FEATURE ARTICLE
Research

Nurses' Perception of Their Work Environment, Health, and Well-Being

A Qualitative Perspective

by Jeanne Geiger-Brown, PhD, RN, Alison M. Trinkoff, ScD, RN, FAAN, Karen Nielsen, MSN, RN, Sumalee Lirtmunlikaporn, MSN, RN, Barbara Brady, MS, RN, and Elias I. Vasquez, PhD, RN, NP, FAAN

ABSTRACT

The purpose of this analysis was to identify themes nurses expressed in open-ended comments at the end of a working conditions survey related to their work environment, health, and well-being. The nursing shortage, downsizing, and long working hours create challenges for nurses trying to deliver quality client care. In addition, nurses are experiencing high levels of physical injury in their work environments. Injuries on the job have led nurses to leave the workplace. Free form comments offered at the completion of a mailed survey of RNs were analyzed for content. Randomly selected nurses from two U.S. states were surveyed in 1999 and 2000 about their jobs with special reference to neck, shoulder, and back pain and disorders. Of the 1,428 respondents, 309 produced usable comments for this content analysis. Constant comparative analysis was used to identify themes present in these comments. The themes addressed in the nurses' comments included excessive work demands, injustice or unfairness, and nurses' personal solutions to their work environments. Based on the issues raised in the themes, recommendations are provided for improving retention while promoting nurses' health and well-being.

ABOUT THE AUTHORS

Dr. Geiger-Brown is Assistant Professor, Ms. Trinkoff is Professor, Ms. Lirtmunlikaporn is a doctoral candidate, Ms. Brady is Project Manager and a doctoral student, Dr. Vasquez is Assistant Professor, Department of Family and Community Health, University of Maryland, School of Nursing, Baltimore, MD. Ms. Nielsen is Application Specialist, Computer Sciences Corporation, Bethesda, MD.

The nursing shortage, downsizing, and long working hours create challenges for nurses trying to deliver quality care while fatigued, stressed, and carrying excessive patient loads (Letvak, 2001). In addition, nurses are experiencing high levels of physical injury in their work environments which can limit their productivity. Nurses have higher rates of musculoskeletal disorders (MSDs) than construction laborers, such as concrete block and brick layers (7.8 compared to 5.0 nonfatal occupational injuries with lost work time per 100 full time equivalent) (Bureau of Labor Statistics, 2001a). In 1999, registered nurses (RNs) in the United States suffered from more than 13,000 neck, shoulder, and back injuries requiring days away from work—82% of these were back cases (Bureau of Labor Statistics, 2001b).

Unfortunately, injuries on the job have led nurses to leave the workplace, a critical issue given the current

nursing shortage. Owen (2000) found that 20% of nurses changed jobs, 12% had an employment transfer, and 12% left nursing after injuring themselves at work. Aiken (2001) found that 23% of U.S. hospital nurses planned to leave their current jobs, citing dissatisfactions such as staffing inadequacy and increased patient load—factors which often contribute to MSDs (Wunderlich, 1996). In another study, nurses were very concerned about unsafe working conditions and the possibility of sustaining a back injury while performing patient care (New York State Nurses Association, 2001).

Nurses' Worklife and Health Study

The Nurses' Worklife and Health Study is a cross sectional survey of RNs (N = 1,428) from two U.S. states conducted in 1999 to 2000. In this study, nurses were asked to report the presence and severity of MSD symptoms of the neck, shoulder, and back and related consequences. They were also asked about physical demands of nursing work, how their work was organized, changes in their work from reengineering or downsizing, and preventive measures in place to reduce the risk of injury.

At the end of the eight page survey instrument, nurses were asked to record any thoughts or comments they might have about the topics addressed in the survey. This was done to gain a fuller understanding of nurses' responses to the quantitative items in the survey, and to allow for responses to areas that had not been included in the quantitative items (Morse, 1995). The purpose of this analysis was to identify themes that nurses expressed in these open-ended comments related to their work environments, health, and well-being. To frame the open-ended comments nurses offered, it is helpful to have some background about the quantitative portion of the study. Thus, some of the most salient findings are offered in this section.

A high prevalence of reported musculoskeletal disorders was found among nurses, with 24%, 22%, and 32% having neck, shoulder, and back MSDs, respectively, meeting the criteria for a neck, shoulder, or back MSD case (Trinkoff, 2002; 2003a). Both moderate and high physical demands on the job were associated with MSDs, when compared to low demands. This relationship held up after adjustment for demographic and lifestyle covariates (Trinkoff, 2003a). Nurses reported working long hours. A third were working more than 40 hours per week consistently, and two thirds were working without taking breaks (Lipscomb, 2002). Two thirds said that patient acuity had increased in the past year. Half indicated full-time RNs had been replaced by part-time RNs in the past year, and unfilled RN positions had increased. Even when controlling for physical and psychological demands, nurses with a high number of adverse workplace changes (e.g., increased patient acuity, unfilled positions, use of unlicensed personnel) had an increased odds of reported MSD when compared with nurses employed in workplaces without these changes (Lipscomb, in press). Having a MSD resulted in substantial functional consequences, with 10% of nurses reporting changing jobs because of a MSD case (Trinkoff, 2002). It is within the context of these injuries and stressors that nurses offered comments at the completion of the quantitative portion of the survey.

What Does This Mean for Workplace Application?

Occupational health nurses are in a prime position to provide input to management about the longer term implications of workplace policies such as inadequate staffing, mandatory overtime, and excessive lifting. They can point out the need for system level changes rather than adding individual level interventions such as additional individual training to reduce the rate of injury.

METHODS

Sample and Data Collection

Registered nurses licensed in New York and Illinois received an introductory letter and a mailed survey (previously described) between October 1999 and February 2000. These states were chosen to include locales with both high and low managed care market penetration. Of the 2,000 nurses randomly sampled from state licensure lists, 74% responded (n = 1,428). The anonymous returned survey indicated consent to participate, as approved by the University of Maryland Institutional Review Board (IRB). Of the 1,428 respondents, 394 (28%) wrote open-ended comments. Of those, 309 were usable for this analysis, because the comments addressed experiences as a nurse (i.e., as opposed to comments about the survey itself). Respondents providing comments were similar to the entire sample except for ethnic composition—more nurses providing comments were White than for the entire sample (see Table).

Data Analysis

All written comments were transcribed verbatim using Microsoft Word (Redmond, WA) software. Two of the researchers verified the written comments for accuracy. Each individual comment was coded for descriptive phrases and assigned a code as an identifier in the analysis. Constant comparative analysis using Leininger's (1991a) analysis model was conducted, beginning with the first comment. Leininger's model lists the activities for each phase of analysis, from raw data review and identification of descriptors (i.e., emic and etic codes assigned to written comments), to selection of patterns or categories, and finally to conceptualization of themes derived from data synthesis and inductive reasoning (Leininger, 1991b).

As the raw data were reviewed, the two researchers performed initial coding. After all written data were reviewed and coded, data were analyzed for patterns and meaning in context (i.e., data were scrutinized to

Table

Selected Characteristics of Total Sample and Commenters, Nurse's Worklife and Health Study, 1999 to 2000

Characteristic	Total Sample (N = 1,428)		Commenters (N = 309)	
	n (%)	Mean (SD)	n (%)	Mean (SD)
Age		46.5 (11.1)		47.9 (10.8)
Women	1,336 (93.6)		297 (96.1)	
Married	930 (65.1)		209 (67.6)	
Ethnicity: White	1,173 (82.1)		283 (91.6)	
Retired	117 (8.2)		32 (10.4)	
Disabled	24 (1.7)		17 (5.5)	
Current Position				
Staff nurse and private duty	897 (62.9)		199 (64.4)	
Nurse administrator and nurse manager	280 (19.6)		53 (17.2)	
Clinical nurse specialist, nurse practitioner, educator, and researcher	150 (10.6)		36 (11.6)	
Work in hospital	758 (53.1)		146 (47.2)	
Education				
Diploma	292 (20.4)		60 (19.4)	
Associate degree	411 (28.8)		95 (30.7)	
Bachelor's degree	501 (35.1)		107 (34.6)	
Master's degree	192 (13.4)		42 (13.6)	
Doctoral degree	11 (.8)		4 (1.3)	

discover saturation of ideas and recurrent patterns of similar and different meanings, expressions, and practices). Major themes, research findings, and recommendations were abstracted from the data. At all times, findings were traced back to raw data to ensure credibility, recurrent patterning, and confirmability of data and analysis.

FINDINGS

After completing the content analysis, the researchers found the major themes emerging from the data were:

- Excessive demands.
- Injustice and unfairness.
- Nurses' personal solutions to their working environment.

Excessive Demands

The most prevalent theme from the comments was high demands of nursing work, especially in hospitals. Demanding working conditions included long hours, heavy lifting, low staffing, and a lack of support from coworkers and management. These demands exacted a personal toll, including reducing quality of life during off work hours. The nurses frequently attributed the injuries they sustained to their work demands.

Many of the nurses stated that the financial "bottom line" was driving decisions about staffing and patient care in their settings. In addition to long workdays, some reported having long stretches of workdays without a day off. This prevented some nurses from addressing their own health needs, particularly the need for rest, exercise, and other stress reduction and preventive activities. Some questioned their long term ability to survive in their current job. Nurses made the following comments:

> I have recently started working 12 hour days... I have come home with literally every bone in my body aching. My time off my feet usually consists of half an hour in 12 hrs (lunch break) and my legs and feet feel raw. I am not overweight and have always been athletic—if this job is this hard on me, I hate to imagine how others feel.

> My main concern or dislike in my job is the amount of mandatory overtime to cover weekend care of patients in the home. I work 1 weekend each month along with a 5 day work week. This means a 12 day nonstop stretch. The weekend coverage usually is 9 to 10 hours on Saturday and 4 to 8 hours on Sunday.

> Over the past 2 weeks in my position...I worked nearly 20 hours overtime.

> I am unable to coordinate three multidisciplinary clinics in less than 60 hrs per week.... We are told we are five nurses over budget.... We are strongly urged to bring in more patients but the staffing stays the same. I care for 2½ times the volume of patients I was hired for.... I'm really exhausted....I would love to be able to exercise 30 minutes a day, or maybe just 3 days a week... I wish I had a better quality of work life.

Because the quantitative portion of the survey asked about physical demands of the job, nurses also offered comments about these demands. They reported having to lift heavy patients, often using awkward positions, and without the benefit of mechanical lifting devices or lifting teams. In addition, the work environment was not functionally adapted for routine tasks that nurses performed. Nurses made the following comments:

> We don't have a mechanical lifting device. We have a stretcher or neurochair that we can slide patients onto then sit them up into a sitting position... I have hurt my back twice in the last few years at my current job. Once, I was hospitalized for a week. The second time I had to go through physical and occupational therapy.

> As far as neck and back pain go—work 12 hr shifts that last 12½ to 13 hr post report... In that time period I am lifting 5 to 15 pts [patients] per day...This causes pain increasing with work days in both back and neck.

> Increased nurse patient ratio and it is only getting worse...Not enough time to even get tasks done. The nurses who work on any units don't have help to do the lifting, pulling etc.—they often do it alone—that's why I am having so many get injured on the job (back, shoulder, and knee).

Nurses report poor staffing ratios compromise the quality of care they are able to deliver. It is noteworthy that when nurses discussed staffing issues compromising patient care, they nearly always indicated they had left a job, were planning to leave a job, or were thinking about other options. This is in contrast to other areas of excessive demands, such as long hours and stressful working conditions, which did not prompt as many comments about leaving. To compensate for the loss of RNs, some facilities employ ancillary or unlicensed staff, however this is often a source of conflict for the nurse. Nurses made the following comments:

> Daily, I feel frustrated at the cost cutting efforts at my facility that leave poor nurse-to-patient ratios... hiring of uninterested ancillary staff [because of] the low wages offered...led to multiple back strains, feeling so tired and overworked...and has wrecked my health.... My physical ailments have driven me to try to find work away from the bedside, which is sad.

> I see nursing being severely short staffed—more direct care falling into non-professional staff who are greatly underpaid for the work that is required of them.

> Hospitals need to get qualified people to draw blood and put CNAs [certified nurses aides] back at the bedside. The hospital where I work has RNs disposing of body fluids while CNAs draw blood. I don't feel like a professional, factory workers are treated better, after 30+ years in nursing you are treated like a child.

As the level of demand has increased, nurses have approached management to support them in providing care. They acknowledged the importance of having an advocate, and expressed disappointment when they did not receive the needed support. Nurses made the following comments:

> Assistance from support services [has] decrease[d] and the support from nurse management [has] become nearly non-existent. I love nursing and know that nurses provide invaluable services. I feel angry and sad that hospital CEOs so undervalue the nurses' contributions.

> I liked my job because I like surgery/telemetry and the people I worked with. I changed my job because of my nurse manager not being able to secure my job even though I was in high demand.

Nurses often function well at work, but are then too depleted to enjoy their time away from work. This has an effect on the nurse's life satisfaction, and also on the family quality of life. Once injured, nurses often spend time in long term therapy to rehabilitate injuries, which takes away from their free time. Nurses made the following comments:

> I had a very serious back injury on my previous job...My back injury required me to have 2 major surger[ies] and almost 12 months out of work. This injury has left me able to do my job (barely) but when I get home from work I am useless.

> I love my job in nursing...but I never realized how physical and emotional the job really is. You really do come home drained, which is hard since I have several children.

> I injured my back on the job .... Have been in PT [physical therapy] for last year and a half.

Injustice and Unfairness

The second major theme extracted from the nurses' comments was feeling aggrieved by injustices in work settings. This was qualitatively different from the previous comments about excessive demands, because it added the element of social comparison with other professional and nonprofessional occupations, as well as within nursing itself. Areas of unfairness included compensation and benefit issues, the ability to control one's work conditions (e.g., mandatory overtime), and personal devaluing by both management and other nurses.

Nurses commented about the perceived inequality in wages and benefits when they compared their compensation packages to those in other service professions. Additionally, they commented on a low "ceiling" of professional advancement despite years of experi-

ence. The disparity in wages between management and workers was also a source of discontent. Nurses made the following comments:

> I get angry over financial benefits I see teachers and county police...get—particularly the teachers. The retirement packages after 20 years are unbelievable.... At our hospital we can't get a full pension unless we work to 65.... I know I can't keep the work up til I'm 65.

> I have been working in the field of school nursing for the past...years. I am happy working in a[n] inner-city high school of approx[imately] 1,000+ students.... The down side is salary—I earn around $30,000 after 20+ years of nursing.

> When raises came out, management got 10% while the workers who did the care got less than 1% raise.

> No incentives for current long-term staff to remain, no retention incentives—I'm not even eligible for raises (last 2½ yrs) because I've "hit the ceiling"...so yes, I'm actively searching for a new job.

Some nurses reported experiences of being abused or devalued at work. These complaints range from minor annoyances from insensitive managers, to real injury from physical abuse. Nurses made the following comments:

> [I] Work for a nursing sup[ervisor] that [sic] does not listen to anyone on our floor—Get notes in mailboxes for smallest things not done, wt [weight] recorded in chart. Anything to make your job more stressful! Everyone on our floor hates their job. It's a real effort to come to work.

> I wish that nurses didn't have to tolerate being talked to like they do. Very degrading....when someone hurts another coworker, they should be reprimanded. Especially when they have outburst of anger. I received a back injury... because "X"... shoved me... into the wall. I have to have major surgery because of this. I still have to work with this individual.

Nurses' Personal Solutions to Their Working Environment

Nurses talked about several types of personal solutions to the working environment with either excessive demands or injustices. No comments were offered related to any organized or collective efforts to work with peers or management to effect solutions. Nurses either changed jobs, returned to school, or retired. Many left jobs or retired because of an injury. The nurses who continued to deliver nursing care worried they would not be able to remain on the job without getting injured themselves. Nurses made the following comments:

> I feel I may need to change jobs soon because I will physically be unable to do the work.

> I am currently in school for another profession....I don't see myself retiring from this profession, I see myself quitting it.

> We are working longer and harder than a human being should be subjected to. You will have no nurses left if this continues. Most nurses my age are looking for an alternative to traditional nursing.

> I am presently on workmans' comp[ensation] for a work related injury to my back.... have not returned to work but I am anxious about my return for fear that I may reinjure myself.

> I have worked in nursing for 40 years ... I had to retire solely because of back and neck pain.

> I retired "early" with back problems ...My discomfort/pain is with me all the time and there are many things I can no longer do either because of pain or that I am afraid of hurting myself.

DISCUSSION

Using a content analysis of open-ended comments from a survey of nurses, themes identified were excessive demands, fairness, and personal solutions. It was also found that nurses linked their MSD symptoms directly to physical demands incurred without assistive devices, extended work schedules with overtime, and workplace changes that increased the intensity of work. As expected, responses often reflected the emphasis of the quantitative portion of the survey. Thus, the responses were related to working conditions and effect on health and well-being. Nonetheless, the vivid details provided in the comments and the explanations for choices nurses made about their work were revealed in the quantitative responses.

Most nurses chose individual solutions to system level problems that made working conditions untenable. Some nurses elected to leave the profession, further exacerbating the workload for nurses remaining on the job. The decision to leave likely would not be reversible simply by offering additional individual level incentives, such as bonuses and rewards. Rather, system level approaches to working conditions are needed to prevent career ending injuries and to improve the appeal of nursing positions.

Workplace safety has numerous dimensions, many of which are amenable to a systems approach. The Occupational Safety and Health Administration (OSHA) (U.S. Department of Labor, 2003a, 2003b) prescribes comprehensive approaches to health and safety in both hospitals and nursing homes, and offers guidelines for most other workplaces where nurses are employed. Positive safety climates help to reduce injuries, especially when appropriate intervention strategies are used (Grosch, 1999).

Administrative controls, such as "no lift" policies and training promoting mechanical lifting and discouraging manual lifting have reduced workers' compensation costs and lost workdays caused by nurse injuries (Lynch, 2000; Monaghan, 1998; Owen, 1999). Settings with proper lifting equipment and lifting teams were related to lower odds of nurses having an MSD (Trinkoff, 2003b).

These interventions have also been shown to cut low back injury costs in half (Brophy, 2001; Charney, 1997).

Schedules should be adjusted to permit proper rest and recuperation. Workers who have compressed work schedules often have more sleeping problems and other health ailments than workers with regular schedules (Martens, 1999). Long shifts and working shifts other than dayshifts also contribute to nurse MSDs (Lipscomb, 2002).

Compensation levels should be reviewed periodically to determine if nurse wages are market based (Bray, 2001). Nurse job satisfaction also is influenced by interpersonal and structural variables, even more than by salary (Miller, 1993). Ootim (1999) found that perceived high levels of control at work are linked to high levels of commitment, involvement, performance, motivation, and job satisfaction. In addition to these improvements in working conditions, a study found that improved salaries, participative management approaches at work, and scheduling flexibility also improve staff recruitment and retention (American Organization of Nurse Executives, 2002).

Having adequate compensation, control over the work environment and scheduling, and the respect of management can be viewed as workplace justice issues. Recent studies found a positive correlation between nurse empowerment, trust in management, and commitment to the organization (Laschinger, 2000, 2001). A just work environment has policies and procedures developed in conjunction with workers and administered with fairness (Elovainio, 2002), and fair rewards considering the responsibility and effort of the job (Moorman, 1991). These environments also establish worker relationships with management founded on truth, respect, and consideration of the worker's viewpoint (Elovainio, 2002).

Administrators can focus on retention by providing a safe working environment and work schedule to support employees (Shannon, 2001). Providing ergonomically safe workplaces has been suggested as a nurse retention strategy (New York State Education Department, 2001; New York State Nurses Association, 2001). Proper staffing is needed to ensure a feasible workload, less stress, and reduced occurrence of back and other injuries (Wunderlich, 1996).

CONCLUSION

Comments were systematically collected from a large, population based sample of RNs in the United States. They are congruent with the quantitative relationships found related to working conditions and MSDs among nurses, thus lending confidence to the findings. The remarks provided by these nurses were not in response to a specific qualitative research question, but written on an empty page for open-ended comments.

Not all nurses chose to comment. Because not all respondents were currently working, some responses may have referred to the health care environment in the recent past, rather than current conditions. However, by including these nurses in the sample, valuable information was gained about a difficult-to-reach population of nurses who have, in some cases, succumbed to the workplace difficulties described.

A strength of this study is the wide variety of settings, positions, and workplaces reflected in the sample. It is possible that responses were abbreviated because of the length of the instrument and the space provided. Research into nursing solutions and interventions that ameliorate the risk of injury should examine both individual actions and collective efforts. Understanding how nurses, as a group, previously have been successful in making system level changes is essential and has greater potential to help more nurses gain positive work situations.

The implications of these findings for occupational health nurses are far reaching. As health care facilities maximize the nurses' productivity by increasing their work demands, occupational health nurses are in prime positions to provide input to management about the longer term implications of workplace policies such as inadequate staffing, mandatory overtime, and excessive lifting. The AAOHN has been active in this arena, working in cooperation with OSHA to reduce workplace hazards and establish ergonomic standards, as well as advocating for Federal appropriations to fund pipeline and retention programs including the Nurse Reinvestment Act (S. Amburn, personal communications, December 9, 2003). The American Nurses Association also recently began a profession-wide campaign to prevent MSDs among nurses through education and training, and increasing the use of assistive equipment and patient handling devices (American Nurses Association, 2003).

Occupational health nurses are in an ideal position to implement workplace interventions. For example, occupational health nurses can:

- Encourage nurses to create an ergonomics committee.
- Survey employees and perform walkthroughs to identify risk factors.
- Assess risky patient handling tasks.
- Promote safe patient handling policies.
- Encourage reporting of MSD symptoms.

In their role on health and safety committees, occupational health nurses can point out the need for system level changes (e.g., staffing, overtime) rather than adding individual level interventions (e.g., additional individual training) to reduce the rate of injury.

After interventions are implemented, occupational health nurses can collect data to document the effectiveness of these approaches on MSD incidence, cost to the employer, and nursing retention rates. This can help management achieve its objective of cost saving and retention (Luther, 2002). Occupational health nurses can facilitate needed changes in nurses' work lives by using established relationships with management and nursing, supported by data, to improve the health and well-being of nurses.

This study was supported by a grant from the National Institute for Occupational Safety and Health (NIOSH), RO1 OH03702.

REFERENCES

Aiken, L.H., Clarke, S.P., Sloane, D.M., & Sochalski, J. (2001). Cause for concern: Nurses' reports of hospital care in five countries. *LDI Issue Brief, 6*(8), 1-4.

American Nurses Association. (2003). *Nursingworld.org: Health & safety survey*. Retrieved June 4, 2002, from http://www.nursingworld.org/surveys/hssurvey.pdf

American Organization of Nurse Executives. (2002). *Acute care hospital survey of RN vacancy and turnover rates*. Chicago, IL: Author.

Bray, K. (2001). Retention makes cents. *Nursing Management, 32*(3), 48-49.

Brophy, M.O., Achimore, L., & Moore-Dawson, J. (2001). Reducing incidence of low-back injuries reduces cost. *American Industrial Hygienists Association Journal, 62*(4), 508-511.

Bureau of Labor Statistics. (2001a). *Highest incident rates of nonfatal occupational injury cases with lost workdays, private industry, 2001*. Retrieved April 2, 2003, from http://www.bls.gov/iif/oshwc/osh/os/ostb1114.pdf

Bureau of Labor Statistics. (2001b). *Occupational outlook handbook*. Retrieved May 2, 2001, from http://www.bls.gov/iif/oshwc/osh/os/ostb0989.pdf

Charney, W. (1997). The lift team method for reducing back injuries: A 10 hospital study. *AAOHN Journal, 45*(6), 300-304.

Elovainio, M., Kivimaki, M., & Vahtera, J. (2002). Organizational justice: Evidence of a new psychosocial predictor of health. *American Journal of Public Health, 92*(1), 105-108.

Grosch, J.W., Gershon, R.R., Murphy, L.R., & DeJoy, D.M. (1999). Safety climate dimensions associated with occupational exposure to blood-borne pathogens in nurses. *American Journal of Industrial Medicine*, (Suppl. 1), 122-124.

Laschinger, H.K., Finegan, J., Shamian, J., & Casier, S. (2000). Organizational trust and empowerment in restructured healthcare settings. Effects on staff nurse commitment. *Journal of Nursing Administration, 30*(9), 413-425.

Laschinger, H.K., Finegan, J., & Shamian, J. (2001). The impact of workplace empowerment, organizational trust on staff nurses' work satisfaction and organizational commitment. *Health Care Management Review, 26*(3), 7-23.

Leininger, M. (1991a). Ethnonursing: A research method with enablers to study the theory of culture care. In M. Leininger (Ed.), *Cultural care diversity and universality: A theory of nursing* (pp. 73-118). New York: National League of Nursing.

Leininger, M. (1991b). The theory of culture care diversity and universality. In M. Leininger (Ed.), *Cultural care diversity and universality: A theory of nursing* (pp. 5-68). New York: National League of Nursing.

Letvak, S. (2001). Nurses as working women. *AORN Journal, 73*(3), 675-678, 680-672.

Lipscomb, J.A., Trinkoff, A.M., Geiger-Brown, J., & Brady, B. (2002). Work-schedule characteristics and reported musculoskeletal disorders of registered nurses. *Scandinavian Journal of Work Environment and Health, 28*(6), 394-401.

Lipscomb, J.A., Trinkoff, A.M., Geiger-Brown, J., & Brady, B. (in press). A changing healthcare system and reported musculoskeletal disorders in registered nurses. *American Journal of Public Health*.

Luther, K.M., Maguire, L., Mazabob, J., Sexton, J.B., Helmreich, R.L., & Thomas, E. (2002). Engaging nurses in patient safety. *Critical Care Nursing Clinics of North America, 14*(4), 341-346.

Lynch, R.M., & Freund, A. (2000). Short-term efficacy of back injury intervention project for patient care providers at one hospital. *American Industrial Hygienists Association Journal, 61*(2), 290-294.

Martens, M., Nijhuis, F., Boxtel, M., & Knottnerus, J. (1999). Flexible work schedules and mental and physical health. A study of a working population with non-traditional working hours. *Journal of Organizational Behavior, 20*(1), 35-46.

Miller, J.O., & Carey, S.J. (1993). Work role inventory: A guide to job satisfaction. *Nursing Management, 24*(1), 54-56, 60, 62.

Monaghan, H., Robinson, L., & Steele, Y. (1998). Implementing a no lift policy. *Nursing Standard, 12*(50), 35-37.

Moorman, R. (1991). Relationship between organizational justice and organizational citizenship behaviors. Do fairness perceptions influence employee citizenship? *Journal of Applied Psychology, 76*(6), 845-855.

Morse, J.M., & Field, P.A. (1995). *Qualitative research methods for health professionals*. Thousand Oaks, CA: Sage.

New York State Education Department. (2001). *The nursing shortage*. Retrieved July 2, 2002, from http://www.op.nysed.gov/nurseshortage.htm

New York State Nurses Association. (2001, April 5). *Nurse practice testimonies. Nursing shortage*. Retrieved July 2, 2002, from http://www.nysna.org/PROGRAMS/NPS/testimonies/taskforce6.htm

Ootim, B. (1999). Are you in control? *Nursing management (Harrow), 6*(4), 24-27.

Owen, B.D. (2000). Preventing injuries using an ergonomic approach. *AORN Journal, 72*(6), 1031-1036.

Owen, B.D., Welden, N., & Kane, J. (1999). What are we teaching about lifting and transferring patients? *Research in Nursing and Health, 22*(1), 3-13.

Shannon, H.S., Robson, L.S., & Sale, J.E. (2001). Creating safer and healthier workplaces: Role of organizational factors and job characteristics. *American Journal of Industrial Medicine, 40*(3), 319-334.

Trinkoff, A.M., Brady, B., & Nielsen, K. (2003a). Workplace prevention and musculoskeletal injuries in nurses. *Journal of Nursing Administration, 33*(3), 153-158.

Trinkoff, A.M., Lipscomb, J.A., Geiger-Brown, J., & Brady, B. (2002). Musculoskeletal problems of the neck, shoulder, and back and functional consequences in nurses. *American Journal of Industrial Medicine, 41*(3), 170-178.

Trinkoff, A.M., Lipscomb, J.A., Geiger-Brown, J., Storr, C.L., & Brady, B.A. (2003b). Perceived physical demands and reported musculoskeletal problems in registered nurses. *American Journal of Preventive Medicine, 24*(3), 270-275.

U.S. Department of Labor, Occupational Health and Safety Administration. (2003a). *Safety and health topics: Health care facilities*. Retrieved March 1, 2003, from http://www.osha.gov/SLTC/healthcarefacilities/index.html

U.S. Department of Labor, Occupational Safety and Health Administration. (2003b). *Guidelines for nursing homes: Ergonomics for the prevention of musculoskeletal disorders*. Retrieved March 31, 2003, from http://www.osha.gov/ergonomics/guidelines/nursinghome/index.html.

Wunderlich, G., Sloan, F., & Davis, C. (1996). *Institute of Medicine report. Nursing staff in hospitals and nursing homes*. Washington, DC: National Academy Press.