Chapter 26. Work Stress and Burnout Among Nurses: Role of the Work Environment and Working Conditions

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Background

Stress has been categorized as an antecedent or stimulus, as a consequence or response, and as an interaction. It has been studied from many different frameworks (or perspectives?). For example, Selye[1] proposed a physiological assessment that supports considering the association between stress and illness. Conversely, Lazarus[2] (p. 19) advocated a psychological view in which stress is "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being."

Stress is not inherently deleterious, however. Each individual's cognitive appraisal, their perceptions and interpretations, gives meaning to events and determines whether events are viewed as threatening or positive.[2] Personality traits also influence the stress equation because what may be overtaxing to one person may be exhilarating to another.[3]

Nevertheless, stress has been regarded as an occupational hazard since the mid-1950s.[4] In fact, occupational stress has been cited as a significant health problem.[5–7] Work stress in nursing was first assessed in 1960 when Menzies[8] identified four sources of anxiety among nurses: patient care, decisionmaking, taking responsibility, and change. The nurse's role has long been regarded as stress-filled based upon the physical labor, human suffering, work hours, staffing, and interpersonal relationships that are central to the work nurses do. Since the mid-1980s, however, nurses' work stress may be escalating due to the increasing use of technology, continuing rises in health care costs,[9] and turbulence within the work environment.[10]

In 1974, Freudenberger[11] coined the term "burnout" to describe workers' reactions to the chronic stress common in occupations involving numerous direct interactions with people. Burnout is typically conceptualized as a syndrome characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment.[12] Work life, however, is not independent from family life; these domains may even be in conflict.[13, 14] Stress may result from the combined responsibilities of work, marriage, and children.[15–17] The effects of both work and nonwork stress among nurses have been studied infrequently.[18] And yet, nonwork stress may be particularly salient to nursing, a predominantly female profession. Women continue to juggle multiple roles, including those roles related to the home and family, for which the women may have sole or major responsibility.

Nevertheless, work stress and burnout remain significant concerns in nursing, affecting both individuals and organizations. For the individual nurse, regardless of whether stress is perceived positively or negatively, the neuroendocrine response yields physiologic reactions that may ultimately contribute to illness.[1] In the health care organization, work stress may contribute to absenteeism and turnover, both of which detract from the quality of care.[9] Hospitals in particular are facing a workforce crisis. The demand for acute care services is increasing concurrently with changing career expectations among potential health care workers and growing dissatisfaction among existing hospital staff.[19] By turning toxic work environments into healthy workplaces, researchers and nurse leaders believe that improvements can be realized in recruitment and

retention of nurses, job satisfaction for all health care staff, and patient outcomes—particularly those related patient safety.[20]

Research Evidence

Work stress continues to interest researchers, as illustrated by studies identified in this review that focused on occupations other than health care. For example, in a 3-year study of 14,337 middle-aged men, there was no strong evidence that job demands or job strain were predictors of coronary heart disease (CHD).[21] Findings did verify, however, that a supportive work environment helped reduce CHD. The importance of work support was corroborated in a study of 1,786 lower-ranking enlisted Army soldiers where support helped decrease psychological strain from job demands.[22] A study of 472 Air Force personnel illustrated high levels of work stress in 26 percent of the respondents, with 15 percent claiming work-related emotional distress and 8 percent noting work stress negatively affected their emotional health.[23] Finally, in a sample of 25,559 male and female German workers, the combined effects of exposure to work stress and downsizing contributed to more symptoms than either experience alone.[24]

Stress in the Health Care Professions

Numerous recent studies have explored work stress among health care personnel in many countries. Investigators have assessed work stress among medical technicians,[25] radiation therapists,[26] social workers,[27] occupational therapists,[28] physicians,[29–33] and collections of health care staff across disciplines.[34–38] Most of the studies focused on nurses, but the studies were not always clear regarding which types of nursing personnel participated. Registered nurses (RNs) were the dominant focus.[39–83] Other investigations considered licensed practical nurses (LPNs) and nursing aides;[84–86] licensed nurses (e.g., RNs and LPNs);[87–90] RNs, aides, and clerical staff;[91] and generic assessments of nursing staff.[92–104]

Only four of these investigations considered the effect of stress and burnout among nurses on patient outcomes.[40, 56, 90, 99] These studies examined burnout in relation to increased mortality, failure to rescue,[40, 56] and patient dissatisfaction.[90, 99] Similarly, in an investigation of the relationship between personal stress and clinical care, 225 physicians reported 76 incidents in which they believed patient care was adversely affected by their stress.[30]

Most of the investigations explored the effects of work stress and burnout on health care personnel in acute care settings. Staff working in long-term care (LTC)[102] and nursing homes[84, 85, 100] were the focus of four studies, however. Interestingly, two reports from nursing homes found that staff experienced more stress when caring for patients with dementia.[84, 100] In addition, possible differences among types of nursing personnel were illustrated in a study of rural nursing homes where aides reported more job strain than RNs.[100]

Findings are also emerging about differences in work stress based on shift length and generational cohort. Generational differences were explored in a single-site report of 413 RNs, in which baby boomers (43 percent) and Generation Xers (41 percent) had different perceptions of work stress.[78] The investigators expanded their work to four hospitals in the Midwest (N = 694 RNs).[77] Baby boomers comprised 53 percent of the sample; their scores for stress and strain variables were significantly worse than nurses in the older and younger cohorts. The baby boomers also had significantly less social support.

Shift length, 8-hour versus 12-hour, was explored in relation to both burnout[95] and role stress.[60] In a random sample of Michigan nurses, RNs working 12-hour shifts (n = 105) reported significantly higher levels of stress than RNs working 8-hour shifts (n = 99).[60] However, when differences in experience were controlled, stress was similar in both groups. Conversely, a study from Poland illustrated that nurses working 12-hour shifts (n = 96) compared unfavorably in several aspects to nurses working 8-hour shifts (n = 30).[95] Although the type of nursing personnel involved was unclear, the nurses on 12-hour shifts experienced significantly more chronic fatigue, cognitive anxiety, and emotional exhaustion.

Gender and Family Obligations

The complexity of work stress is further illustrated in two studies that considered gender effects. The prevalence of burnout was studied in a convenience sample of hospital-based neonatologists (n = 86) and office-based pediatricians (n = 97).[32] Although the prevalence of burnout was comparable between the specialty groups, burnout was found more frequently in female physicians (79 percent) than male physicians (62 percent). In a study of female physicians, 51 working full-time and 47 working reduced hours, burnout was not related to number of hours worked per se.[29] Rather, burnout was lower if female physicians worked the number of hours they preferred (r = -0.22, P = 0.03). These studies may have particular relevance for nursing because the profession is predominately female.

Findings from studies that explored family-work conflict in relation to stress, burnout, and well-being indicated the importance of considering both work and family spheres.[25, 29, 38, 44, 45, 86, 94] An investigation conducted using a diverse sample of 342 nonprofessional employees (17 percent worked in health care; 70 percent were women) found family-work conflict was a predictor of well-being.[86] A study of a diverse group of health care personnel compared 64 cases with 64 controls.[38] Although the subjects in the case group were more likely to experience more objective stressful situations in and out of work, for both the case group and the control group, both work and nonwork stress contributed to anxiety and depressive disorders.

Work interfering with family had a direct relationship with work exhaustion in a 4-year study of medical technologists, 80 percent of whom were female.[25] Family interfering with work, however, was not studied. A study of 101 female nurses found that work interfered with family more than family interfered with work.[94] The investigators noted, however, that most of the nurses, who were in their mid-40s, were between the demands of child care and elder care. This finding is consistent with findings from a study of 170 Australian nurses: the principal determinant of stress was workload; nurses were unlikely to bring personal stress to work.[45] Conversely, there was no difference between female physicians working full-time or reduced hours in regard to work interfering with family or family interfering with work.[29] In addition, a study of family-work conflict identified personality as an important factor in whether individuals perceive situations as stressful.[44]

Personal Characteristics and Work Relationships

Personality was explored as an important variable in the burnout/work stress equation in a number of investigations.[26, 37, 41, 49, 50, 81, 82, 92] Together, these studies support findings that perceptions of job stress and burnout are not just a product of work conditions because not all

workers, exposed to the same conditions, develop burnout or perceive stress. However, the specific features of personality that affect the perception of stress or burnout remain unclear.

Neuroticism has been associated with exhaustion.[41, 92] External locus of control has demonstrated a positive relationship with burnout[92] and stress.[26] Findings are mixed for hardiness.[37, 50, 81] Evaluations of anxiety reflect a link with stress and burnout.[49, 82] Anxiety is viewed as having two components—state anxiety, the temporary component which manifests when an individual perceives threatening demands or dangers, and trait anxiety, the more stable component which may be regarded as a personality characteristic.[105] In a study of intensive care unit nurses, the investigators concluded that individuals high on state-anxiety were not only at risk for burnout, but also for making medical errors.[82] In another study, higher trait-anxiety predicted psychological distress.[49] In addition, relationships with other staff—coworkers, physicians, head nurses, other departments—were also predictors of psychological distress.

Investigators have also examined the association between interpersonal relationships and burnout and stress. The exact linkages are not yet understood. Problematic relationships among team members were shown to increase burnout.[93] Verbal abuse from physicians was noted to be stressful for staff nurses.[71] In a study of 260 RNs, conflict with physicians was found to be more psychologically damaging than conflict within the nursing profession.[59] However, a study exploring verbal abuse among 213 nursing personnel (95 percent RNs) found the most frequent source of abuse was other nurses (27 percent).[88] Families were the second most frequent source of abuse (25 percent), while physicians ranked third (22 percent).

Management Styles

Relationships between staff nurses and nurse managers are particularly important when examining stress and burnout.[49, 53, 65, 70, 89] Numeric ratings from a survey of 1,780 RNs indicated that supervisor support and quality of supervision were lowest for nurse managers.[53] Handwritten comments from 509 (28.6 percent) of the RNs clarified these ratings by noting the following problems: (a) inadequate unit leadership and the frequent turnover of nurse mangers, (b) insufficient physical presence of the supervisor on the unit, (c) failure to address problems—too much sweeping them aside or not even being aware they exist, and (d) modest awareness of numerous staffing issues.

These ideas were corroborated in a study of 537 RNs from Canada.[65] Using structural equation modeling, the investigators substantiated the importance of manager behavior on employee experiences. Similarly, in a qualitative study of 50 nurses conducted in England, managers were identified as a direct cause of stress.[89] Finally, responses from 611 RNs on 50 inpatient nursing units in four southeastern U.S. hospitals showed that group cohesion was higher and job stress lower when nurse managers used a more participative management style.[70]

In addition to illustrating a likely connection between nurse managers and staff nurse stressors, these studies also reflected the demanding role of today's nurse managers who are often responsible for multiple patient care areas. However, only two studies were identified between 1995 and 2005 in which burnout was assessed in nurse managers and nurse administrators. One study was conducted in the United States[69] and the other study in Canada.[66] Investigators for the Canadian study examined burnout in a random sample of nurses in first-line (n = 202) and middle-management (n = 84) positions.[66] Nurses in both groups reported high levels of emotional exhaustion and average job satisfaction. In the U.S. study, the investigators explored burnout among nurses (N = 78) from rural and urban hospitals in a southeastern State

who held positions in middle-management and higher.[69] Almost half the respondents (49%) reported high levels of emotional exhaustion.

Lessening Stress

Various studies were designed to evaluate ways to mitigate stress. Studies of social support and empowerment dominated these investigations. Although social support is a multifaceted construct, definitions and types of support were not typically found in these more recent investigations. However, the importance of coworker support was verified in one study.[39] In another study, a general construct labeled "organizational support" exhibited the expected negative relationship with work exhaustion.[25] Similarly, social support from supervisors or colleagues demonstrated a negative association with work stress.[31, 72, 96] Stated differently, based on another study, as nurses felt more stress, they relied more on social support.[87] A cluster analysis demonstrated that high social support was found only in the cluster with low burnout and low stress.[59] No buffering effects were discerned in the studies, but there was a direct and beneficial effect of social support on workers' psychological well-being and organizational productivity.[36] Although these findings do not clarify the mechanism for social support, they do indicate that coworkers and supervisors at all levels would be wise to consider the importance of reciprocal interpersonal exchanges that enhance security, mutual respect, and positive feelings.

All but two studies[80, 96] of nurses and workplace empowerment were conducted by teams involving Laschinger.[57, 62, 64–68] Work empowerment showed a strong, negative association with job tension and a strong positive relationship with perceived work effectiveness.[62, 65] Similarly, in other reports, structural empowerment in the workplace (e.g., opportunity, information, support, resources, power) contributed to improved psychological empowerment (e.g., meaning, confidence, autonomy, impact).[64, 67, 68] Psychological empowerment, in turn, had a strong positive effect on job satisfaction and a strong negative influence on job strain. Likewise, as perceptions of empowerment increased, staff nurses reported less emotional exhaustion and depersonalization along with a greater sense of personal accomplishment—the three components of burnout.[57] Empowerment was negatively associated with work stressors in another study as well.[96]

Because empowerment is often viewed as a characteristic of how work environments are structured, it has strong implications for nurse managers' behaviors. However, one study revealed an interpretive side to empowerment that derives from nurses' perceptions of their personal effectiveness and success.[80] Additionally, there is beginning evidence that nurse managers experience empowerment in a way that mirrors staff nurse experiences. That is, nurse manager perceptions of structural empowerment influenced their sense of psychological empowerment, which, in turn, affected the extent to which they experienced burnout.[66]

Evidence-Based Practice Implications

Based on current empirical evidence on stress and burnout in nursing, there is difficulty in making recommendations regarding how to enhance patient safety. Although findings consistently indicated that nurse burnout was negatively related to job satisfaction, only two studies explored the relationship between nurse burnout and patient satisfaction.[90, 99]

Additionally, findings are inconsistent for two studies that examined the relationship between nurse burnout, 30-day mortality, and failure to rescue for surgical patients.[40, 56] Data for one of

these studies were collected from nurses and patients throughout Pennsylvania.[40] Data for the other study were collected from nurses and patients at a single site.[56] Some of the differences can be accounted for by numerous methodological variations between the two studies. Other differences might be attributed to the strong collective bargaining unit at the single-site study that had negotiated staffing based on nurse-patient ratios that were adjusted for patient acuity.[56] Moreover, fewer nurses from the single-site study reported being either dissatisfied or very dissatisfied with their jobs, compared with the Pennsylvania study (8 percent versus 25 percent, respectively).

Practice implications are also unclear regarding the effects of work stress on nursing staff. The lack of clarity derives, in part, from the complexities of the work stress concept. In one study, for example, nurses were grouped into one of four clusters based on their level of stress, affective and physical symptoms, burnout, and unit social support.[59] In another, the nurse ratings of job strain placed them in four groups ranging from high to low strain.[68] This heterogeneity suggests that many dynamics are operational in relation to stress and burnout. The effects of shift length on stress is one of the dynamics that is not yet understood.[60, 95] Likewise, evidence about how verbal abuse[88] and generational differences[77] operate in the stress equation is just beginning to emerge. The role of personality, family-work conflict, and other features of stress require further study.

Evidence is accruing about the utility of empowerment and social support in mitigating stress. Some caution is warranted in regard to empowerment, however, because the work of one investigator dominates the field.[57, 62, 64–68] Findings related to social support indicated that interpersonal exchanges with coworkers and supervisors may enhance security, mutual respect, and positive feelings—which helped to reduce stress.[31, 39, 72, 96] Overall, however, the assessments of social support were often founded on weak conceptualization and relied upon psychometrically weak instruments to measure the concept. Moreover, the analytical models did not always consider the direct, indirect, and interactive effects of social support.

Although the evidence is sparse, the studies have practice implications for nurse managers. First, managerial behaviors were linked to stress and burnout. Managerial support[38] and participative management[70] helped to reduce stress. Similarly, burnout and work stress were reduced when administrators created work environments that provided staff with access to opportunity, information, resources, and support—the features of empowerment.[64, 65] Second, and studied even more infrequently, nurses in supervisory positions may encounter stress[69] and burnout[66] themselves. There is no existing evidence, however, that empirically illustrates how managerial stress affects staff stress or the manager's ability to behave in a way that reduces staff stress. Given the current emphasis on improving the work environment, there is an imperative to carefully investigate both aspects of the nurse administrator in relation to stress and burnout.

Despite lacking absolute clarity, there is a body of research addressing work stress that spans more than 50 years in the nursing profession. Stress is pervasive in nursing and health care. Moreover, working conditions seem to be deteriorating at the same time that a severe and protracted nursing shortage is occurring. Leaders of health care organizations can no longer ignore these findings. Just as institutional leaders need to understand their financial standing, they also need to assess how environmental stress is affecting patients and staff and take action to alter unhealthy situations.

Research Implications

To derive a better understanding of stress and burnout in the workplace, solid conceptualizations are needed that bring together the various pieces of the stress puzzle. At present, research is often conducted absent a solid theoretical and conceptual base. A more comprehensive blueprint of nurse stress and burnout in the work place needs to be developed. Empirical studies could then be conducted to investigate these very complex relationships, prospectively, over time. Once work stress is examined from a more solid theoretical and conceptual basis, then intervention studies can be initiated to assess the most useful ways to mitigate work stress.

Studies need to move beyond the tendency to use descriptive designs. There is sufficient evidence to believe that work stress is a factor among health care personnel. What is less well understood is the effect of stress on patient outcomes. Studies are needed to enhance the understanding of stress and burnout on patient safety. Studies are also needed to better understand stress beyond the acute care setting.

In addition, because nurse administrators are responsible for creating the environment in which nursing is practiced and patient care is given,[106] it is important to explore interventions that will reduce the stress and burnout experienced by nurse administrators. Findings from studies of this nature could have a threefold effect. By reducing the stressful nature of the nurse administrator's work, nurse administrators could be more satisfied in their positions. This role satisfaction, in turn, could lead to enhancing those managerial behaviors that improve the work environment for staff nurses. Finally, improved working conditions for nurse administrators might make the role more appealing and help correct the serious dearth of individuals interested in pursuing administrative positions.[107]

Conclusion

Stress and burnout are concepts that have sustained the interest of nurses and researchers for several decades. These concepts are highly relevant to the workforce in general and nursing in particular. Despite this interest and relevance, the effects of stress and burnout on patient outcomes, patient safety, and quality care are not well defined by evidence. In fact, the link between stress and burnout to patient outcomes has been explored in only four investigations. There is a great need for comprehensive studies that will examine these dynamics in a way that will yield more solid evidence on which to base practice.

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Search Strategy

Both MEDLINE® and CINAHL® databases were searched to locate literature for this review. A reference librarian conducted the searches after working with the author to specify search terms. The search terms for MEDLINE® were psychological stress, professional burnout, work stress, and occupational health. The search terms for CINAHL® were occupational stress, professional burnout, and nursing units. For both databases, the searches were limited to research articles published in the English language between 1995 and 2005.

There were 1,145 articles identified in the CINAHL® search and 392 identified by the MEDLINE® search, with some duplication in the citations identified by the two databases. All 1,537 abstracts were reviewed. Numerous abstracts were eliminated from further consideration. For example, articles about instrument development, stress in specific populations (e.g., children, adolescents, pregnant women, parents, caregivers) and occupations other than health care (e.g., the police force, fishermen, flight crews, farm workers) were omitted from this review. Likewise, dissertations, literature reviews, concept analyses, and physiologic and immunologic studies of stress in general were not included.

Once the unrelated articles were eliminated, 138 articles remained as candidates for this review. A complete copy of each of these papers was acquired and read, following which an additional 53 articles were removed from further consideration. Dominant among the reasons for excluding these papers were that they were not research based or they were short reports that were lacking essential details.

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Evidence Table

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Aiken 2002[40]	Burnout	Cross-sectional (4)	Design: Level 4 Patient outcomes: 30-day mortality, failure to rescue (Level 1) Nurse outcomes: burnout	Pennsylvania; 10,134 RNs (survey data) linked with discharge data for 232,342 surgical patients from 168 hospitals. Nurses: 94% female; 40% BSN or higher; average of 14 years working as a nurse. Patients: 44% male, average age 59, general surgery (44%), orthopedic surgery (51%), vascular surgery (5%).	Staffing	After adjusting for patient and hospital characteristics: Nurse staffing effects on 30-day mortality (odds ratio [OR] = 1.07, 95% confidence interval [CI] = 1.13–1.34, *P* < 0.001) and failure to rescue (OR = 1.07, 95% CI = 1.02–1.11, *P* < 0.001) imply that decreases in mortality rates and failure to rescue could be realized by increasing RN staffing. After adjusting for nurse and hospital characteristics: Nurses who cared for more patients exhibited high emotional exhaustion (OR = 1.23, 95% CI = 1.13–1.34, *P* < 0.001).
Halm 2005[56]	Burnout	Cross-sectional (4)	Design: Level 5 Patient outcomes: mortality and failure to rescue (Level 1) Nurse outcomes: emotional exhaustion	Large Midwestern hospital; 140 RNs (survey data), discharge data for 2,709 surgical patients. Nurses: 96% female; 43% BSN or higher; average 17 years working as a nurse. Patients: 37% male, average age 56, general surgery (50%), orthopedic surgery (46%), and vascular surgery (4%).	Staffing	Absent risk adjustment and with a strong collective bargaining unit that negotiated staffing plans: No statistically significant relationships were found for nurse staffing on 30-day mortality or failure to rescue. Variables significantly related to mortality were age, circulatory diagnoses, admission through the emergency department, and more comorbidities. 25% of the nurse sample had high scores on emotional exhaustion.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Hillhouse 1997[59]	Affective and physical symptoms	Cross-sectional (4)	Design: Level 5 Nurse outcomes: affective symptoms, physical symptoms	A large university hospital; 260 nurses: 97% female, average age 34, all college educated, in current positions an average of 5 years with an average of 11 years experience as a nurse.	Data related to stress, burnout, physical and emotional symptoms were grouped using statistical techniques.	Based on cluster analysis, hospital nurses are a heterogeneous population regarding the effects of stress. Cluster 1 (low stressor/low symptom): low affective and physical symptoms, low burnout and perceived stressors, high unit social support (32%). Cluster 2 (high stressor & burnout/moderate symptom): moderate physical and affective symptoms, high burnout and stressors, low unit social support (43%). Cluster 3 (high stressor/ high symptom): high affective and physical symptoms, high burnout and perceived stressors, low unit social support (26%).
Hoffman 2003[60]	Stress	Cross-sectional (4)	Design: Level 4 Nurse outcomes: role stress	Michigan; 208 RNs randomly selected from the Michigan Nurses Association. Nurses: 92% female, average age 43, 95 (46%) had diplomas or associate degrees, 88 (42%) had a BSN, average experience on their units = 9 years. 99 worked mostly 8-hour shifts (48%), 105 (51%) worked a combination of 8-, 10-, and 12-hour shifts	Length of work shift	RNs working 12-hour shifts experienced significantly higher stress than nurses working 8-hour shifts (P = 0.04). When experience was controlled, stress was similar between the two groups.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Laschinger 2001[63]	Burnout	Cross-sectional (4)	Design: Level 5 Staff outcomes: burnout, nurse perception of care quality	Ontario, Canada; 3,016 medical surgical nurses from 135 hospitals. Nurses: average age of 44 years, average experience in nursing 19 years, 84% were diploma prepared, 69% were from small hospitals, 18% were from teaching hospitals, 13% were from community hospitals.	Magnet Hospital characteristics	Standardized path coefficients from a Structural Equation Model indicated that positive work environments were associated with lower burnout (-0.62), which were then associated with higher perceived quality (-0.42). Higher levels of autonomy, control, and collaboration were associated with higher levels of trust in management (0.56), which was associated with higher perceptions of care quality (0.34).
Laschinger, 2001[64]	Job strain	Cross-sectional (4)	Design: Level 3 Nurse outcomes: job strain	Urban tertiary care hospitals in Ontario, Canada; 404 randomly selected staff nurses: 52% female; all worked in large urban teaching hospitals; on average, 40 years old (standard deviation [SD] = 8.07), 16 years nursing experience (SD = 8.5), 8 years experience in current workplace (SD = 5.8); 58% worked full time; 15% had baccalaureate degrees, 85% were diploma graduates.	Empowerment—both structural and psychological	A proposed model was tested using structural equation modeling. Structural empowerment had a direct, positive effect on psychological empowerment (beta = 0.85); psychological empowerment had a direct negative effect on job strain (beta = -0.57).

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Laschinger 1999[65]	Empowerment, job stress	Cross-sectional (4)	Design: Level 3 Nurse outcomes: empowerment, job tension, work effectiveness	Two sites of a large, merged urban teaching hospital in Canada. Nurses: 537 staff nurses; 95% female; 84% diploma educated; 69% worked full time; on average 40 years old (SD = 6.5), 17 years nursing experience (SD = 6.9), 10 years experience in current specialty (SD = 5.5).	Leader behavior	A proposed model was tested using structural equation modeling. Path coefficients from the final model indicated that leader-empowering behaviors directly affected power and work empowerment as well as indirectly affecting work empowerment through power. Higher perceived access to empowerment was associated with lower job tension (-0.39) and increased work effectiveness (0.26) (direct effects). Perceived empowerment also indirectly influenced work effectiveness through job tension (-0.29).
Laschinger 2001[67]	Job strain	Cross-sectional (4)	Design: Level 3 Nurse outcomes: job strain, quality of work life	Urban tertiary care hospitals in Ontario, Canada; 404 randomly selected staff nurses: 52% female; on average, 40 years old (SD = 8.07), 16 years nursing experience (SD = 8.5), 8 years experience in current workplace (SD = 5.8); 58% worked full time; 15% had baccalaureate degrees, 85% were diploma graduates.	Quality of work life	Nurse ratings of job strain fell into Karasek's four job categories: high strain (37%), active (33%), passive (21%), and low strain (10%). When categories were collapsed into high strain/low strain groups, 63% of the sample fell into the low strain group. Comparisons of the high strain and low strain groups revealed significant (P = 0.0001) differences for both structural and psychological empowerment as well as organizational commitment.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Lee 1996[69]	Burnout	Cross-sectional (4)	Design: Level 3 Nurse outcomes: stress, commitment, social support	Members of a State organization of nurse executives working at 134 rural and urban hospitals in the southeastern U.S. 78 nurse administrators: female (93%); ages 31–40 (35%); positions—chief nurse officers (CNOs) (45%), assistant CNOs (19%), division or department heads (30%), nurses with executive-level roles (6%); education—doctorate (3%), master's (42%), baccalaureate (29%), associate degree (3%), diploma (26%); average administrative experience, 13 years (range 2–32), CNO tenure in current positions 2 years or less (51%).	Commitment	No significant differences were found for burnout or commitment among the four groups of nurse administrators. Phases of burnout were determined with most nurse administrators in the lowest level (37%); 13% were at the highest level. All burnout scale scores and the organization commitment score were related inversely (r = 0.472 – 0.515) and significantly (P ≤0.001). Emotional exhaustion and burnout phase decreased as the coworker trust and support increased, although 49% of respondents reported high levels of emotional exhaustion.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Leiter 1998[99]	Burnout	Cross-sectional (4)	Design: Level 3 Patient outcomes: satisfaction (Level 3)	16 inpatient units from 2 settings at an 800-bed tertiary care hospital in central Canada. Nurses: 711 with an average of 34 respondents from each inpatient unit (range 22–63), 97% female, 18% had worked for the hospital for > 20 years (2% for < 1 year); 83% RNs, 14% registered practical nurses. Patients: 605 with an average of 36 respondents from each inpatient unit (range 3–104); 55% female, most were between 66 and 75 years old (22%); length of stay was most often up to 3 days (35%).	Patient satisfaction	Patient perceptions of overall quality corresponded to nurses' relationships with their work. Patients on units where nursing staff felt more exhausted were less satisfied with their care.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Leveck 1996[70]	Stress	Cross-sectional (4)	Design: Level 3 Nurse outcomes: perceived quality of care, management style, group cohesion	50 inpatient units from 4 acute care hospitals in the southeastern U.S. Nurses: 358 RNs. Patients: retrospective audits of 525 randomly selected charts.	Management style, group cohesion	Although the average job stress score was moderately low, it was a predictor of quality care in a theoretical model tested using structural equation modeling. Units where nurses perceived participative management also perceived higher levels of group cohesion and lower levels of job stress. Lower job stress was associated with increased quality of nursing care. Indirect effects of variables on quality care, including management style, occurred through job stress. Medical-surgical nurses perceived higher job stress than nurses on other units such as intensive care.
Rowe 2005[88]	Stress and verbal abuse nurse-to-nurse	Cross-sectional (4)	Design: Level 5	500-bed teaching hospital in Philadelphia. Nurses: 213 RNs and LPNs (69% response rate, 5% were LPNs); 96% female, most were diploma graduates (33%); 53% worked full time, 85% had > 5 years experience, 88% were staff nurses.	None—descriptive	96% of the participating nurses reported they had been spoken to in a verbally aggressive manner—79% indicated verbal abuse by patients, 75% by other nurses, 74% by attending physicians, 68% by patients' families. The most frequent sources of verbal abuse were other nurses (27%), patients' families (25%), physicians (22%), and patients (17%). A few of the verbally abusive experiences (13%) were related to errors in patient care.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Santos 2003[77]	Stress, strain, coping	Cross-sectional (4)	Design: Level 5	Four Midwestern hospitals. Nurses: 694 RNs representing 3 age cohorts—1909–1945, matures (8%); 1946–1964, baby boomers (53%); 1965–1979, Generation Xers (35%).	None—descriptive	The four major problem areas within each of the three study variables—stress, strain, coping—were identified. *Stress*: physical environment, responsibility, role overload, role boundary; *Strain*: physical, psychological, vocational, interpersonal; *Coping*: self-care, recreation, rational/cognitive, social support. Significant differences were evident among the generations with baby boomers reporting more stress and worse coping than the other 2 cohorts as well as significantly more interpersonal strain.
Simoni 2004[80]	Stress	Cross-sectional (4)	Design: Level 3 Nurse outcomes: empowerment	Two hospitals in a mid-Atlantic State. Nurses (randomly selected, n = 142) RNs with an average age of 35 years (SD = 10.1), 48% had baccalaureate degrees, most had been working <5 years since becoming RNs (42%).	Empowerment	Two of the three individual styles of stress appraisal were significantly correlated with psychological empowerment: skill recognition (r = 0.52, P < 0.001), and deficiency focusing (r = -0.24, P < 0.01). Together, these two interpretive styles explained 24% of the variance in empowerment.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Vahey 2004[90]	Burnout	Cross-sectional (4)	Design: Level 3 Patient outcomes: satisfaction (Level 3)	2 units each in 20 urban hospitals across the U.S. using 1991 data. Nurses (n = 820—both RNs and LPNs): 93% male; on average, 35 years old (SD = 10), 10 years in nursing (SD = 9), 4 years on present unit (SD = 4). Patients (with AIDS) (n = 621): 88% male, average age 37 years (SD = 8).	Patient satisfaction	After adjusting for patient characteristics (age, gender, race, risk factors, and illness severity), patients on units where nurses reported higher-than-average levels of emotional exhaustion were only half as likely to be satisfied with nursing care as compared to units where nurses reported lower-than-average emotional exhaustion (OR =0.51, 95% CI = 0.30–0.87, *P* < 0.05). Patients on units where nurses reported higher-than-average personal accomplishment were twice as likely to be satisfied with their nursing care compared to units where nurses reported lower-than-average personal accomplishment (OR = 2.37, 95% CI = 1.37–4.12, *P* < 0.01). The nurses' work environment exerted both direct and indirect effects on patients through its effect on nurse burnout.

Source	Safety Issue Related to Clinical Practice	Design Type	Study Design, Study Outcome Measure(s)	Study Setting & Study Population	Study Intervention	Key Finding(s)
Weinberg 2000[38]	Stress	Cross-sectional (4)	Design: Level 3 Staff outcomes: psychiatric disorders	City-based hospital. Four groups of staff members (randomly selected): nurses, physicians, administrative, ancillary. Based on scores from survey responses, participants were identified who had minor psychiatric disorders (e.g., definite depressive or anxiety disorders). These 69 cases were matched to controls by occupational group, gender, and age (within 5 years). Each group had 23 nurses, 8 physicians, 23 administrative staff, and 10 ancillary staff. 52 of the 69 individuals in each group were females (75%). Mean age for cases and controls was 39 years (SD = 10).	Psychiatric disorders (especially depression or anxiety)	Cases were less likely to have a confidant and more likely to have a family or past history of psychiatric disorder as well as a severe event and severe chronic difficulty over the previous 12 months. Most chronic difficulties were outside work. There were no significant differences between cases and controls in regard to management responsibilities at work or the proportion who worked shifts. Cases had significantly more objective work problems than controls. Of 20 work problems, 6 were experienced significantly more often by cases—work role conflict, lack of manager support, physical environment problems, poor promotion prospects, job not secure, skills under used (OR = 2.19 – 3.44; p= 0.006-0.10). The greatest difference between cases and controls was lack of managerial support (*P* = 0.006). Work problems (OR = 1.4, *P* = 0.0003) and difficulties outside work (OR = 8.77, *P* = 0.0001) were contributors to stress.