Job stress in the nursing profession

Gelsema, T.I.

Chapter 2

Determinants of Job Stress in the nursing Profession: a Review

Tanya Gelsema, Stan Maes, Simone Akerboom
Submitted to: Western Journal of Nursing Research

Determinants of Job Stress in the Nursing Profession: a Review

Abstract

This review discusses the determinants of job stress in the nursing profession. It summarizes the results of 51 studies published between 1990 and 2005. The present review includes psychological, attitudinal and behavioral stress indicators, and in this way focuses on a variety of outcomes: job satisfaction, health complaints, burnout, absenteeism and turnover. The dimensions of the Job Demands, Control, Support (JDCS) model were found to be important determinants, as well as other job characteristics such as communication, home-work conflict and task- and role clarity. Challenging work, supervisor support, control and coping have the potential to buffer the detrimental effects of a stressful work environment. Challenging or meaningful work however can work out in opposite ways. The commitment to take care of others can be an important buffer in the stressor-strain relationship, but also can lead to burnout, when going on too long. Providing a comprehensive review of the existing literature is complicated by the enormous diversity of work stressors and the differences in their operationalizations. This review calls for more consensus in operationalizations of independent as well as dependent variables. The present study extends previous research on occupational stress in nursing by simultaneous examination of direct effects of work conditions on a variety of stressors, and moderators of the stressor-strain relationship.

2.1 Introduction

Stress in the nursing profession has been a major worldwide problem for quite some time now. A study among a large sample of Swedish nurses revealed that more than 80% of the nurses reported high to very high job strain (Petterson et al., 1995). A study among personnel of a UK health authority reported that nurses were under the greatest pressure among all health care personnel (Rees & Cooper, 1992).

Typically, absence rates in health care sectors are rising worldwide (Institute for Work and Health). The problem of high turnover and absence in nursing is of great concern, because it leads to increasing pressure on the personnel not (yet) ill, and in turn, more illness and burnout due to this increasing pressure. Moreover, stress-related absenteeism and turnover are costly. Cartwright and Cooper (1996) estimated that almost 10 percent of the Gross National Product in European countries is lost because of stress related absenteeism and turnover. To break through this negative vicious circle, it is necessary to understand which specific aspects of the work environment play a role in occupational stress processes. This research can lay the foundation of effective intervention programs to reduce the tension in the work environment of nurses.

Earlier reviews have summarized the research on causes and consequences of stress in nursing, conducted in the eighties and early nineties in relation to behavioral reactions, such as absenteeism and turnover (Borda & Norman, 1997), attitudinal reactions, such as job satisfaction and intention to quit/stay (Blegen, 1993; Irvine & Evans, 1995), or adverse health reactions, such as distress (Mc Vicar, 2003). In a meta-analytic study on job satisfaction research in nurses, Blegen (1993) found relationships between job satisfaction on the one hand and stress, commitment, social support supervisor, autonomy, recognition, routinization, fairness, locus of control, age, years of experience, education and professionalism on the other hand. Another meta-analytic study on the causal relationship between job satisfaction, behavioral turnover intentions and turnover behavior showed that job dissatisfaction was strongly related to intent to leave, which in turn was strongly related to actual turnover (Irvine & Evans, 1995). Interestingly, this review study also revealed that both work content and work environment explained more variance in job satisfaction than individual or economic variables. A third review (Borda & Norman, 1997) confirmed Irvine and Evans' conclusions, identifying intent to stay as the variable most strongly associated with turnover and job satisfaction. A recent review by Mc Vicar (2003) identified workload, professional conflict and the emotional burden of

caring, pay and shift working as the main sources of job stress in the nursing profession. The above described reviews restrict themselves to the description of one, or a few outcome measures. In the present review, we will examine the influence of work conditions on a variety of outcomes. Because the present review includes psychological, attitudinal and behavioral strain indicators, it thereby allows examination of common and different determinants of these reactions, and the relationships between them.

In the present review, the term stress is used to describe a process that incorporates stressors, individual reactions and strain-outcomes. A job stressor has been typically defined as an antecedent condition within ones job or the organization that requires an adaptive response on the part of the employee. The negative reaction to a stressor is called "distress" or "strain", and has been operationalized in terms of affective outcomes (e.g. emotional exhaustion), in more job-specific terms (e.g. job (dis) satisfaction), and more objective organizational terms (e.g. absenteeism and turnover).

One of the most influential models concerning occupational stress is the Job Demand Control model (Karasek, 1979) and its extended version, the Job Demand Control Support model (Johnson & Hall, 1988). Job Demands refer to the workload or time pressure (Karasek, 1979). The job control dimension is composed of the concept of skill discretion (the breath of skills used by the employee) and decision authority (the employees authority to make decisions on the job). High job demands will generally increase stress (or strain); high control will lead to diminished strain. The model states that the situation of high demands and low control is particularly damaging to the health of the worker. This conjecture is referred to as the "strain hypothesis". About a decade after the development of the JDC model, social support was added to the JDC model as a third dimension (Johnson, Hall & Theorell, 1989; Johnson & Hall, 1988), suggesting that a situation of high demand, low control and low social support causes the most strain to the worker (the iso-strain hypothesis).Studies using the JDCS model have considered the buffering effect control or social support might have on job demands. For an extended review of the model see Van der Doef and Meas (1998) and Van der Doef and Maes (1999).

The JDC(S) model has two limitations. Firstly, individual characteristics (like coping behavior) are not taken into account. While stress is the result of the interaction between an individual and the environment, the model neglects individual characteristics. This omission could explain the relatively low proportion of explained variance in stress related outcomes (Pomaki & Maes, 2002). A second limitation is that Demand, Control and Support are the only dimensions

of the working environment that are described in the model. Including other factors of the work environment such as communication or role conflict will give a more complete understanding of the causes of job stress.

2.1.1 Review Questions

Our literature search was directed specifically at those studies examining (1) sources of strain in nursing and their relationship to job satisfaction, burnout, health problems, turnover and absenteeism, and (2) the moderating role of situational and individual characteristics in the stressor-strain relationship.

2.2 Studies included in the review

Databases Psychlit and Medline were searched for studies published after 1990 containing the keywords "hospital" and "nurses", with one of the following independent variables: "work* conditions", "work* environment", "work* stress(ors)", "job conditions", "job environment" or "job stress(ors)" and with one of the following dependent variables: "job satisfaction", or "health*", or "burnout", or "absenteeism", or "turnover". Studies were included if the following criteria were met: (1) the subjects under study should be nurses working in a medical hospital. (2) The focus of the study should include the relationship between work-related factors and an outcome variable, possibly taking moderating factors into account. Studies not meeting these criteria were excluded, leaving 51 studies relevant for this review.

2.2.1 Categorization of the studies

The studies were first categorized on the basis of their outcome variable(s). A distinction was made in studies on attitudinal reactions (job satisfaction), psychological and psychosomatic reactions (emotional exhaustion, somatic complaints), and behavioral reactions (absenteeism and turnover). The second part of this review focuses on the role of moderating factors such as control or coping.

2.3 Results

In general, the reviewed studies had a cross sectional design and made use of self report questionnaires. Five studies had a longitudinal design (Davidson et al., 1997; Bradley & Cartwright, 2002; Schaefer & Moos, 1993; Eastburg et al., 1994; Bourbonnais, Comeau, & Vézina, 1999). Two studies used biomedical health measures such as blood pressure and cholesterol levels (Fox, Dweyer & Ganster, 1993; Riese et al., 2000). One study performed interviews in addition to the questionnaire measures (Kennedy & Grey, 1997). In general, nurses from different departments participated in the studies. Several studies examined a specific hospital department, such as oncology departments (Papadatou, Anagnostopoulos, & Monos, 1994), psychiatric care departments (Fielding & Weaver, 1994; Parkes & von Rabenau, 1993), acute care (Tovey & Adams, 1999; Maurier & Northcot, 2000; Sjöberg, 1997; Bourbonnais, Comeau, & Vézina, 1999), intensive care (Ehrenfeld, 1991; Reilly, 1994; De Rijk, Le Blanc & Schaufeli, 1998), child care (Van Yperen & Baving, 1999) and elderly care (Matrunola, 1996; Parker & Kulik, 1995).

2.3.1 Work environment and attitudinal reactions: Job satisfaction

Of the reviewed studies, 16 examined the relationship between job demands (task requirements or workload) and job satisfaction. Among these, nine showed significant negative relationships with job demands. More specifically, relationships were found between job satisfaction on the one hand and work overload (Davidson et al., 1997; De Jonge & Schaufeli, 1998; De Jonge, Schaufeli, & Furda, 1995; Bradley & Cartwright, 2002), work, or time pressure (Bennet et al., 2001; Landeweerd & Boumans, 1994; Robinson, Roth, & Brown, 1993; Seo, Ko, & Price, 2004), and system stressors (a.o. workload and scheduling) (Schaefer & Moos, 1993) on the other hand. However, in each of these studies the strength of the associations was moderate. One study found a positive relationship between the number of professional activities and job satisfaction (Ehrenfeld, 1991).

The results further show the ability to control work activities as an important predictor of job satisfaction. Of the 11 studies investigating the relationship between autonomy and job satisfaction, eight found significant relationships (Ehrenfeld, 1991; De Jonge & Schaufeli, 1998; De Jonge et al., 1995; Landeweerd

& Boumans, 1994; Parkes & Von Rabenau, 1993; Tonges, Rothstein, & Carter, 1998; Tumulty, Jernigan, & Kohut, 1994). Associations were found with control over management decisions, as well as with control over patient care (Mc Gilton & Pringle, 1999). The influence of skill discretion (the other component of job control) on nurses' job satisfaction was examined in five studies. Two studies found a significant association (Chu et al., 2003; Seo, Ko, & Price, 2004).

Social support is a very important factor influencing nurses' well-being. Most studies made a distinction between support received from a supervisor and support received from colleagues. All 15 studies that examined the relationship between support and job satisfaction found a significant positive relationship. Significant associations were found with general, or overall support (not specified from whom, or a mean score) (Smith & Tziner, 1998; Tovey & Adams, 1999), support from colleagues (Chu et al., 2003; Decker, 1997; Parkes & Von Rabenau, 1993; Robinson, Roth, & Brown, 1993), supervisor support, or relation with head nurse (Bennet et al., 2001; Decker, 1997; De Jonge & Schaufeli, 1998; De Jonge, Schaufeli, & Furda, 1995; Landeweerd & Boumans, 1994; Parkes & Von Rabenau, 1993; Robinson, Roth, & Brown, 1993; Seo, Ko, & Price, 2004; Tumulty, Jernigan, & Kohut, 1994), organizational support (Kirkcaldy & Martin, 2000; Bradley & Cartwright, 2002) and support from a confidante (Bradley & Cartwright, 2002). Job satisfaction is related to relations with physicians (Decker, 1997). Interpersonal conflict and relationship stressors are negatively related to job satisfaction (Bennet et al., 2001; Schaeffer & Moos, 1993; Tumulty, Jernigan, & Kohut, 1994).

Other job characteristics besides the job demand control support dimensions, that are related to job satisfaction, are clarity / role ambiguity (clarity of tasks and roles), job complexity (or difficulty, routinization, skill variety), communication, work-home conflict, and promotion / growth opportunities, and pay. These factors however, were not examined as regularly as the JDCS constructs and thus allow less firm conclusions. The influence of task / role clarity on job satisfaction was investigated in six studies, of which five found significant relationships (Landeweerd & Boumans, 1994; Robinson, Roth, & Brown, 1993; Tovey & Adams, 1999; Tumulty, Jernigan, & Kohut, 1994; Chu et al., 2003). Two studies investigating the influence of communication (formal transmission of information within the organization (Davidson et al., 1997), or communication with medical staff, patients and relatives (Ehrenfeld, 1991)) found small, but significant relationships with job satisfaction. Work-home conflict is significantly related to job satisfaction in three of four studies (Bennet et al., 2001; Kirkaldy & Martin, 2000; Bacharach, Bamberger, & Conley, 1991) Growth op-

portunities and promotional chances were related to job satisfaction in four studies, of which one found a significant association (Landeweerd & Boumans, 1994). Finally, pay is associated with job satisfaction in one of three studies (Seo, Ko, & Price, 2004).

2.3.2 Work environment and psychosomatic reactions: Health complaints and Burnout

Health complaints
Of the 10 studies that examined the relationship between demand and health complaints, eight found significant effects. Main effects were found of objective measures of workload in terms of % patient contact (Fox, Dweyer, & Ganster, 1993), large number of dependants (Kennedy & Grey), as well as of subjective measures of work pressure and workload (Barnett et al., 1991; De Jonge, Janssen, & Van Breukelen, 1996; Hillhouse & Adler, 1997; Lambert, Lambert, & Ito, 2004; Landeweerd & Boumans, 1994; Parkes & Von Rabenau, 1993).

Nine studies examined the relationship of control, autonomy or decision authority with health complaints, of which three found significant results (Fielding & Weaver, 1994; Fox, Dweyer, & Ganster, 1993; Landeweerd & Boumans, 1994).

The influence of social support on health complaints was examined in eleven studies, of which six found significant associations. Relationships were found between health complaints on the one hand, and lack of support from or conflict with others (other nurses, head nurse or physicians) on the other hand (Decker, 1997; Budge, Carryer, & Wood, 2003; Hillhouse & Adler, 1997; Kennedy & Grey, 1997; Lambert, Lambert, & Ito, 2004; Landeweerd & Boumans, 1994).

Other job characteristics besides Demand, Control and Support were also investigated. Significant correlations between health complaints and hazardous exposure / physical comfort, (Barnett et al., 1991; Kennedy & Grey, 1997), home-work conflict (Butterworth et al., 1999; Decker, 1997), task orientation (Fielding & Weaver, 1994), clarity / uncertainty about treatment (Fielding & Weaver, 1994; Landeweerd & Boumans, 1994; Lambert, Lambert, & Ito, 2004) and innovation (Fielding & Weaver, 1994) were found. Health complaints were not associated with confidence / competence in role (Butterworth et al., 1999; Maurier & Northcott, 2000) or with schedule (Decker, 1997; Maurier & Northcott, 2000).

Burnout

With the exception of one study, all reviewed studies on causes of burnout used the Maslach Burnout Inventory (Maslach & Jackson, 1981) to measure burnout. This construct contains three aspects: emotional exhaustion, depersonalization and reduced personal accomplishment. In this review only the relationships between work stressors and emotional exhaustion is examined, as this appears to be the major aspect of occupational burnout among human service professionals, including nurses (Buunk, Schaufeli & Ybema, 1994) and most studies include for this reason the emotional exhaustion scale only.

Of 13 studies that examined the relationship between emotional exhaustion and demands, 11 found significant results. Main effects were found of workload (Bacharach, Bamberger, & Conley, 1991; Bourbonnais, Comeau, & Vézina, 1999; De Jonge & Schaufeli, 1998; De Jonge, Janssen, & Van Breukelen, 1996; De Rijk, Le Blanc, & Schaufeli, 1998; Janssen, De Jonge, & Bakker, 1999; Papadatou, Anagnostopoulos, & Monos, 1994; Turnipseed, 1994; Van Yperen & Baving, 1999), patient contact (Demerouti et al., 2000; Kennedy & Grey, 1997), and exposure to death and suffering (Hillhouse & Adler, 1997).

Four of ten studies found main effects of control on emotional exhaustion (Bourbonnais, Comeau, & Vézina, 1999; De Jonge & Schaufeli, 1998; De Rijk, Le Blanc, & Schaufeli, 1998; Fielding & Weaver, 1994).

All thirteen studies that examined the relationship between support (whether from supervisor or from colleagues), or conflict, and emotional exhaustion, found a significant negative relationship. Associations were found with support from or conflict with other colleagues (Eastburg et al., 1994; Hillhouse, & Adler, 1997; Janssen, De Jonge, & Bakker, 1999; Turnipseed, 1994; Van Yperen & Baving, 1999), with supervisor support (Eastburg et al., 1994; Fielding & Weaver, 1994; Kennedy & Grey, 1997; Papadatou, Anagnostopoulos, & Monos, 1994; Turnipseed, 1994), with nurse-doctor relation (Vahey et al., 2004) and with general support, or a mean score (Bourbonnais, Comeau, & Vézina, 1999; De Jonge, & Schaufeli, 1998; De Jonge, Janssen, & Van Breukelen, 1996; Hillhouse & Adler. 1997; Kennedy & Grey, 1997; Smith & Tziner, 1998). Support from a supervisor generally has higher correlations with emotional exhaustion than support from colleagues. Four studies examined the relationship between task variety and emotional exhaustion, but no relationship was found. One of three studies found a relationship between emotional exhaustion and task clarity (Turnipseed, 1994), and two of three studies associated emotional exhaustion to task orientation (emphasis on planning of work/efficiency) (Fielding & Weaver, 1994; Kennedy & Grey, 1997). Finally, environmental conditions and physical

comfort are also associated with emotional exhaustion; two of four studies found a significant relationship (Demerouti et al., 2000; Kennedy & Grey, 1997).

2.3.3 Work environment and behavioral reactions: Turnover and Absenteeism

Turnover

Two organizational related outcomes are considered in this review: nurses' turnover and absenteeism. Studies on nurses' turnover or absenteeism differ from studies on health and wellness outcomes in the kinds of determinants that are under study. Common factors that are examined on their influence on nurses' turnover and absenteeism are job satisfaction, intent to stay and emotional exhaustion. Direct effects of work environmental factors are seldom studied. Models on nurse turnover reveal that turnover intention (or intent to stay / leave) is the most strongly related factor to actual turnover (Irvine & Evans, 1995; Borda & Norman 1997; Lucas, Atwood, & Hagaman, 1993). This is confirmed by the studies under consideration in this review; all studies that examined the relationship between intent to leave / stay and turnover found significant associations (Davidson et al., 1997; Sjöberg, 1997; Cavanagh & Coffin, 1992). Intent to leave / stay was on its turn most often linked to job satisfaction (Borda & Norman, 1997; Cavanagh & Coffin 1992; Sourdif, 2004). Job satisfaction was also directly related to actual turnover (Davidson et al., 1997), although the direct relationship with turnover was less strong than the relationship between job satisfaction and turnover intention or between turnover intention and actual turnover, indicating that turnover intention mediates between job satisfaction and turnover. Other factors that were associated with turnover intention are job stress (Shader et al., 2001; Parker & Kulik, 1995), lack of group cohesion (Lucas, Atwood, & Hagaman, 1993; Shader et al., 2001), lack of social support (Parker & Kulik, 1995; Lambert, Lambert, & Ito, 2004), conflict with nurses and physicians (Lambert, Lambert, & Ito, 2004), job involvement (Sjöberg, 1997), and emotional exhaustion (Parker & Kulik 1995; Janssen, De Jonge, & Bakker, 1999).

Absenteeism

Only five studies examined the determinants of nurses' absenteeism. Relationships were found with job satisfaction (Borda & Norman, 1997; Matrunola, 1996), kinship responsibility (Borda & Norman, 1997), intent to stay (Borda & Norman, 1997), emotional exhaustion (Parker & Kulik, 1995) social support (Bourbonnais & Mondor, 2001; Parker & Kulik, 1995), strain (Bourbonnais

& Mondor, 2001) and physical demands (Trinkoff, Storr, & Lipscomb, 2001). Models on absenteeism and turnover assume that job satisfaction and turnover intention mediate the relationship between work related factors and turnover or absenteeism. The reviewed studies concerning the nursing profession clearly support this assumption.

2.3.4 Moderators in the stressor – stress reaction relationship

In studies on stress in the nursing profession, not only direct effects of environmental factors are of importance, but also the moderating or buffering effects certain factors can have. In some studies, possible moderators were taken into account, such as control, social support, commitment, working relationship with physician, preference for autonomy, and number of patients. Control moderated between demand and job satisfaction (Parkes & Von Rabenau, 1993). A buffering effect of control on the relationship between demands and emotional exhaustion was found in four out of five studies (Bourbonnais, Comeau, & Vézina, 1999; De Jonge, Janssen, & Van Breukelen, 1996; De Jonge, Schaufeli, & Furda, 1995; Papadatou, Anagnostopoulos, & Monos, 1994). De Rijk, Le Blanc, and Schaufeli (1998) found such an effect only for a group of nurses that scored high in active coping. In a study by Furda (1995) for the outcome "health complaints", control acted as a buffer, but only for nurses that had a high need for control (nurses that normally react by actively doing something about an unpleasant situation). It seems that the moderating effect of control depends on the individual's coping style. Nurses with a coping style that is merely avoiding in stead of active, would benefit less from a high amount of control. A buffering effect of control was also found in two other studies on the relationship between workload and health complaints (Fox, Dweyer, & Ganster, 1993; Marshall & Barnett, 1993).

A buffering effect of social support on workload was found in one out of two studies (van Yperen & Baving, 1999). The buffering effect of social support (as predicted by the JDCS model) on health complaints was examined in only one study (Bourbonnais, & Mondor, 2001), but was found to be non-significant. Possibly a specific aspect of social support has a buffering effect. One of the reviewed studies, examining the causes of burnout, made a distinction in different kinds of social support (appreciation, friendship, instrumental support), and found only a buffering effect of instrumental support and appreciation on emotional exhaustion (Van Yperen & Baving, 1999). A study by Hillhouse and

Adler (1997) concluded that better relations with physicians could buffer the negative effect of demanding aspects of the nursing job.

The use of emotion-focused as well as problem-focused coping strategies were also found to act as a buffer between workload and negative outcomes in a study of Florio, Donnely and Zevon (1998). Boey (1998) also found a buffering effect of approach coping methods (i.e., problem-focused coping) in the relationship between work stress and job satisfaction.

Reilly (1994) found an interaction effect of demand and commitment in relation to emotional exhaustion. Commitment was found to buffer the influence of a demanding job, but only up to a certain point. When demands were very high, commitment was found to strengthen the demand - burnout relationship. Finally, the number of patients one has to take care of can act as a buffer for emotional exhaustion (Kennedy & Grey, 1997). Paradoxically, patient care (more patients) can buffer against emotional exhaustion. Interestingly, a comparable result was found for health complaints. Marshall and Barnett (1993) found a buffering effect from "helping others" for psychological distress, but not for physical health. The same authors also found that "helping others at work" was the most consistent work reward factor that buffered the effects of overload on health complaints (Marshall & Barnett, 1993).

2.4 Discussion

Most studies on stress in the nursing profession focus on either attitudinal outcomes or psychosomatic outcomes. Only in about a quarter of the studies, the focus is on behavioral outcomes. Instead of taking job characteristics as the independent variable, in studies predicting behavioral outcomes like turnover or absenteeism, the focus is on attitudinal variables (like job satisfaction or turnover intention) instead. From these studies it can be hypothesized that the relationship between work-related factors and behavioral outcomes (turnover or absenteeism) is mediated by attitudinal variables (job satisfaction and turnover intentions). To keep nurses in the nursing profession or in the organization means finding ways to keep nurses satisfied with their jobs. Job characteristics are most strongly related to job-related outcomes, such as job satisfaction and emotional exhaustion. The associations with somatic complaints are in general less strong, possibly because this outcome is more influenced by variables outside the work environment.

2.4.1 Attitudinal & Psychosomatic outcomes

Demands
There are several work conditions that need consideration in preventing or handling stress in general, because they are related to attitudinal as well as to psychosomatic outcomes. The dimensions of the JDCS-model: job Demands, Control and Social support for example, are work conditions that are linked to both types of outcomes. For demands, it seems useful to make a distinction between two different aspects of it in the nursing profession: demands from patient contact and demands from other aspects of the job (e.g., too great a variety of tasks, or too little time for the job). Demands from patient contact do not necessarily have to result in negative stress reactions. The stressful demanding aspects of the nursing job have to do with time pressure. Two recent studies reported that the major stressor reported by nurses was "too little time to perform duties to their satisfaction" (McGrath, Reid, & Boore, 2003; Bianchi, 2004). The perceived quality of professional service, and the lowered standards of care due to lack of time, is considered important in the prediction of job satisfaction (Adams & Bond, 2000; Tonges, Rothstein, & Carter, 1998; Tovey & Adams, 1999). These stressors can be changed through effective management, for example, by scheduling sufficient staff with the right mix of skills to cope with the workload (Adams & Bond, 2000). Patient contact can in some situations even be beneficial for nurses' health and well-being. It can buffer the negative effect of the demanding aspects of the nursing job.

Control
The relationship between control and attitudinal and psychosomatic outcomes is ambiguous. In roughly half of the reviewed studies, a relationship is found, with more control leading to fewer complaints. This could be due to different operationalizations of control. For job satisfaction and burnout, the relationship with control is stronger when control is made operational conform the Job Content Inventory (Karasek, 1985) than when other operationalizations are used. For health complaints, it is opposite. The operationalization of control conform the JCI differs from other operationalizations in the component of "skill discretion". While predicting job satisfaction and burnout, the skill discretion component is more important, in predicting health complaints, decision authority is more important. However, although for a different reason, both decision authority and skill discretion should thus deserve attention from an intervention perspective.

Support

Of the dimensions of the JDCS model, the link between social support and stress-related outcomes is most clear. Social support has a direct relationship with job satisfaction, emotional exhaustion and health complaints. Social support from supervisor is distinguished from social support from colleagues in most studies. Social support from a supervisor seems to be the most important of these two for nurses. However, it is not only important to have a supportive supervisor: support from colleagues is also related to job satisfaction and burnout or health complaints. Since the nursing profession requires working in teams to provide the best quality of care, and since social support is a coping strategy nurses use frequently (Bianchi, 2004), healthy work relationships are important. To promote this, efforts aimed at team building to increase involvement are recommended. A study by Bradley and Cartwright (2002) showed that next to support from supervisor and colleagues, recognition from the organization is also important. The extent to which nurses feel that the organization is supportive and values the profession of nurses contributes to an enhanced job satisfaction.

Other work- and organizational characteristics

Literature on nursing research shows a great variety of stressors, although the influence of some characteristics is examined only ones or twice. Improvement in instrumental communication throughout the organization could enhance nurses' satisfaction (Davidson et al., 1997). In addition, Adams and Bond (2000) showed that the perceptions of nurses of the balance between number of available staff, skill mix, care organization (i.e. roster) and the ward's workload also has a major influence on their job satisfaction. Since nursing predominantly is a female profession, the issue of conflicts between the home- and work situation is more apparent than in other professions (Decker, 1997). Task-role clarity is an important factor in reducing psychological distress. Development of programs that encourage the delineation of clear expectations of responsibilities and roles within the (emergency) department is needed. Recent studies have stressed the importance of financial reward in the contribution to job satisfaction. Perhaps financial rewards contribute to a feeling of being respected as a nurse. A recent study reported that more than half of the nurses felt that more pay would alleviate stress (McGrath, Reed, & Boore, 2003).

Moderators

Different factors can have a buffering effect in the workload-job stress relation-

ship. Schaefer and Moos (1993) found that challenging work could compensate for a poor work climate. Next to challenging work, work environments with supportive supervisors, clear expectations and consistent policies may serve as resources that help to minimize the confronted stressors. Control over ones work can also be an important buffer against work stress, although the preferred amount of control can be dependent on personality characteristics. Nurses with a high preference for autonomy respond positively to jobs containing autonomy and jobs that that are embedded in a patient oriented nursing care system. Certain coping strategies may buffer stress. For example, problem solving may buffer stress by focusing attention on controllable sources of stress and attracting support from colleagues (Tyson, Pongruengphant & Aggarwal, 2002). Avoidance coping strategies were found to directly increase distress (Boey, 1998; Tyler & Cushway, 1992, 1995) and burnout (Simoni & Paterson, 1997).

A thread in studies on stress in the nursing profession is the importance of the meaningfulness of the job. To help other people get better plays in many different ways a role in the profession. It is the biggest reward intrinsic to the job, and for the majority of nurses the most common reason for their choice of profession (Petterson et al., 1995). Satisfaction with patient care can be important through it's influence on nurses' self perception (Dodds, Lawrence & Wearing 1991). On the other hand, the value of "helping others" could also be a frustration when the environment doesn't allow nurses to take care of people, because of other tasks that need to be done, or because of the time pressure. Commitment to the profession and to the patients can however also cause nurses to keep on going too long, until the line finally breaks. Reilly (1994) explored the paradox of commitment as a buffer for emotional exhaustion when the frequency of stressors is low, and commitment as a kind of burnout-katalysator when the frequency of stressors is high. A possible explanation is that a nurse who highly values the goals of the profession is more tolerant to stressors. But when the work situation is distracted greatly from the nurses' ideals the stress reaction of the more committed nurses is stronger (Reilly, 1994).

2.4.2 Methodological issues

Several methodological issues should be considered in future research. Ninety percent of the reviewed studies have cross sectional designs, which do not provide a firm basis to draw causal inferences. Future research should focus more on longitudinal designs, especially if the causal pathway of "work conditions" – "attitudinal and psychosomatic variables" – "behavioral variables" is to be

examined. Moreover, there is a lack of stress intervention studies in this population. Little is known about effective organization-level stress interventions in the nursing profession. No such studies were found in our literature search. Intervention studies are of particular importance, especially intervention studies with a quasi-experimental design, for such studies provide a solid base for practical reccommendations as well as for theoretical suggestions.

Stress is a multidimensional construct, which covers several different aspects, such as diminished job satisfaction, turnover intention, burnout or psychosomatic complaints. Future studies should include attitudinal as well as psychosomatic or behavioral outcomes to be able to compare the relationships with the different outcomes.

The vast majority of studies makes use of self-report questionnaires and therefore has a danger of subjectivity. Moreover, if two or more variables are measured by the same method, there could be a correlation because of shared method variance (Campbell & Fiske, 1959). Some studies take efforts to minimize this bias, by controlling for a personality trait such as negative affectivity (Parker & Kulik, 1995). Other studies use additional methods of measurement, such as interviews (Kennedy & Grey, 1997) or biomedical measures (Fox, Dweyer, & Ganster, 1993; Riese et al., 2000).

Providing a comprehensive review of the existing literature is complicated by the enormous diversity of work stressors and the differences in their operationalizations. Furthermore, the level of specification of the stress factors varies considerably. Some studies reveal that work related factors influence an outcome variable, without specifying exactly which factor is the villain. In function of interventions however, it is important to know exactly which factor is the cause of negative outcomes. The different definitions researchers use for the same concepts, and the different way's these concepts are made operational in a questionnaire makes comparison between studies difficult or even impossible. Recommendation for future study is to find more consensuses in the instruments used.

Finally, future studies should better reflect the job conditions, which evolved over time. New measurement tools should be developed to tap the rapidly changing environment of nurses, including pressures associated with new roles, lack of job security and using new technology (Tovey & Adams, 1999).

References

Bacharach, S.B., Bamberger, P., and Conley, S.C. (1991) "Work-home conflict among nurses and engineers: mediating the impact of role stress on burnout and satisfaction at work", *Journal of Organizational Behavior, Vol 12*, pp. 39-53.

Barnett, R.C., Davidson, H., and Marshall, N.L. (1991) "Physical symptoms and the interplay of work and family roles", *Health Psychology, Vol 10* No 2, pp. 94-101.

Bennet, P., Lowe, R., Matthews, V., Dourali, M., and Tattersall, A. (2001) "Stress in nurses: coping, managerial support and work demand", *Stress and Health, Vol 17*, pp. 55-63.

Bianchi, E.R.F. (2004) "Stress and coping among cardiovascular nurses: a survey in Brazil", *Issues in Mental Health Nursing, Vol 25*, pp. 737-745.

Blegen, M.A. (1993) "Nurses' job satisfaction: a meta-analysis of related variables". *Nursing Research, Vol 42* No 1, pp. 36-41.

Boey, K.W. (1998) "Coping and family relationships in stress resistance: a study of job satisfaction of nurses in Singapore", *International Journal of Nursing Studies, Vol 35*, pp. 353-361.

Borda, R.G., and Norman, I.J. (1997) "Factors influencing turnover and absence of nurses: a research review", *International Journal of Nursing Studies, Vol 34* No 6, pp. 385-394.

Bourbonnais, R., Comeau, M., and Vézina, M. (1999) "Job strain and evolution of mental health among nurses", *Journal of Occupational Health Psychology, Vol 4* No 2, pp. 95-107.

Bourbonnais, R., and Mondor, M. (2001) "Job strain and sickness among nurses in the province of Québeck", *American Journal of Industrial Medicine, Vol 39*, pp. 194-202.

Bradley, J.R., and Cartwright, S. (2002) "Social support, job stress, health, and job satisfaction among nurses in the United Kingdom", *International Journal of Stress Management, Vol 9* No 3, pp. 163-182.

Budge, C., Carryer, J., & Wood, S. (2003) "High correlates of autonomy, control, and professional relationships in the nursing work environment", *Journal of Advanced Nursing, Vol 42* No 3, pp. 260-268.

Butterworth, T., Carson, J., Jeacock, J., White, E., and Clements, A. (1999) "Stress, coping, burnout and job satisfaction in British nurses: findings from the clinical supervision evaluation project", *Stress Medicine, Vol 15*, pp. 27-33.

Buunk, B.P., Schaufeli, W.B., and Ybema, J.F. (1994) "Burnout, Uncertainty, and the desire for social comparison among nurses", *Journal of Applied Social Psychology, Vol 24* No 19, pp. 1701-1718.

Campbell, DT, and Fiske, DW (1959) "Convergent and discriminant validation by the multitrait-multimethod matrix", *Psychological Bulletin, Vol 56*, pp. 81-105.

Cartwright, S., and Cooper, C.L. (1996) "Public policy and occupational health psychology in Europe", *Journal of Occupational Health Psychology, Vol 1* No 4, pp. 349-361.

Cavanagh, S.J., and Coffin, D.A. (1992) "Staff turnover among hospital nurses", *Journal of Advanced Nursing, Vol 17* No 11, pp. 1369-1376.

Chu, C.I., Hsu, H.M., Price, J.L., & Lee, J.Y. (2003) "Job satisfaction of hospital nurses: an empirical test of a causal model in Taiwan", *International Nursing Review, Vol 50* No 4, pp. 242-250.

Davidson, H., Folcarelli, P.H., Crawford, S., Duprat, L.J., and Clifford, J.C. (1997) "The effects of health care reforms on job satisfaction and voluntary turnover among hospital-based nurses", *Medical Care, Vol 35* No 6, pp. 634-645.

Decker, F.H. (1997) "Occupational and nonoccupational factors in job satisfaction and psychological distress among nurses", *Research in Nursing and Health, Vol 20*, pp. 453-464.

De Jonge, J., Schaufeli, W.B., and Furda, J. (1995) "Werkkenmerken: psychologische arbeidsvitamines?" *Gedrag en Organisatie, Vol 8* No 4, pp. 231-247.

De Jonge, J., Janssen, P.P.M., and Van Breukelen, G.J.P. (1996) "Testing the Demand-Control-Support model among health-care professionals: a structural equation model", *Work and Stress, Vol 10* No 3, pp. 209-224.

De Jonge, J., and Schaufeli, W.B. (1998) "Job characteristics and employee well-being: a test of Warr's vitamin model in health care workers using structural equation modelling", *Journal of Organizational Behavior, Vol 19*, pp. 387-407.

Demerouti, E., Bakker, A.B., Nachreiner, F., and Schaufeli, W.B. (2000) "A model of burnout and life satisfaction amongst nurses", *Journal of Advanced Nursing, Vol 32 No 2*, pp. 454-464.

De Rijk, A., Le Blanc, P., and Schaufeli, W.B. (1998) "Active coping and need for control as moderators of the job demand-control model: effects on burnout", *Journal of Occupational and Organizational Psychology, Vol 71*, pp. 1-18.

Dodds, A.E., Lawrence, J.A., and Wearing, A.J. (1991) "What makes nursing satisfying: a comparison of college students' and registered nurses' views", *Journal of Advanced Nursing, Vol 16* No 6, pp. 741-753.

Eastburg, M., Williamson, M., Gorsuch, R., and Ridley, C. (1994) "Social support, personality, and burnout in nurses", *Journal of Applied Social Psychology, Vol 24* No 14, pp. 1233-1250.

Ehrenfeld, R.N. (1991) "Social correlates of satisfaction and stress among Israeli nurses within Intensive Coronary Care Units (I.C.C.U.s)" *International Journal of Nursing Studies, Vol 28* No1, pp. 39-45.

Fielding, J., and Weaver, S.M. (1994) "A comparison of hospital- and community-based mental nurses: perceptions of their work environment and psychological health", *Journal of Advanced Nursing, Vol 19*, pp. 1196-1204.

Florio, G.A., Donnely, J.P., and Zevon, M.A. (1998) "The structure of work-related stress and coping among oncology nurses in high-stress medical settings: a transactional analysis", *Journal of Occupational Health Psychology, Vol 3* No 3, pp. 227-242.

Fox, M.L., Dwyer, D.J., and Ganster, D.C. (1993) "Effects of stressful job demands and control on physiological and attitudinal outcomes in a hospital setting", *Academy of Management Journal, Vol 36* No 2, pp. 289-318.

Furda, J. (1995), *Werk, persoon en welzijn: een toetsing van het Job Demand-Control model*, Enschede: Copyprint 2000.

Hillhouse, J.J., and Adler, C.M. (1997) "Investigating stress effect patterns in hospital staff nurses: results of a cluster analysis", *Social Science and Medicine, Vol 45* No 12, pp. 1781-1788.

Irvine, D.M., and Evans, M.G. (1995) "Job satisfaction and turnover among nurses: integrating research findings across studies", *Nursing Research, Vol 44* No 4, pp. 246-253.

Janssen, P.P.M., De Jonge, J., and Bakker, A.B. (1999) "Specific determinants of intrinsic work motivation, burnout and turnover intentions: a study among nurses", *Journal of Advanced Nursing, Vol 29* No 6, pp. 1360-1369.

Johnson, J.V., and Hall, E.M. (1988) "Job strain, work place social support, and cardiovascular disease: a cross-sectional study of a random sample of the

Swedish working population", *American Journal of Public Health, Vol 78*, pp. 1336-1342.

Johnson, J.V., Hall, E.M., and Theorell, T. (1989) "Combined effects of job strain and social isolation on cardiovascular disease morbidity and mortality in a random sample of the Swedish male working population", *Scandinavian Journal of Work, Environment and Health, Vol 15*, pp. 271-279.

Karasek, R.A. (1979) "Job demands, job decision latitude and mental strain: implications for job redesign", *Administrative Science Quarterly, Vol 24*, pp. 285-308.

Karasek, R.A. (1985), Job Content Instrument: Questionnaire and User's Guide, Los Angeles, CA: University of South California.

Kennedy, P., and Grey, N. (1997), "High pressure areas", *Nursing Times, Vol 93* No 29, pp. 26-28.

Kirkcaldy, B.D., and Martin, T. (2000), "Job stress and satisfaction among nurses: individual differences", *Stress Medicine, Vol 16,* pp. 77-89.

Lambert, V.A., Lambert, C.E., & Ito, M. (2004) "Workplace stressors, ways of coping and demographic characteristics as predictors of physical and mental health of Japanese hospital nurses", *International Journal of Nursing Studies, Vol 41,* pp., 85-97.

Landeweerd, J.A., and Boumans, N.P.G. (1994) "The effect of work dimensions and need for autonomy on nurses' work satisfaction and health", *Journal of Occupational and Organizational Psychology, Vol 67*, pp. 207-217.

Lucas, M.D., Atwood., J.R., and Hagaman, R. (1993) "Replication and validation of anticipated turnover model for urban registered nurses", *Nursing Research, Vol 42* No 1, pp. 29-35.

Maurier, W.L., and Northcott, H.C. (2000) "Job uncertainty and health status for nurses during restructuring of health care in Alberta", *Western Journal of Nursing Research, Vol 22* No 5, pp. 623-641.

Matrunola, P. (1996) "Is there a relationship beween job satisfaction and absenteeism?", *Journal of Advanced Nursing, Vol 23*, pp. 827-834.

Marshall, N.L., and Barnett, R.C. (1993) "Variations in job strain across nursing and social work Specialties", *Journal of Community and Applied Social Psychology, Vol 3*, pp. 261-271.

Maslach, C., and Jackson, S.E. (1981) "The measurement of experienced burnout", *Journal of Occupational Behavior, Vol 2* No 2, pp. 99-113.

McGilton, K.S., and Pringle, D.M. (1999) "The effects of perceived and preferred control on nurses' job satisfaction in long term care environments", *Research in Nursing and Health, Vol 22*, pp. 251-261.

McGrath, A., Reid, N., & Boore, J. (2003) "Occupational stress in nursing", *International Journal of Nursing Studies, Vol 40*, pp. 555-565.

McVicar, A. (2003) "Workplace stress in nursing: a literature review", *Journal of Advanced Nursing, Vol 44* No 6, pp. 633-642.

Papadatou, D., Anagnostopoulos, F., and Monos, D. (1994) "Factors contributing to the development of burnout in oncology nursing", *British Journal of Medical Psychology, Vol 67*, pp. 187-199.

Parkes, K.R., and von Rabenau, C. (1993) "Work characteristics and well-being among psychiatric health-care staff", *Journal of Community and Applied Social Psychology, Vol 3*, pp. 243-259.

Parker, P.A., and Kulik, J.A. (1995) "Burnout, self- and supervisor-rated job performance, and absenteeism among nurses", *Journal of Behavioral Medicine, Vol 18* No 6, pp. 581-599.

Petterson, I.L., Arnetz, B.B., Arnetz, J.E., and Hörte, L.G. (1995) "Work environment, skills utilization and health of Swedish nurses - results from a national questionnaire study", *Psychotherapy and Psychosomatization, Vol 64*, pp. 20-31.

Pomaki, Y., and Maes, S. (2002), *"Predicting quality of work life: from work conditions to self-regulation"*, in Gullone, E. and R.A. Cummins (Eds.), The universality of subjective wellbeing indicators. A multi-disciplinary and multinational perspective, Kluwer Academic Publishers, Dordrecht, pp. 151-173.

Rees, D., and Cooper, C.L. (1992) "Occupational stress in health-service workers in the UK", *Stress Medicine, Vol 8* No 2, pp. 79-90.

Reilly, N.P. (1994) "Exploring the paradox: commitment as a moderator of the stressor-burnout Relationship", *Journal of Applied Social Psychology, Vol 24* No 5, pp. 397-414.

Riese, H., van Doornen, L.J., Houtman, I.L., and de Geus, E.J. (2000) "Job strain and risk indicators for cardiovascular disease in young female nurses", *Health Psychology, Vol 19* No 5, pp. 429-440.

Robinson, S.E., Roth, S.L., and Brown, L.L. (1993) "Morale and job satisfaction among nurses: what can hospitals do?", *Journal of Applied Social Psychology, Vol 23* No 3, pp. 244-251.

Schaefer, J.A., and Moos, R.H. (1993) "Relationship, task and system stressors in the health care Workplace", *Journal of Community and Applied Social Psychology, Vol 3*, pp. 285-298.

Seo, Y., Ko, J., & Price, J.L. (2003) "The determinants of job satisfaction among hospital nurses: a model estimation in Korea", *International Journal of Nursing Studies, Vol 41*, pp. 437-446.

Shader, K., Broome, M.E., Broome, C.D., West, M.E., and Nash, M. (2001) "Factors influencing satisfaction and anticipated turnover for nurses in an academic medical center", No 4, pp. 10-216.

Simoni, P.S., and Paterson, J.J. (1997) "Hardiness, coping, and burnout in the nursing workplace", *Journal of Professional Nursing, Vol 13* No 3, pp. 178-185.

Sjöberg, A. (1997), *Predicting turnover among nurses: the role of job involvement and organizational commitment.* Stockholm University: Department of Psychology, Stockholm, Sweden, Rep. No. 827.

Smith, D., and Tziner, A. (1998) "Moderating effects of affective disposition and social support on the relationship between person-environment fit and strain", *Psychological reports, Vol 82*, pp. 963-983.

Sourdif, J. (2004) "Predictors of nurses' intent to stay at work in a university health center" *Nursing and Health Sciences, Vol 6*, pp. 59-68.

Tonges, M.C., Rothstein, H., and Carter, H.K. (1998) "Sources of satisfaction in hospital nursing practice", *Journal of Nursing Administration, Vol 28* No 5, pp. 47-61.

Tovey, E.J., and Adams, A.E. (1999) "The changing nature of nurses' job satisfaction: an exploration of sources of satisfaction in the 1990s", *Journal of Advanced Nursing, Vol 30* No 1, pp. 150-158.

Trinkoff, A.M., Storr, C.L., and Lipscomb, J.A. (2001) "Physically demanding work and inadequate sleep, pain medication use and absenteeism in registered nurses", *Journal of Occupational and Environmental Medicine, Vol 43* No 4, pp. 355-363.

Tumulty, G., Jernigan, I.E., and Kohut, G.F. (1994) "The impact of perceived work environment on job satisfaction of hospital staff nurses", *Applied Nursing Research, Vol 7* No 2, pp. 84-90.

Turnipseed, D.L. (1994) "An analysis of the influence of work environment variables and moderators on the burnout syndrome", *Journal of Applied Social Psychology, Vol 24* No 9, pp. 782-800.

Tyler, P., and Cushway, D. (1992) "Stress, coping and mental well-being in hospital nurses", *Stress medicine, Vol 8*, pp. 91-98.

Tyler, P., and Cushway, D. (1995) "Stress in nurses: the effects of coping and social support", *Stress Medicine, Vol 11*, pp. 243-251.

Tyson, P.D., Pongruengphant, R., and Aggarwal, B. (2002) "Coping with organizational stress among hospital nurses in Southern Ontario", *International Journal of Nursing Studies, Vol 39* No 4, pp. 453-459.

Vahey, D.C., Aiken, L.H., Sloane, D.M., Clarke, S.P., and Vargas, D. (2004) "Nurse burnout and patient satisfaction" *Medical Care, Vol 42* No 2, pp. 57-66.

Van der Doef, M, and Maes, S. (1998) "The job demand-control(-support) model and physical health outcomes: A review of the strain and buffer hypotheses", *Psychology and Health, Vol 13* No 5, pp. 909-936.

Van der Doef, M., and Maes, S. (1999) "The Job Demand-Control (-Support) model and psychological well-being: A review of 20 years of empirical research", *Work and Stress, Vol 13* No 2, pp. 87-114.

Van Yperen, N.W., and Baving, H.H. (1999) "Burnout symptomen bij verpleegkundigen: de relatie met werklast, regelruimte en sociale steun", *Gedrag and Gezondheid, Vol 27* No 4, pp. 174-187.