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Review

Leadership styles and outcome patterns for the nursing workforce and work environment: A systematic review

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ABSTRACT

Context: Numerous policy and research reports call for leadership to build quality work environments, implement new models of care, and bring health and wellbeing to an exhausted and stretched nursing workforce. Rarely do they indicate how leadership should be enacted, or examine whether some forms of leadership may lead to negative outcomes. We aimed to examine the relationships between various styles of leadership and outcomes for the nursing workforce and their work environments.
Methods: The search strategy of this multidisciplinary systematic review included 10 electronic databases. Published, quantitative studies that examined leadership behaviours and outcomes for nurses and organizations were included. Quality assessments, data extractions and analysis were completed on all included studies.
Findings: 34,664 titles and abstracts were screened resulting in 53 included studies. Using content analysis, 64 outcomes were grouped into five categories: *staff satisfaction with work, role and pay, staff relationships with work, staff health and wellbeing, work environment factors*, and *productivity and effectiveness*. Distinctive patterns between relational and task focused leadership styles and their outcomes for nurses and their work environments emerged from our analysis. For example, 24 studies reported that leadership styles focused on people and relationships (transformational, resonant, supportive, and consideration) were associated with higher nurse job satisfaction, whereas 10 studies found that leadership styles focused on tasks (dissonant, instrumental and management by exception) were associated with lower nurse job satisfaction. Similar trends were found for each category of outcomes.
Conclusion: Our results document evidence of various forms of leadership and their differential effects on the nursing workforce and work environments. Leadership focused on task completion alone is not sufficient to achieve optimum outcomes for the nursing workforce. Efforts by organizations and individuals to encourage and develop transformational and relational leadership are needed to enhance nurse satisfaction, recruitment, retention, and healthy work environments, particularly in this current and worsening nursing shortage.

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What is already known about the topic?

- Nursing leadership is called for repeatedly to manage challenging healthcare workplace and workforce issues.
- Considerable research has examined the relationships between specific leadership styles and practices of nursing leaders and outcomes for the nursing workforce.

What this paper adds

- Our results point to outcomes patterns that support claims that relationship or people focused leadership practices contribute to improving outcomes for the nursing workforce, work environments and for productivity and effectiveness of healthcare organizations.
- With little exception, relationally focused leadership practices led to much more frequent and positive outcomes for the nursing workforce and nursing work environments than did other more task focused leadership styles, which included dissonant leadership, management by exception, transactional, instrumental and laissez faire approaches, led to negative outcomes.

The current international nursing shortage and the emphasis on developing quality practice environments has led to growing research and policy reports that have raised a clarion call for nursing leadership to advance an agenda for change in healthcare organizations (Canadian Nursing Advisory Committee 2002; Institute of Medicine, 2004; Shaw, 2007). This call for leadership is to rebuild the nursing workforce, implement new models of care and bring health and wellbeing to an exhausted and stretched nursing workforce (Canadian Nursing Advisory Committee, 2002; Ruchlin et al., 2004; Sheahan et al., 2007; Shaw, 2007). However, these reports rarely indicate how this leadership should be enacted, and whether some forms of leadership may actually lead to undesirable outcomes. The impetus for improving nursing work environments is founded on research from the past decade that has linked characteristics of nursing work environments, such as nurse/physician relationships, to patient adverse events and patient mortality (Aiken et al., 2002, 2003; Cho et al., 2003; Estabrooks et al., 2005; Jarman et al., 1999; Tourangeau et al., 2002), providing further motivation to create safer practice environments for patients (Baker et al., 2004; Institute of Medicine, 2004; Wade et al., 2002).

Leadership has been studied in a variety of disciplinary fields from psychology, military, education, management to healthcare, and more recently in nursing. Yet within these fields, the most common conceptualizations of leadership include four elements as central to their definition: leadership (a) is a process, (b) entails influence, (c) occurs within a group setting or context, and (d) involves achieving goals that reflect a common vision (Hunt, 2004; Northouse, 2004; Shaw, 2007; Shortell and Kaluzny, 2006). Commonly used leadership theories including transformational leadership and more recently, emotionally intelligent leadership have guided nursing leadership research and interventions, presumably due to their emphasis on relationships as the foundation for effecting positive change or outcomes (Hibberd and Smith,

2006). For this review, we used Northouse's definition of leadership – "a process whereby an individual influences a group of individuals to achieve a common goal" (Northouse, 2004). This influence of leadership can be simplistically categorized into approaches that focus on people and relationships to achieve the common goal, and those that focus on the tasks to be accomplished. Examples of *relationally focused leadership* styles include *transformational leadership* which motivates others to do more than they originally intended and often more than they thought possible (Bass and Avolio, 1994), *individualized consideration,* which focuses on understanding the needs of each follower and works continuously to get them to develop to their full potential (Avolio et al., 1999), and *resonant* leadership that inspires, coaches, develops and includes others even in the face of adversity (Boyatzis and McKee, 2005; Goleman et al., 2002). Transformational leaders use idealized influence, inspiration and motivation, intellectual stimulation and individualized consideration to achieve superior results (Avolio et al., 1999), and resonant styles are based on the emotional intelligence of the leaders (Boyatzis and McKee, 2005).

In contrast, *task focused* (*non-relationally focused*) *leadership* styles are primarily management by exception, laissez-faire, transactional leadership, dissonant leadership styles, and instrumental leadership. *Active Management-by-Exception* focuses on monitoring task execution for any problems that might arise and correcting those problems to maintain current performance levels (Avolio et al., 1999). *Laissez-faire* styles are similar in that they are conceptualized as passive avoidance of issues, decision-making and accountability (Avolio et al., 1999). *Passive–avoidant leadership* tends to react only after problems have become serious to take corrective action, and often avoids making any decisions at all (Avolio et al., 1999). *Transactional leadership* emphasize the transaction or exchange that takes place among leaders, colleagues and followers to accomplish the work (Bass and Avolio, 1994). *Dissonant* leadership is characterized by pacesetting and commanding styles that undermine the emotional foundations required to support and promote staff success (Goleman et al., 2002). *Instrumental* leadership focuses on the strategic and task-oriented developmental functions of leaders (Antonakis and House, 2002). *Initiating structure* referred to the degree to which leaders articulate clear role expectations, create well defined communication channels and focus on tasks and attaining goals (Judge et al., 2004).

We were also specifically interested in examining the relationships between these various approaches to leadership and outcomes for the nursing workforce and their environments. Based on our knowledge, experience and the literature, leadership practices of formal nurse leaders and managers have been found to positively impact outcomes for organizations, patients (Wong and Cummings, 2007), and healthcare providers (Cummings et al., 2005; Upenieks, 2002; Vitello-Cicciu, 2002). Recently, Gilmartin and D'Aunno (Gilmartin and D'Aun, 2007) conducted a review of 60 studies in *healthcare* leadership reporting that leadership was positively and significantly associated with individual work satisfaction, turnover, and performance. Yet, we found no studies that systematically

examined the findings of leadership research in *nursing*, or synthesized findings of relationships between leadership and desirable or undesirable outcomes.

The purpose of the review reported here was to systematically review the multidisciplinary literature to examine the relationships between various styles of leadership and outcomes for the nursing workforce and their work environments. After completing an initial scoping review of the healthcare and nursing leadership literature, we found that a large group of studies examined outcomes of leadership using predominantly correlational survey designs and that many studies reported relationships between various styles of leadership and a broad range of outcomes. From that scoping review, two research questions guided the full systematic literature review and analysis.

1 Do nursing leadership styles influence outcomes for nurses, nursing environments, and nursing workforce?
2 If so, how do these leadership styles impact the specific outcomes?

1. Methods

1.1. Search strategy, data sources, and screening

The search strategy included 10 electronic databases CINAHL, Medline, PsychInfo, ABI, ERIC, Sociological Abstracts, Embase, Cochrane, Health Star and Academic Search Premier. Searches included the following keywords – *leadership*, *research*, *evaluation* and *measurement* – to locate studies published between 1985 and December 2006 (and then updated to May 2009) that examined the outcomes of various styles of nursing leadership. See Table 1 for search strategy.

1.2. Inclusion criteria

Titles, abstracts and manuscripts were included if they met all inclusion criteria: (1) peer reviewed research; (2) studies that measured leadership by nurses; (3) studies that measured one or more outcomes of nursing leadership; and (4) studies that examined the relationship between leadership and outcomes for the nursing workforce or nursing work environments. This excluded qualitative studies and grey literature.

1.3. Screening

Each abstract was reviewed twice for inclusion. Studies meeting inclusion criteria were categorized into nursing, other professions (such as medical physicians, teachers, etc.) and other settings (such as business, military, or education). Due to the large volume of abstracts and only English language proficiency in our research team, we focused only on nursing studies published in English. All nursing studies were sorted into those that examined (a) the measurement of leadership in nursing (in progress), (b) factors contributing to nursing leadership including the development of leadership in nursing (Cummings et al., 2008) and (c) outcomes associated with nursing leadership

Table 1
Search strategy.

Database, 1985–2009	Search terms	# titles and abstracts
ABI Inform	leadership AND • research (Subject) • evaluation (Subject) • measurement (Subject)	352
Academic Search Premier	leadership AND • research (KW) • evaluation (KW) • measurement (KW)	278
CINAHL (limited to research)	leadership AND exp research	3303
Sociological Abstracts	leadership AND • research (KW) • evaluation (KW) • measurement (KW)	906
Cochrane Library (CDSR, ACP Journal Club, DARE, CCTR)	leadership AND • research (MP) • evaluate$ (MP) • measure$ (MP)	139
EMBASE	leadership AND • research (MP) • evaluate$ (MP) • measure$ (MP)	2617
ERIC	leadership AND • research (MP) • evaluate$ (MP) • measure$ (MP)	7828
HealthSTAR/Ovid Healthstar	leadership AND • research (MP) • evaluate$ (MP) • measure$ (MP)	4515
Ovid MEDLINE	leadership AND • research (MP) • evaluate$ (MP) • measure$ (MP)	5587
PsychINFO	leadership AND • research (MP) • evaluate$ (MP) • measure$ (MP)	9139
Total abstracts and titles reviewed		34,664
Total abstracts and titles minus duplicates		18,963
First selection of leadership studies		1,351
Second selection (nursing leadership studies only)		127
Final selection of research manuscripts/studies		63/53

which formed the basis for two reviews, the manuscript reported here and another published earlier reporting on the relationship between leadership styles and patient outcomes (Wong and Cummings, 2007).

1.4. Data extraction

The following data were extracted from the included studies: author, journal, country, research purpose and questions, theoretical framework, design, setting, subjects, sampling method, measurement instruments, reliability and validity, analysis, leadership measures, outcomes of leadership, significant and non-significant results. Two

Box 1. Quality assessment and validity tool for correlational studies.[a]

The Outcomes of Leadership: A systematic review Quality Assessment and Validity Tool for Correlational studies		
Study:_____ First Author: _____		
Publication Information: Date: _____ Journal: _____		
Design:	**NO**	**YES**
1. Was the study prospective?	☐	☐
2. Was probability sampling used?	☐	☐
Sample:		
1. Was sample size justified?	☐	☐
2. Was sample drawn from more than one site?	☐	☐
3. Was anonymity protected?	☐	☐
4. Response rate more than 60%	☐	☐
Measurement:		
■ **Leadership (IV) [assess for IVs correlated with DVs only]**		
1. Was Leadership measured reliably?	☐	☐
2. Was Leadership measured using a valid instrument?	☐	☐
■ **Influence on the measure of leadership (DV)**		
1. Was the outcome of leadership observed rather than self-reported?	☐	☐
2. If scale was used for measuring outcomes, was internal consistency ≥ .70?	☐	☐
3. Was a theoretical model/framework used for guidance?	☐	☐
Statistical Analysis:		
1. If multiple outcomes were studied, were correlations analyzed?	☐	☐
2. Were outliers managed?	☐	☐
Overall Study Validity Rating (circle one (key: 0-4=LO; 5-9=MED; 10-14=HI)	**TOTAL:** _____ **LO MED HI**	

[a]Adapted from Cummings et al. (2008).

research team members completed and checked each data extraction.

1.5. Quality review

Each published article was reviewed twice for methodological quality by two research team members using a quality rating tool adapted from an instrument used in previously published systematic reviews (Cummings and Estabrooks, 2003; Cummings et al., 2008; Estabrooks et al., 2001, 2003; Wong and Cummings, 2007). The adapted tool (Box 1) was used to assess four areas of each study: research design, sampling, measurement and statistical analysis. Thirteen items comprised the tool and a total of 14 possible points could be assigned for the 13 criteria. Twelve items were scored as zero (=not met) or one (=met),

and one item related to the measurement of leadership was scored as two (=objective observation), one (=self-report) or zero (=not met). Based on assessed points, each study fell into one of three possible categories: high (10–14), medium (5–9) and low (0–4). The primary author reviewed and approved all quality assessments, data extractions and analyses.

1.6. Analysis

Using content analysis, the outcomes in these leadership studies were categorized in two ways. First, we sorted the outcomes into thematic categories based on their common characteristics. Second, we identified within each thematic category the pattern of relationship between both relational and task focused styles of leadership with changes in specific outcomes. For example, we looked at which leadership styles were predominantly associated with specific outcomes such as job satisfaction of nurses and if job satisfaction increased or decreased as a result of leadership style. We then analyzed the reported relationships between the specific leadership styles or practices and the outcomes by category and significance.

2. Results

2.1. Search results

The electronic database search yielded over 34,664 titles and abstracts. Following removal of duplicates, 18,963 titles and abstracts were screened using the inclusion criteria and 1357 manuscripts were retrieved for screening. Of these, 150 manuscripts were specific to nursing leadership and were further sorted into factors associated with developing leadership, outcomes associated with leadership, and the measurement of leadership. Following quality assessment of the 150 nursing studies, 23 low quality studies were removed, leaving 127 leadership studies specific to nursing. After final selection using the inclusion criteria for this review, 63 manuscripts (reporting 53 studies) were identified as examining relationships between nursing leadership and outcomes for the nursing workforce, and work environments. Many authors had multiple manuscripts published from single studies and were thus counted as one study in our analysis. The final 53 studies were quantitative in design and their characteristics are presented in Table 2.

Of the 53 included studies, published between 1985 and 2009, 32 were conducted in North America (25 in the United States, 6 in Canada, 1 in Canada and the United States), 15 in Europe, 1 in Australasia and 5 had no stated country. See Table 2 for all characteristics of included studies.

2.2. Summary of quality review

The most common weaknesses in the 53 quantitative study designs related to sampling, design, and analysis (see Table 3). All of the final 53 studies used correlational, non-experimental, or cross-sectional designs and were rated as moderate (scores = 5–9) or high quality (scores ≥10).

However, these correlational designs limit interpretations of causality. Only 11 of the 53 included studies used probability sampling, partially due to the difficulty in using random sampling methods to study leadership in specific individuals or units. As these studies must target leaders in formal management/leadership roles and their followers/employees, convenience sampling may be used more frequently. Most studies used correlational and regression analyses and 36 studies did not report the management of outliers. Only 10 studies addressed appropriateness of sample size and 22 of 53 addressed anonymity of respondents. Thirty-seven of 53 studies used samples from more than one site.

One of the strengths of this group of studies was the pervasive use of theory to guide the research studies (46 of 53 studies). These leadership theories and frameworks included Bass (and Avolio)'s *Transformational and Transactional Leadership* (11 studies), Kouzes and Posner's *Leadership Practices* (5 studies), Hersey and Blanchard's *Situational Leadership Model* (2 studies), *Path Goal Theory* (2 studies), *Consideration and Initiation* (2 studies) and Kanter's *Organizational Empowerment Theory* (2 studies). *Promoting Action on Research Implementation in Health Services* (PARIHS) was also used to frame the research design in two studies. All remaining leadership theories were used in single studies. Seven studies also used other theories that were related to the outcome variables such as nurses' intent to stay (two studies), to guide their study.

2.3. The outcomes of leadership

Using content analysis, a total of 64 outcomes in the 53 included studies were categorized into five themes, (1) staff satisfaction with work, role and pay, (2) staff relationships with work, (3) staff health and wellbeing, (4) work environment factors, and (5) productivity and effectiveness. See Table 4 for all outcomes sorted by the five thematic categories, differences between relational (shaded) and task (non-shaded) leadership styles and significance. We present several fundamental thematic categories here in detail and then summarize the remainder.

2.3.1. Staff satisfaction with work, roles and pay

Nursing job satisfaction was the most frequently examined outcome of leadership in the studies in this review (*n* = 24). Twenty-two studies reported highest job satisfaction was associated with a variety of *relational focused* leadership styles (shaded rows in Table 4) such as socio-emotional, consideration, inspirational, resonant, and transformational leadership (Boumans and Landeweerd, 1993, 1994; Boyle et al., 1999; Chen et al., 2005; Chen and Baron, 2006; Chiok Foong Loke, 2001; Cummings, 2004; Cummings et al., 2005; Garrett, 1991; Holdnak et al., 1993; Howell and Dorfman, 1986; Kennerly, 1989; Krogstad et al., 2006; Larrabee et al., 2003; Lok and Crawford, 2001; Lok et al., 2005; McDaniel and Wolf, 1992; McIntosh, 1990; McNeese-Smith, 1995, 1996, 1999; McNeese-Smith and Yang, 2000; Medley and Larochelle, 1995; Meyer-Bratt et al., 2000; Morrison et al., 1997; Shieh et al., 2001; Taunton et al., 1989a, 1989b). Ten of these 24

Table 2
Characteristics of included studies.

Ref #/Author(s), journal, year and country	Sample	Measurement/instruments	Scoring	Reliability	Validity	Analysis
1 Al-Hussammi (2008) Eur J Sci Res USA	n = 55 RNs/LPNs RR = 92% 4 long term care facilities	- Minnesota Satisfaction Questionnaire (Weiss et al., 1967) - Organizational Commitment Questionnaire (Meyer et al., 1993) - Survey of Perceived Organizational Support (Eisenberger et al., 1986) - Multifactor Leadership Questionnaire, Form 6S (Bass and Avolio, 1992)	20 items, 5 pt scale 23 items, 7 pt scale 16 items, 7 pt scale 18 items, 5 pt scale	α = .91 α = .85 α = .75 Mean score	NR NR NR NR	Pearson product-moment correlation coefficients Multiple regression
2 Avolio, et al. (2004) J Org Behav Singapore	n = 502 nurses RR = 80% 1 hospital	- Modified Multifactor Leadership Questionnaire, Form 5X (Bass and Avolio, 1997) Organizational Commitment (Cook and Wall, 1980) Psychological Empowerment (adapted from Jones' self-efficacy scale (Jones, 1986), Ashforth's Helplessness Scale, 1989, Tymon, 1988, Hackman and Oldham's autonomy scale, 1980).	20 items, 5 pt scale 9 items, 5 pt scale 2 items, 7 pt scale	α = .87 and .82 α = .87 α = .75 and .84	NR NR NR	Aggregation HLM
3 Bostrom et al., 2007 J Eval in Clin Practice Sweden	n = 132 NAs, ENs, RNs, and rehab professionals, RR = 67% 7 elderly care units	Research Utilization Questionnaire (Champion and Leach, 1989; Pettengill et al., 1994; Humphris et al., 1999) 5 subscales Creative Climate Questionnaire: (author NR)	5 pt scale 50 items, 4 pt scale	α = .89 α = .77 and .91	NR NR	Chi-square, t-test, Fischer's exact test Spearman's test Multiple logistic regression
4 Boumans and Landeweerd (1993, 1994) J Adv Nurs and Heart Lung Netherlands	305 ICU nurses 256 general nurses 16 hospitals	- Leadership (Leadership Behavior Description Questionnaire (Stogdill, 1963) - Job Satisfaction (Algera, 1981); (Boumans, 1990) - Health Complaints (Organizational Stress Questionnaire (Reiche and Van Dijkhuizen, 1979; (Reichert and Smeltzer, 1999); (Algera, 1981) - Absenteeism (self report) - Job Significance (title NR (Hackman and Oldham, 1975)	20 items, 5 pt scale 42 items 28 items Frequency 11 items, sum	α = .90 and .82 α = .80 α = .75 r = .75 α = .56	NR NR NR Piloted NR	ANOVA ANCoVA Fisher's Z
5 Boyle et al. (1999) Am J Crit Care Country NR	255 nurses 14 ICUs	- Leadership (no title: (Kruse and Stogdill, 1973) - Job Satisfaction (no title (Hinshaw et al., 1987; Price and Mueller, 1981) - Intent to Stay (no title: (Price and Mueller, 1986))	Range 10-50, 12-60 Range 11-66, 6-36 Range: 4-20	α = .83 and .92 α = .85 and .78 α = .87	NR NR NR	Pearson r Multiple regression
6 Bycio et al. (1995) J Appl Psychol Country NR	1,376 RNs Multiple hospitals RR = 57%	- Multifactor Leadership Questionnaire-1 (MLQ-1 (Bass, 1985) - Extra Effort, Satisfaction with Leader, Leader Effectiveness (MLQ -1 cf. Bass, 1985) - Intent to Quit/Leave Profession (title and author NR) - Organizational Commitment (Affective, Continuance, and Normative: Allen and Meyer, 1990)	40 items, 5 pt scale 9 items 3 items 24 items	α = .71-.97 α = .79-.91 α = .87 α = .73-.86	No measures were reported	Factor Analysis Regression
7 Casida and Pinto-Zipp (2008) Nurs Econ USA	37 NMs 278 staff nurses RR = 70% 4 hospitals	- Multifactor Leadership Questionnaire, form 5X-short (Avolio and Bass, 2004) - Nursing unit organizational culture (Denison's Organizational Culture Survey (Denison, 2007)	36 items, 5 pt scale 60 items, 5 pt scale	α = > .90 α = .87-.92	CFI = .91 Goodness of fit = .92 CFI = .91 Goodness of fit = .99	Correlational

#	Study / Journal / Country	Sample	Variables / Instruments	Items / scale	α	Validity	Analysis
8	Chen et al. (2005) Chen and Baron (2006) J Nurs School and J Nurs Educ Taiwan	286 nursing faculty members RR = 73%	- Multifactor Leadership Questionnaire 5X Chinese Version: (Shieh et al., 2001) 9 subscales	36 items, 5 pt scale	α = .64–88	NR	Hierarchical multiple regression, t-test, one-way ANOVA bivariate correlations
			- Job Satisfaction (Minnesota Satisfaction questionnaire Chinese Version: (Lin, 2002)	20 items, 5 pt scale	α = .80–91	NR	
9	Chiok Foong Loke (2001) J Nurs Manage Singapore	20 managers RR = 100% 97 RNs RR = 97%	- Leadership Practices Inventory: self and observer (Kouzes and Posner, 1995)	30 items ×2, 5 pt scale	α = .81–91	NR	ANOVA Regression
			- Job-In-General scale (Smith et al., 1989)	18 items, yes/no/?	α = .91–95	Convergent	
			- Productivity (Productivity scale (McNeese-Smith, 1995)	15 items, 5 pt scale	α = .90–93	NR	
			- Organizational Commitment scale (Porter et al., 1974)	15 items, 7 pt scale	α = .82–93	NR	
10	Cummings (2004) Cummings et al. (2005) Can J Nurs Leadership and Nurs Res Canada	6,526 RNs All AB acute care hospitals	- Resonant Leadership (Emotional Intelligence (Goleman et al., 2002)	13 items	NR	NR	Structural Equation Modeling
			- Hospital Restructuring (Alberta RN Survey (Giovannetti et al., 2002); also included Revised Nursing Work Index:(Aiken and Patrician, 2000) and Maslach Burnout Inventory (Maslach et al., 1996))	139 items; NWI-R 4 pt scale, MBI – 6 pt	NR	NR	
			- Emotional Exhaustion (NWI-R) (Aiken and Patrician, 2000)	Not reported			
			- Emotional Health (MBI (Maslach et al., 1996)	6 pt scale			
			- Workgroup collaboration (NWI-R) (Aiken and Patrician, 2000)	4 pt scale			
			- Job satisfaction (Alberta RN Survey (Giovannetti et al., 2002)	4 pt scale			
				4 pt scale			
11	Dunham-Taylor (2000) JONA USA	396 Nurse Executives (NE), and 1115 staff reporting to 360 NE	- Multifactor Leadership Questionnaire, Form 5X: (Bass, 1994)	87 items	α = .82–94	Construct	Pair-wise correlation
			- Profile of Organizational Characteristics: (Likert, 1994)	2x18 items, 8 pt scale	α = .90–96	NR	
			- Staff Satisfaction, Work Group effectiveness, Extra Effort (title and author NR)	NR	NR	NR	
12	Ferris (1985) J Appl Psychol USA	68 RNs and their supervisors	- Turnover (Leader–Member Exchange (LMX): (Graen et al., 1982)	5 items, 5 pt scale	α = .83	All measures NR	Correlation Within and between group correlations
			- Average Leadership Style (ALS) (Graen et al., 1982)	Average MLX score	NR	NR	
13	Gardulf et al., 2008 Nilsson-Kajermo et al., 2007; Kajermo et al., 2008 Scand J Caring Sci and J Nurs Manage Sweden	n = 833 RNs and RNMs RR = 51% 1 University hospital	- Work satisfaction: (Quality Work Competence Questionnaire (Arnetz et al., 1995)	11 enhancement areas, 5 pt scale	α = .70–94	NR	Stepwise multiple linear regression
			- Professional issues: (Huddinge University Hospital Model Questionnaire (author and year NR)	34 items, only 21 used	NR	NR	Multiple, stepwise, linear and logistic regression analysis
			- Barriers to research implementation: Barriers Scale (Funk et al., 1991) 4 subscales	29 items, 4 pt scale	α = .69–83	NR	
			- Organizational and staff well-being: Quality Work Competence Scale (Arnetz and Arnetz, 1996; Arnetz, 1997; Arnetz et al., 1996; Arnetz et al., 1997; Arnetz et al., 2001; Thomsen et al., 1998)	11 enhancement areas, 3 6 multipoint items	–α =.70–94	NR	
			- Professional issues: (Huddinge University Hospital Model Questionnaire (Author, year NR)	34 items, fixed response and 4 pt scale	NR	NR	

Table 2 (*Continued*)

Ref #/Author(s), journal, year and country	Sample	Measurement/instruments	Scoring	Reliability	Validity	Analysis
14 Garrett (1991) J New York State Nurs Assoc USA	188 RNs RR = 62%	- Leader Behaviour Description Questionnaire-Form XII and Ideal Leader Behaviour Description Questionnaire-Form (author NR) - Job Satisfaction (Job Descriptive Index: author NR)	Mean score Mean score	NR NR	NR NR	Multiple regression ANOVA
15 Gil et al. (2005) J Managerial Psych Spain	318 healthcare professionals in 67 healthcare teams RR = 68.4%	- Leadership (Managerial Practices Survey (Yukl et al., 2002) 3 subscales - Team Satisfaction (Gladstein, 1984) - Team Performance (Ancona and Caldwell, 1992)	Aggregate score, 5pt 3 items, 5 pt scale 5 items, 5pt scale	α=.66-96 α=.85 α=.83	NR NR NR	Descriptive stats Hierarchical regressional
16 Ginsburg et al. (2005) Health Serv Res Canada	n = 244 nurses in clinical leadership roles baseline and follow up questionnaires	- Leadership (Soberman, 2003) - Patient Safety Culture (Singer et al., 2003) 3 sections same for pre and post test	9 items, 7 pt scale 32 items, 5 pt scale	α=.84 α=.66-86	NR NR	EFA, ANOVA t-test, hierarchical regression
17 Hendel et al. (2005) J Nurs Manage Israel	54 head nurses from 5 hospitals RR = 90%	- Multifactor Leadership Questionnaire, Form 5X Short (Bass and Avolio, 1995b) - Conflict Management (Conflict Mode Instrument (Thomas and Kilmann, 1974) 5 subscales	36 items, 5 pt scale Forced Choice pairs	α= NR α=.61-68	NR Previously established	Descriptives, Wilcoxon Rank Test, MANOVA regression
18 Hernandez et al. (1988) Public Health Nurs USA	20 nursing work groups Health departments	- Social Psychological Processes –Organizational Climate, Supervisory and Peer Leadership and Group Processes (Survey of Organization (Likert, 1961) 4 indices	All measures together totalled 36 items, 5 pt scales	α=.66-92	All measures NR	Correlational
19 Holdnak et al. (1993) Healthc Manage Rev USA	256 nurses 3 hospitals	- Leader Behavior Description Questionnaire, XII (Stogdill, 1963) - Job Satisfaction (Job Description Index (Smith et al., 1969)	5 pt scale NR	α=.75-87 α=.58-82	NR NR	ANOVA Hierarchical moderator regression
20 Houser (2003) Capuano et al. (2005) JONA and Healthc Manage Rev USA	n = 1142 RNs n = 55 nurse managers 6 hospitals and 3 LTC centers	- Leadership Practices Inventory: (Kouzes and Posner, 1987) - Turnover (Raw turnover rate, accession rate and vacancy rate) - Staff expertise (RN's rated according to Benner's criteria by their manager (Benner et al., 1996))	NR Math equation Math equation	α=.69-85 NR NR	Construct and discriminant NR NR	Structural equation modeling
21 Howell and Dorfman (1986) J Appl Behav Sci USA	140 professionals 108 non-prof Several hospitals	- Leadership (modified form of path-goal theory (Schriesheim, 1978) - Organizational Commitment Questionnaire (Porter and Smith, 1970) - Job Satisfaction (Minnesota Satisfaction Questionnaire (Weiss et al., 1967)	Mean Mean Mean	α=.69-90 α=.92 α=.88	NR NR NR	T-test Multiple linear regression
22 Kennerly (1989) J Nur Educ Country NR	23 deans/chairs 181 nurse faculty	- Leader Behavior Description Questionnaire-Form XII (Stogdill, 1963) - Index of Job Satisfaction (Brayfield and Rothe, 1951)	10 items, 5 pt scale 18 items, 5 pt scale	α=.90 and .78 α=.85	NR NR	Regression, Pearson product correlation coefficients
23 Klakovich (1996) JONA USA	113 RNs 1 hospital	- Leadership Achieving Styles Inventory-13 (Lipman-Bluman, 1991) - Reciprocal Empowerment Instrument: (Klakovich, 1995) - Organizational Culture Inventory (Cooke and Lafferty, 1987)	45 items, 7 pt scale 24 items, 5 pt scale 120 items, 5 pt scale	α=.81-91 α=.77-89 α=.74-92	Construct Pilot Study	Stepwise regression Power analysis

#	Study	Sample	Measures	Scale	Reliability	Validity	Analysis
24	Krogstad et al. (2006) Human Resources for Health Norway	n = 1066 nurses n = 358 doctors n = 390 auxiliaries	- Work Experiences (Work Research and Quality Improvement Questionnaire (Krogstad et al., 2002) - Local Leadership - Top management - Competence - Work Organization - Professional Development	5 items, 5 pt scale 4 items, 4 pt scale 3 items, 10 pt scale 3 items, 10 pt scale 2 items, 5 pt scale	α = .85 α = .76 α = .77 α = .82 α = .74	1998 pilot study	Linear regression
25	Larrabee et al. (2003) JONA USA	90 RNs 1 hospital	- Multifactor Leadership Questionnaire-5X (Bass and Avolio, 1995b) - Intent to Leave (Price and Mueller, 1981; Price and Mueller, 1986) - Job Satisfaction (Work Quality Index (Whitley and Putzier, 1994) - Empowerment (Spreitzer, 1995)	45 items, 5 pt scale 1 items, 5 pt scale 38 items, 7 pt scale 12 items, 7 pt scale	α = .63–95 NR α = .76–90 α = .86–96	Construct NR Construct Construct	ANOVA Multivariate regression
26	Laschinger et al. (1999) JONA Canada	537 RNs 2 hospitals	- Leader Empowering Behavior Scale (Conger and Kanungo, 1988) - Empowerment (Conditions of Work Effectiveness Questionnaire (Kanter, 1977) - Formal Power (Job Activities Scale (Kanter, 1977; Kanter, 1993) - Informal Power (Organizational Relationship Scale (Kanter, 1977; Kanter, 1993) - Job Tension (Job Tension Index (Lyons, 1971)	27 items, 7 pt scale 37 items, 7 pt scale 12 items, 5 pt scale 20 items, 5 pt scale 9 items, 7 pt scale	α = .77–95 α = .80–88 α = .69 α = .89 α = .81	All measures NR	Structural equation modeling
27	Leiter and Laschinger (2006)	8597 nurses	- Leadership (Practice Environment Scale of the Nursing Work Index (Lake, 2002)	28 items, 4 pt scale	α = .84	Previously reported	Structural Equation Modeling
28	Laschinger and Leiter (2006) JONA and Nurs Res Canada	2 provinces, ON and AB 251 nurses RR = 63%	- Burnout (Maslach Burnout Inventory: Human Service Scale (Maslach et al., 2001) 3 subscales - Leader Behaviour Description Questionnaire (Stogdill, 1974)	22 items, 7 pt scale 40 items, 5 pt scale	α = .78–91 α = .78–82	Previously reported NR	Correlation Multiple regression analysis
	Lok et al. (2005) (2001) J Manage Psych and App Psych Australia		- Organizational Culture Index (Wallach, 1983) - Organizational Commitment Questionnaire: (Mowday et al., 1979) - Job Satisfaction Survey (Mueller and McClosky, 1990)	24 items, 4 pt scale 15 items, 7 pt scale 31 items, 5 pt scale	α = .71–87 α = .84–94 α = .83	NR NR NR	Descriptive stats
29	Manojlovich (2005a, 2005b) JONA USA	308 medical-surgical nurses RR = 73%	- Nursing Leadership (Manager's Activities Scale (Laschinger, 2004) - Conditions for Work Effectiveness Questionnaire II (Laschinger, 1996) 4 subscales (Job Activities Scale II), (Organizational Relationships Scale II, author and date NR)	11 items 12, 3, 4 items	α = .82–94 α = .78–93	NR Content and construct	t-test Correlations path analysis
30	Marchionni and Ritchie (2008) J Nurs Manage Canada	n = 20 nurses RR = 25% 1-50 bed medical unit 1-15 bed surgical unit	- Organizational Learning Survey (Goh and Richards, 1997) - Multifactor Leadership Questionnaire (Avolio and Bass, 2004)	21 items, 7 pt scale 45 items, 4 pt scale	α = .63 α = .65–92	NR NR	Fisher's exact test
31	McDaniel and Wolf (1992) JONA USA	1 Nurse Executive 9 Admin 46 RNs	- Multifactor Leadership Questionnaire (Bass, 1987) - Job Satisfaction (Work Satisfaction Scale (Hinshaw et al., 1987)) 5 subscales	76 items, 5 pt scale 32 items, scale	α = .92 α = .87	Previously reported Construct	T-test Paired scoring

Table 2 (Continued)

Ref #/Author(s), journal, year and country	Sample	Measurement/instruments	Scoring	Reliability	Validity	Analysis
32 McGillis-Hall and Doran, 2007 J Nurs Manage Canada	n = 1116 nurses 77 acute care med/surg units 19 hospitals	- Nurse staffing: Information provided by NMs - Patient complexity: Hospital records - Care delivery models: Three variables used to describe type of care given - Coordination of care (Shortell et al., 1991) - Job satisfaction: Job description index (Ironson et al., 1989) - Job stress: Stress in General Scale (Smith et al., 1992; Stanton et al., 2001) - Nursing role tension: Tension Index (Lyons, 1971) - Quality of care (Shortell et al., 1991) - Nursing leadership (Shortell et al., 1991)	NA NA NA 5 items 18 items 15 items 9 items 6 items 5 items	NA NA NA $\alpha = .80$ $\alpha = .88$ $\alpha = .91- .92$ $\alpha = NR$ $\alpha = .76$ $\alpha = .87$	NA NA NA NR NR NR NR NR Factor Analysis	Correlational coefficients ANOVA Multilevel hierarchical linear modelling
33 McGuire and Kennerly (2006) Nurs Econ USA	63 nurse managers 500 RN's RR not stated	- Multifactor Leadership Questionnaire Form 5X (Bass and Avolio, 2000) 12 subscales, 2 versions used leader and rater form - Organizational Commitment (Organizational Commitment Questionnaire, Mowday et al., 1979)	45 items, 5 pt scale 15 items, 7 pt scale	Previously established $\alpha = .82-.93$	Previous reported Convergent, discriminant and predictive	Pearson's product-moment correlation
34 McIntosh (1990) Work stress USA	97 RNs and LPNs	- Supportive Leader Behavior (Caplan et al., 1975) - Job satisfaction (Minnesota Satisfaction Questionnaire (Aldag et al., 1981) - Anxiety (State–Trait Personality Inventory, Spielberger, undated)	4-items 5-pt scale 20 items 10 items	$\alpha = .89$ $\alpha = .85$ $\alpha = 79$	NR NR NR	Moderated hierarchical regression Descriptive statistics
35 McNeese-Smith (1995, 1996) Hosp and Health Serv Admin and JONA, USA	Seattle sample only 41 managers (1/2 non nurses) 471 employees 2 hospitals	- Leadership Practices Inventory: Self and Other (Kouzes and Posner, 1987; Posner and Kouzes, 1990) - Productivity scale (researcher developed) - Job-in-General scale (Smith et al., 1989): subscale of JDI) - Organizational Commitment (Porter et al., 1974)	30 items × 2, 5 pt scale 15 items, 5 pt scale 18 items, yes/no/? 15 items, 7 pt scale	$\alpha = .58-.94$ $\alpha = .90$ $\alpha = .88$ $\alpha = .92$	Criterion Face/piloted convergent NR	ANOVA Regression
36 McNeese-Smith (1995, 1999) J Org Beh and JONA USA	LA Sample only 19 managers and 221 nurses 1 hospital	- Leadership Practices Inventory: Self and Other (Kouzes and Posner, 1987; Posner and Kouzes, 1990) - Productivity scale (researcher developed) - Job-in-General scale (Smith et al., 1989): subscale of JDI) - Organizational Commitment (Porter et al., 1974) - Motivation (Job Choice Exercise (JCE), Stahl, 1986; Stahl and Harrell, 1982)	30 items x 2, 5 pt scale 15 items, 5 pt scale 18 items, yes/no/? 15 items, 7 pt scale 30 items, scores regressed and equation	$\alpha = .58-.94$ $\alpha = .90$ $\alpha = .88$ $\alpha = .92$ $\alpha = .59-.89$	Criterion Face/piloted Convergent NR Criterion/construct	ANOVA Regression
37 McNeese-Smith and Yang (2000) Hong Kong Nursing J Shanghai and USA	Shanghai sample only 48 head nurses, 292 nurses 8 hospitals	- Leadership Practices Inventory: Self and Other: (Kouzes and Posner, 1987; Posner and Kouzes, 1990) - Productivity scale (researcher developed) - Job-in-General scale (Smith et al., 1989) subscale of JDI) - Organizational Commitment (Porter et al., 1973, 1974)	30 items × 2, 5 pt scale 15 items, 5 pt scale 18 items, yes/no/? 15 items, 7 pt scale	$\alpha = .58-.94$ $\alpha = .90$ $\alpha = .88$ $\alpha = .92$	Criterion Face/piloted Convergent NR	ANOVA Regression
38 Medley and Larochelle (1995) Nurs Manage USA	122 staff nurses 4 hospitals	- Multifactor Leadership Questionnaire (Bass and Avolio, 1995b) - Index of Work Satisfaction (Slavitt et al., 1986)	70 items, 4 pt scale 44 items, 7 pt scale	$\alpha = .80-.86$ $\alpha = .82$	Content NR	Correlation, factor analysis

#	Study	Sample	Measures	Scale	Reliability	Validity	Analysis
39	Meyer-Bratt et al. (2000) Am J Crit Care USA and Canada	1973 RNs 65 beds acute care facilities	- Leader Empowering Behaviours (Good and Nelson, 1973; Baggs et al., 1992) - Work Satisfaction Scale and Nursing Job Satisfaction Scale (Hinshaw and Atwood, 1985)	27 items, 7 pt scale; 32 + 23 items, 5 pt scale	α = .96 α = .83 and .86	NR	ANOVA Multiple regression
40	Morrison et al. (1997) JONA Country NR	275 nurses (licensed and unlicensed) RR = 64%	- Multifactor Leadership Questionnaire Form 5X (Bass and Avolio, 1995a) 4 subscales - Psychological Empowerment (Spreitzer, 1995) - Job Satisfaction (title NR: (Warr et al., 1979)	5pt scale; 4 items, 5pt scale Likert type	α = .67–93 α = .72 α = .90 and .78	All measures NR	ANOVA Hierarchical multiple regression
41	Mosser and Walls (2002) South Online J Nurs Res USA	253 nursing faculty 60 schools RR = 42%	- Leadership Orientations Instrument, Other (Boleman and Deal, 1991) - Organizational Climate Description Questionnaire-Higher Education (Borrevik, 1972)	32 items, 5 pt scale; 42 items, 5 pt scale	α = .91–93 α = .68–93	Varimax rotation	Pearson correlation ANOVA Tukey's HSD test (post hoc)
42	Nielsen et al. (2008) J Adv Nurs Denmark	n = 447 staff RR = 81%	- Global Transformational Leadership Scale (Carless et al., 2000) - Influence, meaningful work, involvement, job satisfaction, and well-being - Copenhagen Psychosocial Questionnaire (Kristensen et al., 2002, 2006)	7 items, 5 pt scale; NR except for job satisfaction (5 items, 4 pt scale)	NR NR	NR	Independent sample t-tests Structural equation modelling
43	Peiro et al. (1996) Work Stress Country NR	155 nurses 127 physicians 28 Primary Healthcare Teams	- Leadership: Supervisory Behaviour Questionnaire (Fleishman, 1957; Fleishman, 1953) - Job Satisfaction Questionnaire for PHCT Professionals (Peiro et al., 1990) - Workteam Climate ((de Witte and de Cock, 1985) - Role Stress: Role Conflict (Rizzo et al., 1970) - Role Clarity ((Rizzo et al., 1970) - Job Related Tension ((Rizzo et al., 1970)	6 items, 5 pt scale; 7 pt scale; 4 pt scale; 6 items, 7 pt scale; 7 items, 7 pt scale; 6 items, 5 pt scale	α = .64–72 α = .76–95 α = .77–92 α = .77–75 α = .90–92 α = .67–87	Previously established NR NR Construct NR	Within and between group analysis Correlation
44	Prenkert and Ehnfors (1997) J Nurs Manage Sweden	23 head nurses and assistant head nurses 1 hospital	- Modified Multi-Leadership Questionnaire (Bass, 1985) 2 items removed and 3 items added renamed Leadership Nursing Effectiveness Questionnaire) - Organizational Effectiveness = Nursing Recipients x Quality of Nursing Care - Resources Used	84 items, 5 pt scale; Equation	NR	NR	Correlations
45	Searle Leach, 2005 JONA USA	Nurse executives n = 102, nurse managers n = 148 RNs = 651	- Transformational Leadership Profile (Sashkin et al., 1992) - Organizational Commitment Scale (Penley and Gould, 1988)	50 items, 5 pt scale; 15 items, 6 pt scale sum and average score	α = .63–88 α = .78–82	NR	Spearman's rank order correlation coefficients Descriptive stats
46	Sellgren et al. (2008) J Nurs Manage Sweden	77 nurse managers n = 426 staff RR = 55% 1 university hospital	- Leadership behavior ('Change, production, employee' tool (Ekvall and Arvonen, 1991, 1994) - Job Satisfaction Questionnaire (Ekvall, no year) - Work climate (Creative Climate Questionnaire, Ekvall, 1996)	30 items, 6 pt scale; 20 items; 50 items, 4 pt scale	α = .86–94 α = .74–92 α = .66–90	NR NR NR	Correlations Duncan's post-hoc test Analysis of variance
47	Shieh et al. (2001) J Nurs Educ Taiwan	233 nurse faculty 21 nursing programs	- Multifactor Leadership Questionnaire 5–45 (Bass and Avolio, 1995b) - Nursing Faculty Satisfaction Questionnaire modified (Martin, 1991) * Note: all measures translated into Chinese	38-items, 5 pt scale; 40 items, 5 pt scale	α = .71–94 NR	Content and construct Concurrent	Hierarchical multiple regression Chi-square

Table 2 (Continued)

Ref #Author(s), journal, year and country	Sample	Measurement/instruments	Scoring	Reliability	Validity	Analysis
48 Stordeur et al. (2001) J Adv Nurs Belgium	625 RNs 1 hospital	- Multifactor Leadership Questionnaire Form-5X: (Bass and Avolio, 1991) - Work Stressors (Nursing Stress Scale: (Gray-Toft and Anderson J.G. 1985; Gray-Toft P. and Anderson J.G. 1981; Gray-Toft and Anderson J.G. 1981) - Role Conflict (House and Rizzo, 1972) - Role Ambiguity (House and Rizzo, 1972) - Emotional Exhaustion (Maslach Burnout Inventory: (Maslach and Jackson, 1981)	70 items, 5 pt scale 34 items, 4 pt scale 3 items, 4 pt scale 3 items, 4 pt scale 9 items, 7 pt scale	$\alpha = .68$–.90 $\alpha = .47$–.77 $\alpha = .82$ $\alpha = .95$ $\alpha = .87$	All measures NR	Multiple regression
49 Stordeur et al. (2000) Nurs Res Belgium	464 – nurses, head nurses and associate directors 8 hospitals	- Multifactor Leadership Questionnaire-5X (Bass and Avolio, 1991) - Perceived Unit Effectiveness ((Shortell et al., 1989) - Extra Effort (MLQ (Bass and Avolio, 1991) - Satisfaction with Leader (MLQ (Bass and Avolio, 1991) * Note: all measures translated into French	70 items, 5 pt scale 10 items, 5 pt scale 3 items, 5 pt scale 2 items, 5 pt scale	$\alpha = .68$–.90 $\alpha = .84$ $\alpha = .86$ $\alpha = .91$	All measures NR	ANOVA Regression
50 Taunton et al. (1997) West J Nurs Res USA	95 nurse managers and 248 RNs (124 leavers and 124 stayers) 4 hospitals	- Ohio State University Leader Behaviour Description Questionnaire (Kruse and Stogdill, 1973) + 2 questions (Camman et al., 1983) - Retention (3 indicators: turnover [resignation], unit separation [transfer] and retention) - Stress (Hinshaw and Atwood, 1983–1985) adapted from Bailey and Claus, 1977–1978) - Job satisfaction (2 of 8 scales from Hinshaw and Atwood's job satisfaction questionnaire (Hinshaw and Atwood, 1985) - Group cohesion (Hinshaw and Atwood, 1985)	NR Proportion remaining >6 m NR NR NR	$\alpha = .61$–.94 (all measures)	All measures NR	Multiple regression Path coefficients
51 Taunton et al. (1989a, 1989b) JONA USA	59 RNs 12 dieticians and social workers	- Leadership Style (Michigan Organizational Questionnaire, no date) - Retention – percentage of study period that participant remained on the job - Job Satisfaction Index: Price and Mueller, no date) - Intent-to-Stay (Intent to Stay Index, Price and Mueller, date NR)	NR % NR NR	$\alpha = .70$–.93 across all study measures	Factor analysis Experience with measures	Correlations ANOVA -Duncan test (post hoc)
52 Wakefield-Fisher (1987) J Prof Nurs USA	215 Faculty 21 doctoral programs participated	- Leader Behaviour Description Questionnaire-XII: (House, 1971): 2 subscales - Scholarly Productivity (Scholarly Productivity Index: researcher developed) 3 sub-scales (publication activities, prepublication and research activity and editorial activities)	NR NR	$\alpha = .88$ $\alpha = .75$	Content, construct Factor analysis	Regression
53 Womack (1996) J Prof Nurs USA	106 Nursing Department Chairs 104 schools	- Leadership Effectiveness and Adaptability Description-Self Instrument (Hersey and Blanchard, 1988) - Scholarly Productivity Index: (Wakefield-Fisher, 1987), Researchers used the corrected version, now called SPIC (SPI Corrected)	12 items, 4 pt scale 3 dimensions (see above)	NR NR	NR NR	Chi-square T-tests

NR- Not reported.

Table 3
Summary of quality assessment – 53 included quantitative studies.

Criteria	No. of studies	
	Yes	No
Design		
Prospective studies	42	11
Used probability sampling	11	42
Sample		
Appropriate/justified sample size	10	43
Sample drawn from more than one site	37	16
Anonymity protected	22	31
Response rate >60%	34	19
Measurement		
Reliable measure of leadership	47	6
Valid measure of leadership	35	18
Effects[a] (outcomes) were observed rather than self-reported	11	42
Internal consistency ≥70 when scale used	40	13
Theoretical model/framework used	47	6
Statistical analyses		
Correlations analyzed when multiple effects studied	34	19
Management of outliers addressed	17	36

[a] This items scored 2 points. All others scored 1 point.

studies also reported that job satisfaction was significantly lower with more task focused forms of leadership (non-shaded rows in Table 4) such as instrumental, management by exception, and laissez-faire leadership. However, two studies found that relational leadership styles were not significantly associated with job satisfaction (McNeese-Smith and Yang, 2000; Nielsen et al., 2008). Significantly higher *satisfaction with their leader* was reported in six studies when leadership styles were charismatic, resonant, and transformational (Bycio et al., 1995; Cummings, 2004; Cummings et al., 2005; Dunham-Taylor, 2000; Holdnak et al., 1993; Peiro et al., 1996; Stordeur et al., 2000). Two studies examining consideration and initiating structures found equivocal results (Holdnak et al., 1993; Peiro et al., 1996). Reduced satisfaction with their leader was reported in three studies, where leadership was management by exception (Bycio et al., 1995), transactional and laissez-faire (Dunham-Taylor, 2000), and dissonant (Cummings, 2004; Cummings et al., 2005).

Eleven of the remaining 12 outcomes in this theme including satisfaction with *job mobility options, job security, financial rewards* and *time to spend with patients* were reported significantly higher in association with resonant, empowering, initiating structure and consideration styles of leadership (Cummings, 2004), and significantly lower (Cummings et al., 2005; Gil et al., 2005; Holdnak et al., 1993; Meyer-Bratt et al., 2000; Peiro et al., 1996) in association with dissonant (pacesetting and commanding) styles of leadership (Cummings, 2004; Cummings et al., 2005).

2.3.2. Staff relationships with work

The outcomes in this category include staff reports of organizational commitment, intent to stay or leave the profession, and actual turnover. Ten studies reported significantly increased *organizational commitment* with transformational leadership (Avolio et al., 2004; Chiok Foong Loke, 2001; McNeese-Smith, 1996, 1995, 1999; McNeese-Smith and Yang, 2000; Searle-Leach, 2005), supportive leadership (Howell and Dorfman, 1986), consideration (Lok and Crawford, 2001; Lok et al., 2005), and charismatic leadership (Bycio et al., 1995; McGuire and Kennerly, 2006). Five studies reported significantly lower organizational commitment with management by exception and instrumental leadership styles (Bycio et al., 1995; Howell and Dorfman, 1986; Lok and Crawford, 2001; Lok et al., 2005; McGuire and Kennerly, 2006), and one study reported significantly lower organizational commitment with the leadership practice of inspiring a shared vision (McNeese-Smith, 1995, 1996). *Nurses' intent to stay* was significantly higher with consideration leadership and lower with decision decentralization (Boyle et al., 1999), just as *nurses' intent to leave* was significantly higher with management by exception leadership (Bycio et al., 1995) and lower with charismatic leadership (Bycio et al., 1995). Actual *retention* was significantly higher with consideration (Taunton et al., 1997), better subordinate relations (Taunton et al., 1989a, 1989b), while a decrease in turnover was found with leader–member exchange (Ferris, 1985), and transformational leadership practices (Capuano et al., 2005) Retention was significantly lower following decision decentralization (Taunton et al., 1989a, 1989b).

2.3.3. Staff health and wellbeing

Staff health was reported to be better while *anxiety, emotional exhaustion* and *stress* were reported lower with transformational leadership (Stordeur et al., 2001), empowering leadership (Laschinger et al., 1999), supportive leadership (McIntosh, 1990), resonant leadership (Cummings, 2004; Cummings et al., 2005) and nurse-assessed nurse manager ability, leadership and support of nurses (Leiter and Laschinger, 2006; Laschinger and Leiter, 2006). Job tension decreased when nurses had a positive perception of nursing leadership (McGillis Hall and Doran, 2007). Dissonant leadership (Cummings, 2004; Cummings et al., 2005) and management by exception (Stordeur et al., 2001) were associated with greater nurse *emotional exhaustion* and poorer *emotional health*.

2.3.4. Work environments

Six studies reported significantly greater *nurse empowerment* with transformational leadership (Avolio et al., 2004; Larrabee et al., 2003; Morrison et al., 1997), connective leadership (Klakovich, 1996), leadership empowering behaviours (Laschinger et al., 1999), and motivational leadership (Manojlovich, 2005b, 2005a), while passive management was related to nurses' reports of less empowerment (Morrison et al., 1997). Six studies reported that *culture* and *climate* were better in association with leadership support for improvement, structural leadership, initiative structure and change oriented leadership (Ginsburg et al., 2005; Mosser and Walls, 2002; Hernandez et al., 1988; Peiro et al., 1996; Gil et al., 2005). Within the nursing environment, relational leadership styles also increased nurses' *research utilization* (Nilsson et al., 2008), use of evidence-based practices from research

Table 4
Outcome differences between relationally focused (shaded) and task focused (non-shaded) leadership styles.

Outcomes	Significantly increased	Significantly decreased	No change
A. Staff satisfaction with work, roles and pay			
Job satisfaction	4, 5, 8, 9, 10, 14, 19, 21, 22, 24, 25, 28, 31, 32, 34, 35, 36, 38, 39, 40, 46, 47, 50		37, 42
		5, 8, 10, 21, 25, 28, 32, 40, 47, 50	4, 38
Satisfaction with leader	6, 10, 11, 19, 43, 49		
		6, 10, 11	
Job mobility	10		
		10	
Job security	10		
		10	
Financial rewards	10		
		10	
Pay			19
Promotion	19		
Organizational work satisfaction	39		
Time with patients	10		
		10	
People	19		
Workload	43		
Job autonomy	43, 46		
Intrinsic satisfaction	43		
Team satisfaction	15		
B. Staff relationships with work			
Organizational commitment	2, 6, 9, 21, 28, 33, 35, 36, 37	35	
		6, 21, 28, 33, 35	
Alienative/calculative commitment		45	
Intent-to stay	5		
		5	
Intent-to-leave		6	25
Retention	6 50, 51		
		51	
Turnover		12, 20	
Absenteeism			4
Depersonalization		27	
Personal accomplishment	27		
C. Staff health and wellbeing			
Health complaints		4	
Job stress	4	39	48
Personal stress	48	50	
Job tension		26, 32	43
Emotional exhaustion		10, 26, 27, 48	
Emotional health	10, 49 10		
		10	
Anxiety		34	
D. Work environment factors			
Empowerment	1, 7, 6, 23, 29, 42		
		40	

Table 4 (*Continued*)

Outcomes	Significantly increased	Significantly decreased	No change
Culture	16		
Organizational climate	18, 41		
Work-team climate	32, 43		
Team climate	15		
Role clarity	43		
Role conflict			43
Role ambiguity	48	43, 48	48
Nurse/physician teamwork	10, 27, 39	10	
Support	43		
Goal information	43		
Best practice guidelines			30
Research utilization	3, 13	13	
Respect for rules	43		
Innovative/creative	43, 46	46	52
Power	26		
Policy involvement	27		
Job significance	4		4
Nursing Work Group Collaboration	10	10	
Team innovation	15		
Group cohesion	50, 39		
Conflict management	17	17	
Staffing	27		
Nurse model	27		
Organizational characteristics	11	11	
Group process	18		
E. Productivity and effectiveness			
Extra effort	1, 6, 7, 42	3, 9, 15	
Effectiveness	11, 26	11, 26	
Organizational effectiveness			44
Perceived unit effectiveness	49		
Team effectiveness	15		
Leader effectiveness		6	
Productivity	9, 18, 35, 36	36	37, 18, 37
Leader scholarly productivity			53
Staff expertise	20		

Note: Numbers in each column – reference numbers of included studies from Table 2; shaded results – relational leadership styles; non-shaded results – task focused leadership styles.

(Boström et al., 2007) and implementation of *best practice guidelines* (Marchionni and Ritchie, 2008).

Role clarity was greater and *conflict* and *ambiguity* were reduced in association with transformational leadership and initiating structure activities (Peiro et al., 1996; Stordeur et al., 2001). Management by exception was associated with greater conflict and ambiguity (Stordeur et al., 2001). *Teamwork between physicians and nurses* was reported to be better in association with resonant leadership (Cummings, 2004; Cummings et al., 2005), greater nurse manager ability, leadership and support of nurses (Leiter and Laschinger, 2006; Laschinger and Leiter, 2006), and leader empowering behaviours (Meyer-Bratt et al., 2000). Fifteen other work environment outcomes, such as innovation, group cohesion, nursing workgroup collaboration, conflict management, and nursing models of care, were all reported significantly higher in association with consideration leadership (Peiro et al., 1996; Taunton et al., 1997), resonant leadership (Cummings, 2004; Cummings et al., 2005), socio-emotional leadership (Boumans and Landeweerd, 1993, 1994), change oriented leadership (Gil et al., 2005), leader empowering behaviours (Laschinger et al., 1999; Meyer-Bratt et al., 2000), nurse manager ability, leadership and support of nurses (Leiter and Laschinger, 2006; Laschinger and Leiter, 2006), transformational leadership (Hendel et al., 2005; Dunham-Taylor, 2000), and peer leadership (Hernandez et al., 1988). *Conflict management* and *nursing workgroup collaboration* were reported lower in association with transactional leadership (Hendel et al., 2005), and dissonant leadership (Cummings, 2004) respectively (Cummings et al., 2005).

2.3.5. Productivity and effectiveness

Factors reflecting individual, team and organizational productivity and effectiveness were reported to be higher, in 13 of 18 studies in this category, in association with charismatic, transformational and change oriented leadership (Bycio et al., 1995; Dunham-Taylor, 2000; Stordeur et al., 2000; Laschinger et al., 1999; Gil et al., 2005; Chiok Foong Loke, 2001; McNeese-Smith, 1995, 1996, 1999; McNeese-Smith and Yang, 2000; Hernandez et al., 1988; Capuano et al., 2005; Houser, 2003). Six studies reported significantly reduced effectiveness and productivity was associated with management by exception, transactional, laissez-faire and peer leadership (Bycio et al., 1995; McNeese-Smith, 1995, 1999; Dunham-Taylor, 2000; Laschinger et al., 1999; Hernandez et al., 1988).

3. Discussion

The findings of this comprehensive review point to a trend in outcomes patterns that support claims that relationship or people focused leadership practices contribute to improving outcomes for the nursing workforce, work environments and for productivity and effectiveness of healthcare organizations. Although similar to findings from Gilmartin and D'Aunno (Gilmartin and D'Aun, 2007), our review adds additional detailed analyses that examine the pattern of leadership styles, (relational or task), and the significance of specific outcomes for the nursing workforce and their work environments. With little exception, *relationally focused leadership* practices led to much more frequent and encouraging outcomes than did other more *task focused leadership* styles, which included dissonant leadership, management by exception, transactional, instrumental and laissez-faire approaches, led to negative outcomes. The widely different results provide sufficient reason for healthcare organizations and researchers to distinguish between *relationally focused* and *task focused leadership* styles. We discuss the implications of these findings for the nursing workforce, for leadership theory generally and in healthcare, for leadership research, and for the translation of knowledge into practice for healthcare organizations.

3.1. Implications for the nursing workforce and work environment

Healthcare leaders who focus primarily on the task to be completed, as with pacesetting and commanding styles (dissonant leadership), may not focus on developing or maintaining relationships with staff members or be tuned to their emotional needs as they provide complex and often life altering care and treatments. Whereas leaders who were relationally focused use their emotional skills to understand what individual employees or teams were feeling during difficult times, thereby building trust through listening, empathy, and responding to staff concerns. By tuning in to the emotional needs of staff, such leaders work with nurses and other healthcare staff to understand their issues, their work concerns, and to support and invest in them and their abilities. This leads to completion of the tasks required to achieve the common goal, in the case of healthcare, the provision of excellence in patient care.

The factors that influence nurses' job satisfaction are important to investigate, since declining job satisfaction can be an important signal of or proxy for quality care issues and poor patient outcomes, including increased patient mortality (Aiken et al., 2002). Thereby the positive and negative influences of various leadership styles can have indirect impact on patient outcomes by directly working through the nursing workforce and effects to the work environments where nurses work (Wong and Cummings, 2007).

Few studies focused on outcomes related to specific performance of individual nurses, with the 15 studies in the productivity and effectiveness thematic category, primarily using nurse-assessed productivity of their nursing unit, which may also introduce a level of social desirability. A stronger examination of the influence of leadership styles on both motivation to perform and actual performance outcomes for nurses and other healthcare practitioners is warranted. We found two studies that reported some positive outcomes for *initiating structure* which we had classified as task oriented (Holdnak et al., 1993; Peiro et al., 1996). Outside of healthcare, *consideration leadership* has been more strongly related to follower satisfaction (satisfaction with their leader, and job satisfaction), motivation and leader effectiveness, and initiating structure was slightly more strongly related to job performance and group-organization performance (Judge et al., 2004). Several factors may mediate the

relationship between consideration and performance outcomes including "liking their leader" if considerate leaders are more effective or are liked better by followers. It would also be important to examine if workers' beliefs about their own performance abilities mediate the relationships between consideration, initiating structure and outcomes – do considerate leaders instill greater self confidence in followers or does initiating structure focus more on increasing self-efficacy leading to better performance (Judge et al., 2004)?

3.2. Implications for leadership theory generally and in healthcare

A vast amount of literature on leadership theory and research exists in a wide variety of fields including health, education, business, military, and psychology. Theory is essential to guide research as it provides a basis from which relationships between ideas and variables are constructed in order to be empirically tested. The fact that 46 of 53 studies were guided by a theoretical framework suggests that this field is well led by theory that strengthens the validity of study findings. The continued development and testing of theory to study leadership, particularly in healthcare (Gilmartin and D'Aun, 2007), is imperative to develop knowledge in this field of the potential influence of both relational and task focused influences of leadership on differential outcomes for nurses and work environments.

A degree of task orientation is also important for relationally focused leadership styles. In a recent meta-analysis, Judge et al. (2004) showed that initiating structure by leaders was moderately positively associated with leadership outcomes and organization performance. In addition, West et al. (2002, 2006) have documented significant relationships between greater use of high performance human resource management practices such as clarity of staff roles and an effective performance management/appraisal system and lower patient mortality in England. Both consideration (.49) and initiating structure (.29) leadership behaviours were reported to have important main effects on numerous indicators of effective leadership (Judge et al., 2004). This suggests that leaders who also exhibit management skills, and management policies and practices in hospitals may influence important outcomes for patients and for nursing workforce.

Our simplified approach to classifying the leadership approaches is not to indicate that relationally focused leadership is or should be to the exclusion of the work to be done. Most theory related to relationally focused leadership such as transformational and resonant leadership, founded on emotional intelligence as the basis for influencing outcomes, are premised on leaders also having skills in management, organization and analytical intelligence (Bass et al., 2003; Goleman et al., 2002). Thereby the focus on people and relationships in these theories is formed on the understanding that the people in the organization are the organization's most precious resource to achieve their common goals.

Many leadership theories have conceptualized leadership as primarily positive and therefore leading to positive outcomes. This is perpetuated by the popularity of transformational leadership (Clements and Washbush, 1999; Goleman et al., 2002), which suggests that these leaders do the "right" things. Resonant leadership (Boyatzis and McKee, 2005) is also attributed to be positive where emotionally intelligent leadership is required to achieve better outcomes (Goleman et al., 2002). Yet Goleman et al. (2002) noted that dissonant leadership styles can be used judiciously in specific situations, recognizing that when used excessively, they come with a cost to employees. Other researchers have acknowledged that leadership can also lead to negative outcomes (Clements and Washbush, 1999; Damsereau and Yammari, 2000; Judge et al., 2004).

In our analyses, we had simplified the pattern of two approaches to leadership styles and their impact on specific outcomes for nurses, nursing environment, and nursing workforce. In reality, leadership practices, behaviours and styles, and outcomes are not that clean cut. Cummings et al. (2005) examined how resonant leadership styles mitigated many of the negative effects of hospital restructuring on nurses also reported that over 50% of the sample of nurses worked in environments where the leadership styles were mixed, as in neither completely resonant (emotionally intelligent styles described as visionary, affiliative, coaching and democratic) nor completely dissonant (pacesetting and commanding). The effects of hospital restructuring for these nurses were reported to be somewhere between the positive influences of resonant leadership and negative influences of dissonant leadership. Yet, the concept of mixed leadership styles in healthcare and their influence on outcomes for the nursing workforce and for patients requires considerably more research and theorization. Despite an overabundance of leadership theories and frameworks, the relationships and mechanisms of action for specific leadership styles and outcomes is actually still under-theorized. This is a fruitful area for future theory development and research.

3.3. Implications for leadership research

Most studies in this review did not use random sampling methods, due in part to the nature of studying leadership, since the specific populations of leaders are most easily targeted by convenience sampling. Few studies reported their unit of analysis, and most can be assumed to have been analyzed at the individual level, where follower ratings were averaged across followers rather than nested within each leader.

The majority of studies had samples drawn from more than one site which should continue with future research as the diversity of multiple settings will add to validity and generalizability of study findings. One notable issue was that only 34 of the 53 studies had a response rate of 60% or more, despite convenience sampling. Additional activities to increase response rates would improve reliability of the results and strengthen data analysis, although the challenge of accessing this leadership population needs to be acknowledged.

To strengthen study designs, future research can utilize more probability sampling, a purposive unit of

analysis where individual scores are linked to their leader and analyzed using multilevel analyses. Additionally, randomized control trials could be used to test the effectiveness of various knowledge transfer interventions aimed at developing leadership within organizations. The application of higher level multivariate statistical procedures like hierarchical and structural equation modeling can be implemented to test models and theories surrounding leadership. Models may include multiple leadership approaches and a variety of outcome variables related to leadership such as job satisfaction and retention.

A variety of tools were used to measure leadership in the studies in this review. Some of the more common tools used were the *Multifactor Leadership Questionnaire* (17 studies), *Leadership Practices Inventory* (5 studies), *Leader Behaviour Descriptive Questionnaire* (8 studies), *Leadership Effectiveness and Adaptability Description* (2 studies), and *Leader Empowering Behaviours* (2 studies). The remaining studies used single instruments including some studies where the researcher developed the instrument. While many studies had similar agreement on the goals of leadership, the researchers may have used different conceptualizations of leadership as leadership encompasses a broad range of areas, styles, and principles that may be applied differently in a variety of settings. For this systematic review, we accepted the definition or conceptualization of leadership that the researcher of each study chose. With a variety of tools being used to measure leadership, it may indicate that there is little consensus on the definition leadership as it remains a broad subject that varies among theorists, practitioners and researchers. Thus, what leadership is to nurses may vary from what leadership means to those in business or military. As only 35 of the 53 studies reported the validity of their leadership measurement tool, this may limit the generalizability of the findings. This could be addressed through further qualitative inquiry to add greater depth to the conceptualization of leadership.

Finally, only 40 of the 53 studies reported internal consistency greater than .70. While studies may have actually had appropriate validity and internal consistency, this may not have been reported. Accurate measurement of variables is vital to the quality of any study, thus future research should ensure that instruments are reliable to further strengthen the quality of leadership research in nursing.

3.4. Implications for the translation of knowledge into practice for healthcare organizations

Effective leadership is vital to provide guidance for solving complex problems related to nursing care delivery (Smith et al., 2006). With a documented shortage of nursing leaders in addition to the current shortage of nurses, it becomes increasingly important to find ways to develop and retain nursing leaders to ensure positive outcomes for the healthcare system (Laschinger et al., 2008). The challenge provided by these results is how to translate knowledge into action in healthcare workplaces.

Healthcare organizations must continue to recruit to leadership positions to fulfill their organizational mission and vision. Yet, the current reality is such that many healthcare leaders are primarily task focused. Compounded by a forthcoming healthcare leadership shortage (Laschinger et al., 2008), improving existing leadership is key for future sustainability of the nursing workforce. Therefore, hiring leaders with relational skills, or providing training for existing leaders becomes a priority consideration for chief executives and nursing administrators although screening for and assessing such competencies in the workplace is documented as being problematic (Matthews et al., 2002). A recent review on the effectiveness of leadership development interventions in nursing suggested that investing in leadership development by healthcare organizations is important as nine of nine studies showed a significant increase in transformational/relational leadership practices by participants up to 12 months after the program (Cummings et al., 2008). In our results, nurses who reported characteristics of relationally focused leadership also reported enhanced teamwork between physicians and nurses, workgroup collaboration, and empowerment—all of which are important features of quality nursing work environments.

One pan-Canadian initiative that is working to translate knowledge about how to improve healthcare work environments is the *QWQHC: Quality Worklife, Quality Health Care* (www.qwqhc.ca); a collaborative of eleven national associations and agencies that all have an interest in ensuring the health of healthcare work environments. These agencies do not use a regulatory approach to get healthcare organizations to focus on developing healthy work environments, they are national, government, accreditation, and healthcare professional bodies that are able to send strong messages and provide clear feedback to healthcare organizations on how to implement interventions to improve healthcare work environments. QWQHC uses two levels of knowledge transfer with indicators at both system and organizational levels. System level indicators include healthy work environments integrated into accountability and performance agreements, and integrated into their Health Human Resources (HHR) plans. Organizational level indicators include monitoring turnover rates, overtime, vacancies, absenteeism, worker's compensation lost time, training and development, and provider satisfaction. Clearly, the results of this review indicate that specific relationally focused leadership approaches are required by health care organizations to help achieve these indicators of healthy work environments.

3.4.1. Limitations

This review was limited by the potential of reporting bias that may exist with including only published studies since published work tends to over report positive and significant findings. Variability in the conceptualizations and measurement of leadership may limit the validity and generalizability of the findings. Due to the nature of studying leadership, no randomized control trials (RCTs) were found and there was limited control for extraneous variables. Finally, qualitative studies were not included

due to the volume of quantitative studies selected which may reduce the comprehensiveness of the results. Studies may also not have purposely hypothesized or even looked for differences in outcomes by leadership style, even if they had existed.

4. Conclusion

The findings of this systematic review point to specific leadership approaches that are more effective at achieving positive outcomes for the nursing workforce and for healthcare organizations, than others. Combined with knowledge from other reviews that relational and transformational leadership skills can be learned (Cummings et al., 2008), these results present an important moral imperative to ensure that our healthcare organizations are led by individuals and teams who display relational skills, concern for their employees as persons, and who can work collaboratively to achieve a preferred future for themselves, their employees, their patients and their organisation. As healthcare faces a looming shortage of leaders, nurses and all healthcare professionals, implementing strategies to ensure effective leadership is paramount. By developing and promoting viable nursing leadership for the future, organizations can achieve the goal of providing quality care for healthcare consumers. These findings suggest that by investing energy into relationships with nurses, relational leaders positively affect the health and well-being of their nurses, and, ultimately, the outcomes for patients.

Conflict of interest

None declared.

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