, both univariate and multivariate logistic regression analyses were performed. The univariate analyses indicated that three job demands were significantly associated with emotional exhaustion; *threats and violence*, *professional worries*, and *quantitative job demands*. Furthermore, the univariate analyses indicated that *co-worker support* was associated with depersonalization. In Table 11, the significant result from the multivariate analyses of emotional exhaustion is presented. The findings indicated that changes in *professional worries* and *quantitative job demands* were associated with high emotional exhaustion at T2.

Table 11. Results from multivariate analyses concerning significant associations of changes over time (T1-T2) in predictors to Emotional Exhaustion at Time 2 (Odds Ratios and 95% Confidence Intervals).

<i>Emotional Exhaustion T2</i>		
<i>Changes in Predictors T1-T2</i>	n	OR (95% CI)
<i>Professional Worries</i>		
Unchanged low (ref)	270	1
Improved	75	2.15 (0.80-5.77)
Impaired	62	1.65 (0.53-5.17)
Unchanged high	126	2.83 (1.24-6.43)
<i>Quantitative job demands</i>		
Unchanged low (ref)	295	1
Improved	88	0.74 (0.23-2.36)
Impaired	57	2.88 (1.11-7.48)
Unchanged high	93	4.33 (1.98-9.45)

Notes: Adjusted for age, gender and marital status at T1 and years in profession and years at current workplace at T2. Values in bold type indicate statistically significant odds ratios (ORs) (95% CI). *Unchanged low* indicates low job demands at T1 and T2, *Improved* indicates high job demands at T1 and low job demands at T2, *Impaired* indicates low job demands at T1 and high job demands at T2, *Unchanged high*, indicates high job demands at T1 and T2. Unchanged low is used as the reference category.

Furthermore, the multivariate analyses also revealed that changes in *co-worker support* were still significantly associated with depersonalization at T2. These results are presented in Table 12.

Table 12. Results from multivariate analyses concerning significant associations of changes over time (T1-T2) in predictors to Depersonalization at Time 2 (Odds Ratios and 95% Confidence Intervals).

Changes in predictors T1-T2	Depersonalization T2	
	n	OR (95% CI)
<i>Co-worker support</i>		
Unchanged good (ref)	135	1
Improved	78	4.63 (1.14-18.80)
Impaired	87	3.58 (0.88-14.50)
Unchanged poor	280	5.27 (1.55-17.94)

Notes: Adjusted for age, gender and marital status at T1 and years in profession and years at current workplace at T2. Values in bold type indicate statistically significant odds ratios (ORs) (95% CI). *Unchanged good* indicates always receiving support at T1 and T2, *Improved* indicates improved support over time, *Impaired* indicates impaired support over time, *Unchanged poor* indicates poor support at both times. Unchanged good is used as the reference category.

A summary of the results from the four studies in this thesis are presented in Table 13.

Table 13. Summary of aims and main findings from the four studies in the thesis

Studies	Main aim	Main findings
I	To identify and assess different correlates (organizational, individual and socio-demographic) to work-related social support.	Organizational characteristics, particularly perceived job control, were strongest associated to social support. Socio-demographic and individual indices only contributed with a minimum increase in explained variance in the criterion variables.
II	To identify and examine the cross-sectional relationship between various work-related sources of social support and different sub-dimensions of burnout among a sample of registered- and assistant nurses.	Co-worker (patient) support was related to all three burnout dimensions. Supervisor support was only related to emotional exhaustion. High psychological job demands explained most of the variance in emotional exhaustion.
III	To identify and evaluate a job demand scale specifically developed for health care workers using two separate occupational groups, i.e. registered and assistant nurses.	A congruent four-component solution was identified in both occupational groups, which explained 69.6% and 72.1% of the variance in the group of registered nurses and assistant nurses respectively. Pain and Death (6 items), Patient and Relative Needs (4 items), Threats and Violence (3 items), Professional Worries (2 items). Differences between registered and assistant nurses were detected.
IV	To identify and longitudinally examine the association of generic- and occupational specific job demands and various sources of work-related support at T1 on emotional exhaustion and depersonalization at T2 in a group of registered nurses with low and medium burnout scores at T1.	Initial high scores of professional worries (T1) and unchanged high worry over time (T1 & T2) were related to high emotional exhaustion at T2. Impaired and unchanged high quantitative job demands (T1 & T2) were also associated with high emotional exhaustion (T2). Initial low (T1), improved and unchanged poor co-worker support (T1 & T2) was associated to high depersonalization scores at T2.

DISCUSSION

In the background it was briefly mentioned that the three key concepts constituting this thesis; *work-related social support*, *job demands* and *burnout*, are large and complex and it is therefore not possible to cover all aspects surrounding them. Thus, specific attempts will be made in this section to create a synthesis based on the main findings of the included studies as well as from previous research.

GENERAL DISCUSSION OF MAIN FINDINGS

CORRELATES TO WORK-RELATED SOCIAL SUPPORT

The results from the first study indicated that from a large set of organizational, individual and socio-demographic predictors, *job control* was the predictor that showed the strongest association with work-related social support. Due to the cross-sectional nature of this study the direction of the association between job control and work-related social support cannot be verified. However, the finding does corroborate one of the central assumptions in the JDC(S)-model (Karasek, 1979; Karasek & Theorell, 1990), i.e. that there exists an interaction between job control and social support. The research performed by Johnson (1986) and Johnson and Hall (1988) contributed to the inclusion of social support in the job demand-control model (Karasek, 1979; Karasek & Theorell, 1990). There are a number of reasons why it is important to include work-related social support in analyses of occupational health. Firstly, work-related social support may meet basic human needs of friendship and group affiliation which provide individuals with a sense of belonging on an emotional individual level. Secondly, work-related social support may also work on an external, collective level. When members of a work-group support each other and understand each others positions, they may collectively have a greater influence over decisions at work. They will thus have collective control. Such collective control may provide individuals with another type of protection against the demands of the environment, which may be more effective than solely individual-based coping strategies. Changes in decision latitude and changes in social relations are inherently inseparable (cf. House, 1981; Karasek & Theorell, 1990).

The underlying mechanisms of an association between job control and social support are still unclear and need further elucidation (cf. Johnson, 1986; Rafferty et al., 2001; van der Doef & Maes, 1999). An interesting aspect of this relationship lies in the multidimensionality of both job control and social support. In future research it is therefore necessary to elucidate different sub-dimensions of these two predictors. In this thesis, both job control and social support were analyzed at the individual level, which is in line with most research (Härenstam, 2008). However, by using multi-level analyses, a clarification of a link between the individual and the organization could be unravelled and thus uncover on which level job control and social support are exercised. This seems warranted since recent studies (Beliese & Castro, 2000; Bolin, Marklund & Beliese, 2008; Härenstam, 2008; Höckertin & Härenstam, 2006) have indicated that some of the variance in job control and social support can be attributed to the organizational level. For example, La Rocco et al., (1980) argue that the environment and the occupational task structure could play a vital role in determining

which source of social support that is most salient at a workplace, depending on if work is organized to encourage social interactions or not (cf. House, 1981). The effect of job control and social support are relevant to consider in burnout research due to their potential preventive characteristics. A recent Swedish health care study (Peterson, Demerouti, Bergström, Åsberg & Nygren, 2008) indicated that access to job resources such as control of decision processes, having a positive social climate at the workplace and support from supervisors, discriminated non-burnout groups from burnout groups to a larger extent than high job demands.

DIFFERENT SOURCES OF SOCIAL SUPPORT

Supervisors and co-workers are significant sources of social support and to analyse in relation to stress and burnout since they are linked to an individual's ability to understand, and address work-related stressors (cf. Halbesleben & Buckley, 2004; House, 1981; Johnson, 1986; Johnson & Hall, 1994; Ray & Miller, 1994). In general, a significant relationship between social support and burnout has been established (Schaufeli & Enzmann, 1998), but from previous research it has been difficult to pin down the particular nature of this relationship depending on the multidimensional character of both social support and burnout (Halbesleben, 2006; Rafferty et al., 2001). The second study in this thesis was therefore conducted to analyse the relationships between various sources of social support and all three sub-dimensions of burnout. The main results from *Study II* indicated that social support had direct associations with all three burnout dimensions, after demographics, workload outside the job, job demands and job control had been accounted for. However, the inclusion of social support indices only contributed with approximately 2-5% in the criterion variables. Overall, job demands explained the largest proportion of variance in emotional exhaustion (Lee & Ashforth, 1996; Rafferty et al., 2001; Schaufeli & Enzmann, 1998). Furthermore, some predictors outside work showed associations with burnout, which generally corroborated previous research indicating that younger individuals report higher degrees of burnout (Maslach et al., 2001) and people with children seem less prone to experience burnout (Breux, Meurs, Zellars & Perrewé, 2008).

Social support showed direct associations with all three burnout-dimensions, but the strongest associations seemed to be with emotional exhaustion. Supervisor support, co-worker (patient) support and supportive work atmosphere were all related to lower levels of emotional exhaustion. This finding corroborates previous research where both supervisor and co-worker support have been linked to emotional exhaustion (Janssen et al., 1999; Lee & Ashforth, 1996). Halbesleben (2006) suggests that work-related sources of social support such as supervisor and co-worker support will be most strongly associated to emotional exhaustion due to their close connection to job demands. He proposes that the support provided by supervisors and/or co-workers will help alleviate either the appraisal of job demands by providing informational and/or emotional support, or by providing actual assistance to do the work (instrumental support). Hence, work-related social support ought to be more closely connected to emotional exhaustion. For depersonalization, two support sources showed significant associations, i.e. co-worker (patient) support and supportive work

atmosphere. Furthermore, for personal accomplishment only co-worker (patient) support was significantly associated. These findings are difficult to interpret since *Study II* is a cross-sectional study and no explanation of causality can be offered. However, if these results can be replicated in future longitudinal studies, they do instigate interesting research hypotheses. In Leiter and Maslach's model of burnout (1988) it is assumed that high emotional exhaustion leads to high levels of depersonalization, which in turn would lead to lower levels of personal accomplishment. If these results were interpreted in line with this model is it then possible that as an individual progresses over time from being exhausted to becoming withdrawn/ cynical and then to having diminished feelings of competence and achievement at work, the diversity of social support providers would diminish? Is it possible that the quantity and perhaps also the content of provided social support changes as an individual proceeds in the burnout process?

DEMANDING HEALTH CARE WORK

Health care workers in general and nurses in particular have been identified as having a high risk of experiencing stress and burnout (Breux et al., 2008). Since the objective of health care work is to care for and help other human beings, demanding elements of the job may involve both generic and occupational specific aspects. In addition to generic job demands such as being exposed to high workload, which is just as evident in other occupations, nursing work may also involve intense interpersonal interactions with patients, being exposed to sickness and death and having substantial responsibilities of providing the right treatment to patients with no room for errors (Breux et al., 2008). Glasberg (2007) emphasizes that health care workers may be subjected to many ethical dilemmas, where they report having to "deaden one's conscience" in order to continue working, and feeling "stress of conscience" for not living up to others' expectations and having to lower their aspirations. The multidimensional character of job demands described in health care work was the main focus for *Study III*.

In *Study III*, a scale measuring occupational specific job demands within health care work was constructed. In an earlier interview study (Michélsen et al., 1999) had identified different work elements of demanding character in various homogeneous health care groups. The rationale for conducting the study was the argument that the psychological job demand dimension in the JDC(S)-model may be too generic and can not capture multidimensional job demands that may be evident in health care work (see e.g. de Jonge et al., 1999; Peeters & Le Blanc, 2001). Thus, it was suggested that job demands specifically reflecting the multidimensionality of health care work be added in studies investigating such occupational groups.

The results from *Study III* showed that the psychometric properties of the scale were satisfactory for a newly developed scale, but that further investigation was required. The initial 28 items were reduced to 15 items and four meaningful and internally consistent indices identified in the sample of registered nurses and replicated in the group of assistant nurses, i.e. pain and death, patient and relative needs, threats and violence, and professional worries. In general, the indices explained approximately

69–72% of the variance, had three or more items defining each component, and had Cronbach's Alpha reliability scores above .70. The "professional worries" component comprised only two items and showed an alpha reliability of less than .62 in the group of assistant nurses. In addition, the results from *Study III* indicated that the four new job demand dimensions were related, as expected, to the psychological job demands dimension in the (JDC(S)-model. These four occupational specific job demands together with one example of generic job demands were longitudinally analyzed in relation to burnout in *Study IV*.

JOB DEMANDS, WORK-RELATED SOCIAL SUPPORT AND BURNOUT

Longitudinal associations between generic- and occupational specific job demands and emotional exhaustion

The main results from *Study IV* specified that generic and occupational specific job demands appeared significantly associated with higher emotional exhaustion over time. The nurses who consistently reported that they at least once a week or more had such a high workload, that they had to skip lunch and/or work late, showed the strongest association with emotional exhaustion. However, impairment in such demands over time was also significantly related to high emotional exhaustion. This result is consistent with previous longitudinal burnout studies (see e.g. Gelsema et al., 2006). The results further indicated that a high degree of professional worries (i.e. worry about making mistakes at work) was significant for the perception of high levels of emotional exhaustion.

The longitudinal association between worrisome thinking about making mistakes at work and emotional exhaustion in samples of nurses has not been thoroughly investigated; if indeed it has ever been systematically examined. Nurses with an initial high degree of worry and who had consistently reported such worries over time, also indicated high levels of emotional exhaustion one year later. According to Brosschot, Gerin and Thayer (2006), the core in worrisome thinking is perseverative cognitions, which refer to "the repeated or chronic activation of the cognitive representation of one or more psychological stressors" (p.114). Brosschot et al. (2006) argues that it may be through perseverative cognitions that the temporal duration of a stressor is expanded, prolonging a physiological activation and thereby perhaps contributing to ill-health. Dahlin (2007) notes that this constant alertness, or chronic stress, could have various effects on e.g. cortisol levels, the immunological system and heart rate variability. Worry could act as an independent stressor or as a mediator, perhaps enhancing and/or prolonging the effect of a psychosocial stressor (cf. Brosschot et al., 2006; Dahlin, 2007), for example high workload. Our results from *Study IV* indicated that nurses' initial and consistent high levels of professional worry over time were associated to emotional exhaustion scores one year later, even with an inclusion of quantitative job demands in the analyses. These results are preliminary and need further elucidation since there are a number of factors that could potentially affect the association between high levels of professional worries and emotional exhaustion. For example, in a previous Swedish health care study by Aasa, Brulin, Ängquist, and Barnekow-Bergkvist (2005), worrying about work conditions, e.g. making mistakes at

work showed significant associations with disturbed sleep. Perhaps, one way in which worries may be associated with negative stress effects, such as burnout, might be through their effect on sleep and/or the actual recovery achieved during sleep (cf. Åkerstedt, Kecklund & Axelsson, 2007; Brosschot, van Dijk & Thayer, 2007). Previous research has emphasized the significant role sleep disturbances play in the development of burnout (Ekstedt, 2005) and for our recovery (Perski, 2006). Future investigations of the associations between professional worries, sleep and emotional exhaustion therefore seem warranted.

Longitudinal association between co-worker support and depersonalization

In addition to the association between job demands and emotional exhaustion, the main result from *Study IV* also indicated that initial poor co-worker support (T1) was associated with high depersonalization scores over time (T2). Furthermore, changes in co-worker support also showed such associations. In fact, having unchanged poor co-worker support over time showed the strongest association with burnout of all predictors being examined. Hence, it may be possible that experiencing consistent poor social support from co-workers over time could be perceived as an added stressor in health care work. Taken together, the findings from *Study II* and *Study IV* highlight the importance of co-worker support in nursing work. Being a colleague and a social support provider to a co-worker that develops burnout may be a burdensome situation full of conflicting demands between wanting and trying to help a colleague and at the same time struggling to manage one's own work demands (Ericson-Lidman, 2008). Specifically in health care work, failing to cope with such a struggle can have detrimental effects, not only for the individual nurse but perhaps also for patients through potential mistreatment and errors of judgment (cf. Westman & Bakker, 2008).

Ekstedt (2005) described how the process of burning out was experienced, and showed that individuals were cutting themselves off from anything that could interfere with their focus of fulfilling their work responsibilities in order to protect a threatened self-image of a competent and skilled professional (which also relates to Hallstén's concept of performance-based self-esteem, 2005). Ekstedt noted that "even though the *"cutting off"* sheltered the self-image and protected from suffering to a certain degree, it was also part of the suffering" (p. 57), thus, creating a barrier which hindered individuals from accepting care from others. Cutting-off was described as withdrawal and non-presence, making it difficult to communicate needs. Ekstedt's (2005) results are important since they highlight a dilemma that social support may be difficult to provide for an individual that is in need of help but who does not ask for help. If the person is in the process of burning out, she/he may be withdrawn and distant from others at work, be it supervisors and/or colleagues. Gustafsson (2009) showed that some of the differences between individuals in a non-burnout group and individuals in a burnout group concerned how these individuals sought support. In the non-burnout group, the individuals actively sought support and received it when needed, whereas the individuals in the burnout group did not seek support despite the fact that they needed it. Halbesleben et al., (2008) argue that most burnout research has focused on its underlying causes of and only a small amount of empirical research has examined the consequences of burnout. Those who actually have focused on such

consequences have then primarily emphasized outcomes associated with the individual experiencing burnout, e.g. their performance and job satisfaction, rather than examining how an individual's burnout may affect other people. Future research is definitely needed to elucidate which processes are involved in the provision of social support and how such support is received in relation to the burnout process.

METHODOLOGICAL DISCUSSION

Overall, there are a number of statistical and methodological challenges that need to be discussed with reference to the four studies constituting this thesis.

CROSS-SECTIONAL AND LONGITUDINAL STUDIES

In this thesis, three of the four studies were of cross-sectional character (*Study I-III*). Cross-sectional studies can contribute with helpful insights of predictors' association with different criterion variables, e.g. burnout. However, the nature of a cross-sectional study implies that no conclusions can be drawn regarding the direction of the investigated associations, i.e. cause and effect. Furthermore, no changes in predictors over time can be analyzed or controlled. In order to clarify how different correlates relate to social support and how various sources of social support relate to separate burnout dimensions more longitudinal research is needed. Attention directed towards reversed and reciprocal relationships would fill an important gap in knowledge and create the basis for interesting research studies, (cf. de Lange, Taris, Kompier, Houtman & Bongers, 2003; Halbesleben & Buckley, 2004; Taris & Kompier, 2003).

In *Study IV* a longitudinal study was performed. Although longitudinal studies are preferable to cross-sectional studies, they also present the researcher with some challenges. Such challenges concern respondent attrition, deciding how many measurements are appropriate and the time-lag between measurements (cf. Hochwälder, 2008). In *Study IV*, some nurses were lost between the two measurement occasions, which are common in most longitudinal studies. However, it is possible that this attrition could have contributed to biased reports, e.g. underestimation of the association between the predictors and burnout scores due to the "healthy worker effect" (cf. Gelsema et al., 2006). Further, two measurements with a time lag of approximately one year were chosen in this study. Instead of basing this decision on theoretical underpinnings, it was based on practical reasons, i.e. to minimize large attrition rates. Although numerous longitudinal burnout studies are based on the same fundamental underpinnings (Schaufeli & Enzmann, 1998), a one year time-lag with two measures can be debated since previous research has shown relatively stable scores across time in MBI (Maslach et al., 2001). Taris and Kompier (2003) propose that future longitudinal burnout studies should involve multiphase designs rather than a two phase design.

SELECTION BIAS AND GENERALIZATION

The individuals participating in this thesis were non-randomly selected. As such, there is a possibility that the selection of the participant may effect the results and subsequently also the generalization of the findings. However, as was described earlier in the method section, when the participating registered and assistant nurses in *Study II-IV* were compared to national representative data, it was reported that socio-demographic variables as well as job demands, job control and social support were comparatively in line with each other. Thus, the findings ought to permit some generalization of the results in this thesis. However, in reference to *Study I*, generalizations should be made more carefully since there are some apparent

limitations associated with the selection of the participants in this study. The empirical data constituting *Study I* was derived from an anonymous aggregated national research database covering data collected by the Stress Profile. Since data were derived from that national database, no information about the reason why the management at a specific workplace decided to participate in a Stress Profile measurement could be provided. Questions could be asked whether the organization and/or management were specifically healthy and/or interested in the health and well-being of its employees, or if the management were of the opposite opinion and needed help improving their health (cf. Bernin, 2002).

Another challenge with this study regards including participants that had answered the Stress Profile during 2000-2003 in the same analyses without controlling for the potential effect of changes in the predictors over time, which could have distorted the results. In a representative sample of the Swedish working population, reports indicated that men's workload decreased and their work-related social support slightly improved between the years of 2001-2003, whereas for women; job demands, job control and social support were relatively stable during the same time period (Statistics Sweden). In future studies, using the Stress Profile, it is imperative to perform subgroup analyses of separate occupational groups to investigate correlates to social support and to take into account potential changes in predictors over time in order to validate the findings from *Study I*. Furthermore, to investigate how the high education level may have affected the association between job control and social support. The large aggregated Stress Profile database provides a unique opportunity to examine such associations and their development over time. The possibility to compare Stress Profile data with data from other large scaled Swedish representative databases such as the Swedish Work Environment Survey (SWES) and Survey for living conditions (ULF) could improve its external validity.

SELF-REPORT QUESTIONNAIRES

All studies included in this thesis were based on self-report questionnaires. This is by no means unusual; it is in line with the majority of conducted research in the field (cf. Schaufeli & Enzmann, 1998). The main advantages of using self-report questionnaires is that they are time- and cost efficient, and that the researcher is able to gain access to a large amount of respondents quickly. Furthermore, self-ratings can capture subjective aspects, internal states of emotions and perceptions, which are not easily measured objectively (cf. Peterson, 2008; Spector, 2006). Or as Spector (2006) succinctly noted; it is difficult to obtain precise information about internal states with anything else than self-reports. Nonetheless, self-report questionnaires may have some flaws. One of the underlying assumptions in using self-report questionnaires is a belief in the truthfulness of the respondents and that the respondents comprehend the question they are answering. There is, however, a possibility that the respondents' prior experiences and their personality could affect the way they perceive and answer a question (cf. Spector, 2006). Lately, in psychology, there has been a debate about the effect of common method variance. Common method variance refers to the assumption that there will be "a method effect that will produce some degree of variance in all measures assessed with the same method. Because the method variance component

would be shared or would be common across variables assessed with a given method, an inflation in relationships would occur” (Spector, 2006, p. 222). However, Spector (2006) proposes that instead of accepting the idea that a specific method, such as self-report questionnaires, would produce systematic variance, researchers should instead be insightful of what method to use to measure specific variables.

THE CONCEPT OF SOCIAL SUPPORT

One main challenge investigating social support is the evident lack of a comprehensive and agreed upon definition of what social support entails and how it may be measured. This issue has been debated for years among scholars (see e.g. Antonucci, 1985; Cohen & Syme, 1985; Hupcey, 1998; Johnson, 1986; Orth-Gomér & Undén, 1987; Payne & Jones, 1987; Shumaker & Brownell, 1984; Shumaker & Hill, 1991; Winnubst & Schabracq, 1996) and has also been a struggle in this thesis. Well-established instruments, i.e. the (DCSQ) (Theorell, 1996) and items derived from the SWES (Statistics Sweden) were primarily used to measure work-related social support in this thesis (*Study II-IV*). These instruments have been used during many years in different samples, both nationally and internationally, but are too crude to clearly distinguish between different functions of social support. In the present thesis, separated work-related sources of social support were analyzed in compliance with these proposals. However, one apparent limitation in the present thesis was that no sources of social support outside the workplace were investigated. Previous studies have shown that non-work related sources of social support are associated with burnout (Bourbonnais, et al., 1999; Halbesleben, 2006). Halbesleben (2006) found that while work-related sources of social support were most strongly related to emotional exhaustion, due to its close proximity to job demands, non-work related sources of support showed strongest relationships with depersonalization and personal accomplishment. Hence, it may be possible that the inclusion of non-work social support sources could have increased the explained variance in these two sub-dimensions of burnout. In future studies, there is a definite need to include measures of diversified sources of social support in burnout analyses, both work-related and non-work related. This seems especially important in research investigating what happens with social support during the burnout process and subsequently in the recovery process (cf. Hedin, 1994).

GENDER AND PERSONALITY

It is important to clarify that no separate *gender* analyses were performed in this thesis. The main rationale not to conduct separate gender analyses was based on the data, which included too few men in order to perform methodological sound research. It is therefore difficult to interpret what specific role gender could have played in the association between social support and burnout. In this thesis, approximately 95% of the participants (*Study II-IV*) were women. Previous researchers have indicated that men and women may receive and provide social support differently (see e.g. Belle, 1987; Flaherty & Richman, 1989; Shumaker & Hill, 1991). Although, such research has been inconclusive (cf. Antonucci & Akiyama, 1987), there are some indications that women tend to: utilize more diversified social networks to mobilize social support (Belle, 1987), have stronger and more emotional networks than men (Shumaker & Hill, 1991) and provide more social support to others than men (Belle, 1987). Thus, the women in our thesis may perceive that they could rely on additional social support outside work, which was not investigated in this thesis. Such sources of social support could have affected the relationship between work-related social support and separate burnout dimensions, since different sources of social support seem to correlate with one another. An additional proposal is that women, having multifaceted networks and often being responsible within their network, that such network may become an added stressor rather than function as a stress buffer (cf. Hertting, 2003; Nordin, 2006; Shumaker & Hill, 1991).

The labour market in Sweden is gender-segregated and few men are employed as registered and assistant nurses. In our studies (*Study II-IV*) approximately 5% of the employed nurses were men, which is in line with national representative data (Landstingsförbundet, 2003). However, in future studies, it would be desirable to attain larger samples with enough men from such occupations to conduct appropriate gender analyses.

Gender is one factor that needs further examination in relation to both social support and burnout -*personality* is another. Although, the main focus in this thesis has been on work-related factors, especially work-related social support, and how these relate to sub-dimensions of burnout as proposed by Maslach, it is evident that factors outside the work situation also are involved in the burnout process (see e.g. Hallsten et al., 2002; 2005). In future studies, it is therefore important to include additional factors outside the workplace in order to gain further understanding of the relationship between social support and burnout. Previous research has indicated that the effect of personality factors on burnout have not been thoroughly investigated (cf. Zellars, Perrewé & Hochwarter, 2000; Hochwälder, 2006; 2009). Zellars et al., (2000) found that personality showed different associations with separate sub-dimensions of burnout. They found that among nurses, high neuroticism was associated with higher levels of emotional exhaustion. This result was also supported in a study among Swedish nurses (Hochwälder, 2009). High extraversion or higher levels in agreeableness were associated with lower levels of depersonalization. In future studies, it would be interesting to examine how associations between social support and burnout are affected by personality.

PRACTICAL IMPLICATIONS AND INTERVENTIONS

Halbesleben (2008) recognize that burnout interventions first and foremost have been directed towards the individual rather than the organization, which is also seem true for burnout interventions specifically directed towards health care workers (cf. Peterson, 2008). It is difficult to find which intervention strategy that may be most effective in combating burnout since current research has used different samples/sample sizes. Few studies have used control groups and many studies use different methods, instruments and time frames. Thus, it is a complex task to compare findings and to draw some common conclusions (Le Blanc & Schaufeli, 2008). As a result Le Blanc and Schaufeli (2008) propose that “the only conclusion that is (re)confirmed is that neither changing the workplace, nor changing the individual workers is enough; effective change occurs when both develop in an integrated fashion” (Le Blanc & Schaufeli, 2008, p. 206). The authors also suggest that action research could be one useable methodology in order to attain such a goal. The core in such methodology is participation and identifying the uniqueness in a certain organization or in an individual, instead of using a “one-solution fits all” approach. The results from *Study I* indicated that job control was the correlate that showed the strongest association with work-related social support (cf. Johnson, 1986; Johnson & Hall, 1988; Karasek & Theorell, 1990). This association has previously been discussed in reference to collective control, which is a prerequisite for participatory change processes. In order to increase motivation to develop interventions for health promotion, Larsson, Landstad and Vinberg (2009) argue that it is important to make the employees’ health visible in the organization and on the managerial level. One suggestion would be to develop models that have the ability to continually assess specific health and work environment predictors and to identify how such predictors may change over time (Larsson et al., 2009). Such suggestions could perhaps be applied to burnout prevention as well. Using instruments that may capture demanding job elements that are occupational specific, such as the one developed in *Study III*, could possibly simplify this kind of work.

Furthermore, the results from this thesis indicate that higher levels of work-related social support are related to lower levels of burnout (*Study II*); more specifically that co-worker(-patient) support was associated with all burnout dimensions whereas supervisor support only showed significant associations with emotional exhaustion. Although the associations in the regression analyses were not very strong after job demands and job control was accounted for, there were some implications that different sources of social support were related to separate burnout dimensions. This result was further validated in the longitudinal study (*Study IV*) which indicated that poor co-worker social support was associated to an increase in depersonalization over time. Collectively, these results have practical implications since they underscore the relevance to examine source-specific measures of social support. In any burnout intervention aiming to increase work-related social support, it is necessary to recognize on which level such interventions should be applied, since the type of social support intervention will be differently developed depending on whether the purpose is to enhance social support in a workgroup or on an managerial (individual) level (cf. Hogan, Linden & Najarian, 2002). A recent Swedish study (Peterson, Bergström,

Samuelsson, Åsberg, & Nygren, 2008) showed promising results using a reflecting peer-support group to enhance social support at work in order to prevent burnout. Participation in such groups could simultaneously address work-related problems and be a good foundation for creating social support among co-workers.

Finding individualized strategies is not only important from a preventive perspective, but also imperative in the rehabilitation process of individuals with long-term sickness absence due to burnout or other stress-related symptoms. Perski and Grossi (2004) showed some positive effects (e.g. less symptoms) in a randomized intervention study among a group of long-term sickness absence (>90 days) individuals who participated in a 6 month long multifactorial treatment program. One of goals in this treatment program was to focus on individuals' specific problems, needs and wishes. Therefore, a range of treatments such as e.g. medical treatment, cognitive behavioural therapy and relaxation with Qi-gong were offered. Stenlund (2009) has also found positive effects on burnout by using cognitive behavioural rehabilitation and Qi-gong among patients with long-term sickness absence due to burnout.

FUTURE DIRECTIONS

The findings from this thesis have generated new research questions. Some central suggestions to address in future studies are presented below. Future research could elucidate the association between job control and social support. By using multi-level analyses, a clarification of a link between the individual and the organization could be unravelled and thus uncover on which level job control and social support are exercised. Such information is significant from a preventive perspective since high job control and good social support have been acknowledged as two important resources which may discriminate groups from experiencing burnout or not (Peterson et al., 2008).

There is accumulating empirical evidence of a significant association between social support and burnout. However, in future studies this relationship needs to be more systematically examined. Examples of future direction in this field could include making clarifications of how various sub-dimensions of social support relate to separate burnout dimensions. Additional longitudinal research is needed. In longitudinal studies, the attention directed towards reversed and reciprocal relationships would fill an important gap and create the basis for interesting research studies. Furthermore, analyses not only of how different sources of social support, but also how separate functions of social support relate to burnout, would enhance the possibility of answering the question of how social support and burnout are related. This is especially important in order to fully understand and to evaluate the specific role social support may play in burnout prevention. Further information on how to prevent and/or alleviate burnout might also be gained by investigating different constellations of social support and job control (cf. Oxenstierna, Ferrie, Hyde, Westerlund & Theorell, 2005). Elfering, Semmer, Schade, Grund and Boos (2002) suggest that analyzing different constellations of social support is a neglected area in research. They propose that it may well be that the significance of one source of social support may be dependent on the quality of another source, or that if one source of social support is present, other sources of support may lose their relevance. The inclusion of different constellations of social support in future burnout investigations could move research forward.

Moreover, research is definitely needed to elucidate how socially supportive relationships act and transform during a burnout process and how an individual's burnout may affect other people. Ericsson-Lidman (2008) showed that being a colleague and a social support provider to a co-worker that develops burnout may be a burdensome situation full of conflicting demands between wanting and trying to help a colleague whilst struggling to manage one's own job demands (Ericson-Lidman, 2008). In future studies, it is essential to address both the receiving- and the providing side of social support, specifically in relation to potential burnout contagion in team-based work (cf. Westman & Bakker, 2008). What happens with social support during the process of burning out? Do the quantity and/or quality of social support change as an individual proceeds in a burnout process? Do burnt-out individuals themselves stop providing social support to others, thereby creating an imbalance with network members? Future research could also recognize and examine the potential influence

personality might have on social support and burnout, since previous studies have indicated that personality does affect both social support and burnout (see e.g. Zellars & Perrewé, 2001).

In this thesis, a scale examining occupational specific job demands in health care work was developed. Forthcoming studies may use larger health care groups with other skill levels, e.g. chief nurses, as well as subgroups within the same occupation, for example men and women, to further test the scales validity and reliability in order to clarify its value. Researchers from Iceland, United Kingdom and Canada, have contacted the first author wanting to use the scale in their nursing research, thus, this will hopefully contribute to the scales development and further assessment.

The findings from this thesis provided a first tentative step in uncovering the association between professional worries and emotional exhaustion. One way in which worry may be associated with negative stress effects, such as burnout, might be through their effect on sleep and/or the actual recovery achieved during sleep (cf. Åkerstedt et al., 2007; Brosschot et al., 2007). In forthcoming studies, it is imperative to examine the affect sleep/sleep disturbances may have on this relationship. Information is also needed on how to diminish the onset of professional worries in health care settings, when such worry may pertain to the nature of health care work.

Imminent changes in health care, e.g. future nursing shortage (Halbesleben, 2008), underscore the significance of conducting research that addresses how a healthy work environment may be achieved, and thus which role social support may play in such environment. Integrating science with practice is essential in order to make dedicated and informed decision of how to best attain such knowledge (cf. Kaplan, 2009).

CONCLUSIONS

The overall aim of this thesis was to describe and explore the concepts of *work-related social support*, *job demands* and *burnout*, predominantly among health care workers. The findings from this thesis offer further empirical and theoretical insight into: different correlates to work-related social support, source-specific associations of social support and burnout, occupational specific job demands in health care work and longitudinal associations of such job demands, sources-specific social support on burnout.

More specifically, the main conclusion from *Study I* is that organizational/psychosocial job conditions are the strongest correlates to work-related social support. Job control was the predictor that showed the strongest association with both supervisor support and a supportive work atmosphere. This result corroborates previous findings in large-scaled multifaceted occupational samples (cf. Karasek & Theorell, 1990) and adheres to the notion of collective control (Johnson & Hall, 1994).

The main message from *Study II* is that job demands are strongest associated with emotional exhaustion, which corroborates previous research from cross-national studies (cf. Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998). It was further concluded that supervisor social support was only associated with emotional exhaustion (cf. Janssen et al., 1999). Furthermore, co-worker (patient) support showed association with all three burnout dimensions. The conclusions from *Study II* were further strengthened in the longitudinal study. *Study IV* showed significant longitudinal associations between high job demands and emotional exhaustion as well as between poor co-worker support and depersonalization.

An additional contribution from this thesis was the development and evaluation of an original job demand scale. This scale of occupational specific job demands in health care work was presented in *Study III*. The findings from *Study IV* emphasize the relevance of including measures of occupational specific job demands in burnout investigation among health care workers. The results indicated that high levels of professional worries, in addition to generic job demands, were related to a higher degree of emotional exhaustion over time.

In order to extend our understanding of which elements may prevent burnout, attention should be given to the endeavour of synthesizing social support and burnout research. Such combined research knowledge could create a great foundation for interventions on the individual as well as on the organizational level. This work is very topical and of great concern in today's society and not least a worthy research challenge.

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APPENDIX

	Aldrig	Sällan	Ibland	Ofta
1.) Vård av patienter med svår kronisk smärta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.) Svårigheter att ge/åstadkomma smärtlindring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.) Vård av patienter med långdragna sjukdomsförlopp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.) Vård av döende patienter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.) Oväntade eller dramatiska dödsfall	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6.) Flera dödsfall i rad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.) Risk för felbehandling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.) Vård av aggressiva och hotfulla patienter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9.) Vård av alkohol -eller drogpåverkade patienter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.) Att du känner oro för att göra fel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11.) Att du känner oro för att bli anmäld till ansvarsnämnden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12.) Att du känner skuld över att inte kunna göra det som patienter önskar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.) Att du känner skuld över att inte kunna göra det som anhöriga önskar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14.) Samtal/ information/ stöd till anhöriga	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15.) Att du går från en svår uppgift till nästa svåra uppgift	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16.) Att du ställs inför etiska/moraliska svårigheter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17.) Att du får ta emot och bära mycket av patienters oro/bördor/livsöden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18.) Att du får ta emot och bära mycket av anhörigas oro/bördor/livsöden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19.) Att du ensam identifierar behov hos patienter som du inte får gehör för	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20.) Att du ensam identifierar behov hos anhöriga som du inte får gehör för	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21.) Att du upplevt hot från patienter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22.) Att du varit utsatt för våld från patienter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23.) Att du får ta emot patienters missnöje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24.) Att du får ta emot anhörigas missnöje	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25.) Att du identifierar dig med vissa patienter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26.) Att du får ta ett för stort eget ansvar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27.) Att du känner behov av men ej har tillgång till ansvarig doktor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28.) Att du får arbeta med tolk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>