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Review

The JOINT model of nurse absenteeism and turnover: A systematic review

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ABSTRACT

Background: Absenteeism and turnover among healthcare workers have a significant impact on overall healthcare system performance. The literature captures variables from different levels of measurement and analysis as being associated with attendance behavior among nurses. Yet, it remains unclear how variables from different contextual levels interact to impact nurses' attendance behaviors.
Objectives: The purpose of this review is to develop an integrative multilevel framework that optimizes our understanding of absenteeism and turnover among nurses in hospital settings.
Methods: We therefore systematically examine English-only studies retrieved from two major databases, PubMed and CINAHL Plus and published between January, 2007 and January, 2013 (inclusive).
Findings: Our review led to the identification of 7619 articles out of which 41 matched the inclusion criteria. The analysis yielded a total of 91 antecedent variables and 12 outcome variables for turnover, and 29 antecedent variables and 9 outcome variables for absenteeism. The various manifested variables were analyzed using content analysis and grouped into 11 categories, and further into five main factors: Job, Organization, Individual, National and inTerpersonal (JOINT). Thus, we propose the JOINT multilevel conceptual model for investigating absenteeism and turnover among nurses.
Conclusions: The JOINT model can be adapted by researchers for fitting their hypothesized multilevel relationships. It can also be used by nursing managers as a lens for holistically managing nurses' attendance behaviors.

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What is already known about the topic?

- Nursing absenteeism and turnover have significant impact on quality outcomes in hospital settings.
- There is a considerable amount of research that has examined antecedents of absenteeism and turnover among nurses though mainly from a single level perspective.

What this paper adds

- Our results confirm that antecedents of absenteeism and turnover stem from multiple levels of measurement and analysis (individual, interpersonal, job, organizational,

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and national) and that future research on this type of organizational behavior need to be investigated from a multilevel perspective.
- Multilevel research has the potential of allowing researchers and practitioners to conceive turnover and absenteeism as resulting from relational properties rather than mere aggregates of individuals.

1. Introduction

The workforce is the most important resource of any healthcare organization and has a strong impact on its overall performance (Henderson and Tulloch, 2008). Nurses in particular are the linchpins of healthcare organizations and their attendance behavior (i.e., absences and turnover) can seriously affect quality of care outcomes, such as rate of medical errors, in addition to financial outcomes (Gaudine and Gregory, 2010; Hall and Doran, 2007; Homburg et al., 2009; Laschinger et al., 2009; Liu et al., 2012). The linkages between nurse attendance behaviors and organizational performance place this issue at the heart of Strategic Human Resource Management (SHRM) (Martell and Carroll, 1995). However, much of the literature on SHRM focuses on analysis at the organizational level while putting less emphasis to the individual level where these phenomena of absenteeism and turnover occur (Nishii and Wright, 2007). In this paper, we will explore attendance behavior among nurses from a multilevel perspective to account for both, individual and organizational levels of analyses, as well as other levels that may be influencing individual nurses' attendance behavior.

2. Multilevel antecedents of absenteeism and turnover

The context within which nurses operate is unique and complex and analyzing antecedents of their attendance behavior should mirror the complexity of this system. Following their systematic review, Davey et al. (2009) suggested that evidence about predictors of nurse absenteeism remains inconclusive and that further research is required. Moreover, the absence of a robust causal model that incorporates the organizational, professional, and personal variables is hindering the development of effective interventions for better management of nurses' attendance behavior (Lu et al., 2005).

Several variables, from multiple levels of measurement (individual, job, organizational, and social), have been identified in the literature as impacting nurse attendance behavior (Harrison and Martocchio, 1998). For example, from an individual perspective, a recent systematic review of the literature on nurse absenteeism from 1986 to 2006 identified that individual nurses' prior attendance records, burnout, and work attitudes (i.e., job satisfaction, organizational commitment, work/job involvement, and job stress) to be predictors of nurse absenteeism (Davey et al., 2009). Other job level factors have also been identified as antecedents to absenteeism such as the emotional demands, resulting from caring for the sick and sometimes dying people (Borritz et al., 2006), and the physical demands, resulting from lifting heavy loads and long standing positions (Trinkoff et al., 2003). In fact, working overtime and long hours are common phenomena among nurses (Rogers et al., 2004) and may lead them to adopt coping strategies such as obtaining sickness absences, job or profession turnover, and in some instances leaving the healthcare sector altogether (Josephson et al., 2008). On an organizational level, evidence from the literature suggests that sickness absences can be linked to salaries, benefits, as well as, working conditions (Henderson and Tulloch, 2008). Although there is ample evidence about variables from different levels being associated with attendance behavior among nurses, it remains unclear how the interaction between these variables impacts this type of organizational behavior.

2.1. Objective

The purpose of this review is to develop an integrative framework of nurse absenteeism and turnover in hospitals that accounts for both voluntary and involuntary attendance behavior. We operationalized this through a systematic review of the literature on nurse absenteeism and turnover between 2007 and 2011 in order to identify the levels to which antecedents and outcomes of such attendance behavior stem from. The proposed model adopts a multilevel perspective as a means of optimizing our understanding of absenteeism and turnover among nurses as specific types of organizational behavior (Klein and Kozlowski, 2000). This framework is rooted in the General Systems Theory (e.g., Von Bertalanffy, 1972); a perspective that recognizes that micro level phenomena are embedded in macro contexts, and therefore provides a holistic view that can yield more accurate practical and theoretical implications.

3. Method

3.1. Procedure

We conducted the search for English-only studies published in the past 6 years (January, 2007 till January, 2013 inclusive) using two online databases (PubMed and CINAHL Plus with Full Text). The following research question guided our investigation: *What are the antecedents and outcomes of absenteeism and turnover among nursing staff in hospital settings?*

We utilized "general search" option to facilitate obtaining consistent results in repetitive searches (Dwivedi, 2009; Williams et al., 2009). We also used the "advanced search" option to further identify research focusing on nurses. We screened titles and their corresponding abstracts three times by three independent researchers for the following keywords: 'turnover' OR 'absenteeism' OR 'sick leave' AND 'nursing' OR 'nurse'. We decided to examine turnover and absenteeism simultaneously in this review since the literature is marked by several studies that investigate these two concepts jointly (Steel and Lounsbury, 2009). Some of these authors refer to these types of organizational behaviors as 'withdrawal behaviors' (e.g., Griffeth et al., 2000; Hulin et al., 1985;

Table 1
National context of included studies.

Region	Count	Percentage	Country	Count	Percentage
North America	18	43.9%	USA	17	41.5%
			Canada	1	2.4%
South America	1	2.4%	Brazil	1	2.4%
Europe	12	29.3%	Sweden	3	7.3%
			UK	2	4.9%
			Belgium	1	2.4%
			Finland	1	2.4%
			Netherlands	4	9.8%
			Spain	1	2.4%
Middle East	2	4.9%	Jordan	1	2.4%
			Kuwait	1	2.4%
East Asia	5	12.2%	Japan	3	7.3%
			Taiwan	2	4.9%
Africa	1	2.4%	South Africa	1	2.4%
Australia	2	4.9%	Australia	1	2.4%
			New Zealand	1	2.4%
Total	41	100.0%	Total	41	100%

Kanungo and Mendonca, 2002; Mobley, 1982; Pelled, 1999; Porter and Steers, 1973; Somers, 1996) whereas others as 'nonattendance behaviors' (e.g., Boyar, 2005; Brooke, 1986; Steers and Rhodes, 1978). We opted to include the term 'sick leave' since it is often used interchangeably with 'absenteeism' (Estryn-Behar et al., 2010). As for the term "intent to leave/stay", we did not include it in this review since, as an attitude, it is measured differently than actual behaviors of absenteeism and turnover. Our intension was to ensure better comparability between the articles included in the final list of studies analyzed in this review. We then narrowed down the search to include articles that:

- were published in peer-reviewed journals,
- relied on primary reports of empirical qualitative or quantitative research, &
- quantitatively measured or qualitatively analyzed any of the following variables: turnover, absenteeism, or sick leave.

We also excluded articles that reported findings based on:

- healthcare staff other than nurses,
- nursing staff outside hospitals and medical centres, and
- student nurses.

We then retrieved full manuscripts of the articles for full screening. To facilitate the analysis, we tabulated all the key information about each study including objective(s), design, methodology, sample, variables, hypotheses, findings, and limitations.

3.2. Results

3.2.1. Descriptive statistics

The preliminary search yielded 7619 articles (6398 in PUBMED and 1221 in CINAHL). After removing duplicate articles, we ended up with 7057 articles, of which we removed 52 non-peer-reviewed articles and 5698 clinically based articles. We retrieved the remaining 1307 articles for full inspection and only 41 met the inclusion criteria specified above.

General overview: As illustrated in Table 1, the majority of these studies were conducted in the West, between North America (43.9%) and Europe (29.3%). A relatively smaller percentage of the studies (12.2%) were carried in East Asia, 4.9% in the Middle East, and another 4.9% in Australia, leaving only 2.4% in each of Africa and South America.

Research design: Whilst most of the studies used a cross-sectional research design (56.1%), 31.7% relied on longitudinal designs, and 12.2% pre-post assessments (Table 2). The majority of these studies (80.4%) relied solely on a quantitative methodology, 39% of them used both questionnaires and organizational databases whereas 41.5% relied on questionnaires only. The remaining studies either relied on qualitative methods only (12.2%) or on a mixed

Table 2
Design of included studies.

	Count	Percentage
Design		
Cross-sectional	23	56.1%
Longitudinal	13	31.7%
Pre-post assessment	5	12.2%
Total	41	100%
Methodology		
Quantitative	33	80.4%
Qualitative	4	9.8%
Both	4	9.8%
Total	41	100%
Method of data collection		
Questionnaires	17	41.5%
Questionnaires & Databases	16	39.0%
Interviews	5	12.2%
Questionnaires & Interviews	2	4.9%
Focus Groups & Databases	1	2.4%
Total	41	100%
Participants		
Females only	4	9.8%
Males only	0	0.0%
Both	37	90.2%
Total	41	100%

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method approach (7.3%). Around 90.2% of the studies involved both female and male participants, though the majority of the samples were female dominant as is the case with the majority of nursing research. Four studies (9.8%) included female only participants.

Antecedent and outcome variables: The analysis of the 41 articles yielded 91 antecedent variables and 12 outcome variables for turnover. The analysis also yielded 29 antecedent variables and 9 outcome variables for absenteeism and sick leave. Table 3 summarizes those findings as well as the direction of the relationship as reported in the results of the studies. The letter 'D' refers to a Direct Relationship whereas the letter 'I' refers to an Inverse Relationship.

3.2.2. Motivation for the new model

In policy making practices, the emotionally, mentally, and physically taxing nature of nursing work environment leaves the bedside nurses torn between patient/client demands and organizational demands (McGrath et al., 2003). In such cases, nurses may engage in excessive absences or leave their jobs as coping strategies for dealing with the challenging working conditions (Hackett and Bycio, 2011). Additionally, economic situations globally and in specific countries may oblige nurses to hold multiple jobs leading to more stress, absences, and resignations. Strategies supporting sustainable health in the workplace can therefore be considered important for preventing high turnover and prolonged sick leaves among nurses (Josephson et al., 2008). Unless absenteeism and turnover are addressed holistically from multiple levels, effective and sustainable solutions to these problems may remain difficult to attain.

Whilst efforts focused on identifying the most significant factors affecting nurse turnover and absenteeism are ongoing, existing models fall short in capturing and fully understanding these phenomena. Therefore, there is a need to rectify these shortcomings by proposing a holistic framework for assessing nurse attendance behavior in order to attain sustainable attitudinal and behavioral changes.

3.2.3. The proposed model

The proposed model has multiple constructs that were defined by relying on a systematic analysis of all the relevant variables identified in this review. Specifically, two researchers independently analyzed the antecedent and outcome variables for absenteeism and turnover using content analysis (Stemler, 2001). Each independently reviewed the variables and grouped them into meaningful categories. For example, "age", "gender" and "employment status" we grouped under the same category that we labeled "demographics". We then compared notes, reconciled differences, and agreed on 11 categories that can be used to distinguish the resulting variables: demographics, personal characteristics, job attitudes, health and well-being, management style, interpersonal relationships, job control, job demand, structure, human resource practices, and labor supply. The inter-rater agreement between three independent raters indicated substantial agreement (Fleiss' Kappa = 0.591). We defined each of these categories below along with the results associated with it. Following Klein and Kozlowski's (2000) conceptualization of multi-level research, we grouped these variables further into five broader levels, namely: Individual, Interpersonal, Job, Organizational, and National levels. From the five levels identified, we propose the JOINT model (Job, Organization, Individual, National and inTerpersonal) and we present it in Fig. 1 in its most basic form. In this figure, the antecedents of absenteeism and turnover stem from five different levels. After presenting the results, we will propose how this model can be used by researchers as the building block for testing hypothesized relationships and how nurse leaders can use it to guide their management practices.

3.3. Individual level

The first level incorporated individual level variables that tend to characterize or might be experienced by employees within organizations. These are micro level variables and include four categories, namely: demographics, personal characteristics, job attitudes, and health and wellbeing.

3.3.1. Demographics

We labeled the first category of variables "*demographics*" and included characteristics relating to the background of employees. Some of the demographic variables captured in this review, age (being young), gender (male), having other job(s), and being a certified or registered nurse, were found to be positively related to higher rates of absenteeism (Brewer et al., 2011; Josephson et al., 2008), and turnover (Jamieson and Taua, 2009; Josephson et al., 2008). However, having other jobs showed inconsistent results as it has been shown in some studies to possess an inverse relationship with turnover (Brewer et al., 2011).

Other demographic variables that were found to lead to higher turnover included having a full time-job status (Brewer et al., 2011), having childcare responsibilities (Jamieson and Taua, 2009; Sherring and Knight, 2009), living oversees (Jamieson and Taua, 2009), living far from the hospital (Hayajneh et al., 2009; Jamieson and Taua, 2009), taking up education and training opportunities outside the hospital (Bamford and Hall, 2007), and coming from rural areas (Jamieson and Taua, 2009; Josephson et al., 2008).

3.3.2. Personal characteristics

The second category, "*personal characteristics*" included skills, knowledge, traits, abilities, and other characteristics that distinguish one individual from another. For example, nurses with higher tendencies of feeling guilt were significantly more likely to be absent than other nurses (Gil-Monte, 2008). In contrast, nurses with certain personal characteristics such as higher problem-solving ability, better stress coping strategies, and the ability to withdraw from work obligations were found to be less likely to be absent as compared to other nurses (Schreuder et al., 2011a). Some personal characteristics were also found to be linked to decreased turnover rates such as; technical ability (Strordeur et al., 2007), high sociality and

Table 3
Review of the main studies on nurse turnover, absenteeism and sick leave.

Description	Pitkaaho et al. (2010)	Sherring and Knight (2009)	Jamieson and Taua (2009)	Beecroft et al. (2008)	Josephson et al. (2008)	Lee and Tzeng (2009)	Karlowicz and Ternus (2009)	Alotaibi (2007)	Morris et al. (2009)	Halfer et al. (2008)	Raup (2008)	Sellegren et al. (2009)	Wagner (2010)
(a) Turnover as an outcome to the variables listed under the description													
Research utilization in staff development													
Motivation												I	
Quality of care													
Job satisfaction	I						I			I		I	
Has other job(s)													
Burnout		D											
Technical ability													
Commitment				I									I
Transformational leadership											I		
Positive influence of patient												I	
Voluntary overtime													
Contribution to decision making							I						
Team effort							I						
Career development							I						
Social skills													
Risk exposure													
Pay scale			I				I	I					
Professionalism							I						
Regular interaction with counseling staff							I						
Right skill mix													
Skillful facilitators and educators													
Pediatric RN Internship Program										I			
Opportunity for professional advancements													
Critical care orientation program									I				
Relationship with nurse management													
Working time													
Handover of shifts													
Perceptorship program						I							
Ongoing education							I						
Age			I		I								
Effective communication													
Collegiality													
Government ownership													
Magnet designation													
Higher skill mix													
Specialty of unit (Neonatal vs. Pediatrics & Pediatrics vs. Adult)													
Full-time (vs. part-time)													
Intent-to-stay													
Work-related injuries													
Implementing a night-shift clinical nurse specialist													

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Description	Strordeur et al. (2007)	O'Brien-Pallas et al. (2010)	Suzuki et al. (2008)	Webster et al. (2009)	Romp and Kiehl (2009)	Bamford and Hall (2007)	Jones et al. (2009)	Brewer et al. (2011)	Niitsuma et al. (2011)	Staggs and Dunton (2012)	Becker (2013)	Frequency
(a) Turnover as an outcome to the variables listed under the description												
Research utilization in staff development					I							1
Motivation												1
Quality of care							I					1
Job satisfaction	I	I	I			I		I				9
Has other job(s)								I				1
Burnout												1
Technical ability	I											1
Commitment	I											3
Transformational leadership												1
Positive influence of patient												1
Voluntary overtime								I				1
Contribution to decision making												1
Team effort												1
Career development						I						2
Social skills									I			1
Risk exposure	D											1
Pay scale												3
Professionalism												1
Regular interaction with counseling staff												1
Right skill mix				I								1
Skillful facilitators and educators				I								1
Pediatric RN Internship Program												1
Opportunity for professional advancements				I								1
Critical care orientation program												1
Relationship with nurse management	I											1
Working time	D											1
Handover of shifts	D											1
Perceptorship program												1
Ongoing education												1
Age												2
Effective communication				I								1
Collegiality				I								1
Government ownership										I		1
Magnet designation										I		1
Higher skill mix										I		1
Specialty of unit (Neonatal vs. Pediatrics & Pediatrics vs. Adult)										I		1
Full-time (vs. part-time)								D				1
Intent-to-stay								I				1
Work-related injuries								D				1
Implementing a night-shift clinical nurse specialist											I	1

Description	Hodgin et al. (2010)	Sherring and Knight (2009)	Jamieson and Taua (2009)	Hayajneh et al. (2009)	Josephson et al. (2008)	Chen et al. (2008)	Lee and Tzeng (2009)	Foglia et al. (2010)	Karlowicz and Ternus (2009)	Alotaibi (2007)	Suzuki et al. (2010)	Halfer et al. (2008)
(b) Turnover as an antecedent to the variables listed under the description												
Recruitment costs							D					D
Rates of adverse events							D					
Loss of important nursing and/ or patient advocates												
Staff morale												

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Medication errors and hospital-acquired infections							D				
Role ambiguity											
Role conflict											
Job satisfaction											
Loss in resources											
Quality of care											
Patient falls							D				
Full-time (vs. part-time)			I								
Powerlessness											
Lack of confidence in ability to provide care			D								
Roster inconvenient for child care			D								
Childcare responsibilities		D	D								
Lives oversees			D								
Lives far from hospital			D	D							
Dislike Shiftwork			D								
Nursing certificate					D						
Adverse working conditions					D						
Poor leadership			D		D						
Geriatric care					D						
Job stress			D					D			
Complex nature of job								D			
Insufficient resources								D			
Negative perceptions of managers/team leaders								D			
Task-oriented role (limited in scope role)									D		
Lack of career ladder	D										
Coming from rural area			D	D							
Unsupportive work climate			D						D		
Unit size											
Intention-to-leave											
Lack of responsiveness of administration to safety issues and overall needs for staffing									D	D	
Inconsistent application of policies and procedures									D		
Feeling under valued											
Taking education opportunities outside the hospital											
Long work hours									D		
Failure in the recruitment process										D	
High workload						D					
Burnout											D
Physical workplace											D
Work schedule					D						
Dissatisfaction with patient care					D						
Barriers to learning											
Healthy work environment											
Emotional demand											
Hospital's location being in Tokyo											D
High demands					D						
Strenuous physical exertion					D						
Poor health status					D						
Work/family conflicts					D						
Supervisor support											

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Table 3 (*Continued*)

Description	Hodgin et al. (2010)	Sherring and Knight (2009)	Jamieson and Taua (2009)	Hayajneh et al. (2009)	Josephson et al. (2008)	Chen et al. (2008)	Lee and Tzeng (2009)	Foglia et al. (2010)	Karlowicz and Ternus (2009)	Alotaibi (2007)	Suzuki et al. (2010)	Halfer et al. (2008)
Supervisor innovation												
Positive attitudes of employers												
Expectations of employers			D									
Nurse-Friendly Hospital Project												
Nurse shortage			D									
Female nurses (vs. male nurses)					D							
Physical injuries												
Deteriorated mental health												
Role ambiguity and conflicts												
Exposure to risk												
Reward/Effort ratio												
Supportive organizational culture												
Disrespect												
Support from coworkers												
Moving residents												

Description	Cohen et al. (2009)	Meraviglia et al. (2008)	Sellegren et al. (2009)	Strordeur et al. (2007)	O'Brien-Pallas et al. (2010)	Suzuki et al. (2008)	Webster et al. (2009)	Bamford and Hall (2007)	Jones et al. (2009)	Brewer et al. (2011)	Frequency
(b) Turnover as an antecedent to the variables listed under the description											
Recruitment costs											2
Rates of adverse events											1
Loss of important nursing and/or patient advocates									I		1
Staff morale									I		1
Medication errors and hospital-acquired infections					D						2
Role ambiguity				D	D						2
Role conflict					D						1
Job satisfaction					I						1
Loss in resources									I		1
Quality of care		I									1
Patient falls		D									2
Full-time (vs. part-time)										I	2
Powerlessness							D				1
Lack of confidence in ability to provide care											1
Roster inconvenient for child care											1
Childcare responsibilities											2
Lives oversees											1
Lives far from hospital											2
Dislike Shiftwork											1
Nursing certificate											1
Adverse working conditions											1
Poor leadership											2
Geriatric care											1
Job stress											2
Complex nature of job											1
Insufficient resources											1
Negative perceptions of managers/team leaders			D				D				3
Task-oriented role (limited in scope role)											1
Lack of career ladder											1
Coming from rural area											2
Unsupportive work climate			D			D					4
Unit size			I								1
Intention-to-leave			D	D						D	3

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Lack of responsiveness of administration to safety issues and overall needs for staffing										2
Inconsistent application of policies and procedures										1
Feeling under valued								D		1
Taking education opportunities outside the hospital								D		1
Long work hours										1
Failure in the recruitment process										1
High workload			D				D			3
Burnout				D						2
Physical workplace										1
Work schedule				D			D			3
Dissatisfaction with patient care										1
Barriers to learning							D			1
Healthy work environment	I	I					I			3
Emotional demand				D						1
Hospital's location being in Tokyo										1
High demands										1
Strenuous physical exertion										1
Poor health status							D			2
Work/family conflicts				D			D			3
Supervisor support	I									1
Supervisor innovation	I									1
Positive attitudes of employers		I								1
Expectations of employers		D								2
Nurse-Friendly Hospital Project		I								1
Nurse shortage		D						D		3
Female nurses (vs. male nurses)										1
Physical injuries									D	1
Deteriorated mental health					D		D			2
Role ambiguity and conflicts				D	D					2
Exposure to risk				D						1
Reward/Effort ratio				I			I			2
Supportive organizational culture							I			1
Disrespect							D			1
Support from coworkers							I			1
Moving residents								D		1

Description	Josephson et al. (2008)	Schreuder et al. (2010b)	Schreuder et al. (2010a)	Schreuder et al. (2010a,b)	Schreuder et al. (2011a,b)	Schreuder et al. (2011a,b)	Frequency
(c) Absenteeism as an outcome to the variables listed under the description							
Problem solving ability						I	1
Stress coping strategies						I	1
Feeling respect from coworkers				I			1
Feeling respect from supervisors				I			1
Effective leadership		I			I		2
Ability to withdraw from working obligations				I			1
Less than 50 years old	D						1
Health and wellbeing			I				1
Supportive organizational climate			I				1

Description	Sherring and Knight (2009)	Josephson et al. (2008)	Nilsson et al. (2011)	Sherring and Knight (2009)	Nyathi and Jooste (2008)	Martins and Robazzi (2009)	Schreuder et al. (2010a,b)	Gil-Monte (2008)	Frequency
(d) Absenteeism as antecedent to the variables listed under the description									
Group cohesion					I				1
Delegation of autonomy					I				1
Role ambiguity					D				1
Ineffective routinization					D				1

Table 3 (*Continued*)

Description	Sherring and Knight (2009)	Josephson et al. (2008)	Nilsson et al. (2011)	Sherring and Knight (2009)	Nyathi and Jooste (2008)	Martins and Robazzi (2009)	Schreuder et al. (2010a,b)	Gil-Monte (2008)	Frequency
High workload					D				1
Poor health status							D		1
Effort/Reward ratio							D		1
Depersonalization and guilt								D	1
Feelings of suffering						D			1
Disintegration of team						D			1
Worse social relationships						D			1
Job stress						D			1
Work overload						D			1
Disorganized work						D			1
Work dissatisfaction						D			1
Burnout	D			D					2
Reduced quality of care						D			1
Nursing certificate		I							1
Female nurse (vs. Male nurse)		D							1
Healthcare area: Geriatric and primary care (vs. others)		D							1
Adverse working conditions		D							1
Strenuous physical exertion		D							1
High demands		D							1
Work/family conflicts		D							1
Having other job		D							1
Emotional exhaustion	D								1
Pain			D						1
Disability			D						1

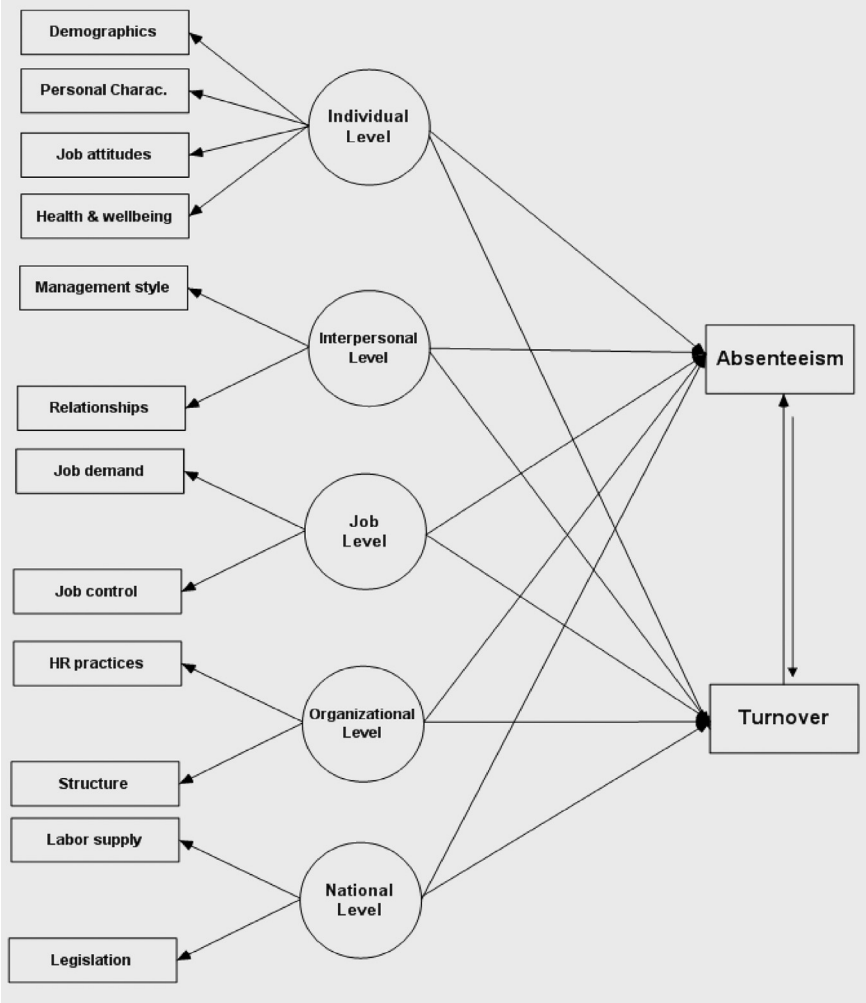

Fig. 1. The JOINT conceptual model for explaining and predicting absenteeism and turnover among nurses.

social skills (Niitsuma et al., 2011), and effective communication (Webster et al., 2009).

3.3.3. Job attitudes

The "*job attitudes*" category included viewpoints around one's job, career and/or organization that consequently result in affective, cognitive, and behavioral responses. Some job attitudes were also found to impact turnover but no study in this review established such effects on absenteeism. More specifically, job dissatisfaction, intention-to-leave, lack of motivation, powerlessness, lack of confidence in one's ability to provide care, being dissatisfied with the quality of patient care, and lack of job commitment were associated with higher levels of turnover (Bamford and Hall, 2007; Beecroft et al., 2008; Brewer et al., 2011; Halfer et al., 2008; Jamieson and Taua, 2009; Josephson et al., 2008; Karlowicz and Ternus, 2009; O'Brien-Pallas et al., 2010; Sellegren et al., 2009; Strordeur et al., 2007; Suzuki et al., 2008; Wagner, 2010; Webster et al., 2009). On the other hand, both absenteeism (Martins and Robazzi, 2009) and turnover (Jones et al., 2009; Pitkaaho et al., 2010) were found to be associated with higher work dissatisfaction among the remaining nurses. Additionally, turnover among hospital nurses was also found to lead to a decline in the morale of the remaining staff (Jones et al., 2009).

3.3.4. Health and wellbeing

The fourth and final category under this level, "*health and wellbeing*" the physiological and psychological states an individual may be experiencing, that may, in turn, impact his/her behavior at work. Poor health and wellbeing (Schreuder et al., 2010a; Stone et al., 2007), pain and disability (Nilsson et al., 2011), nurse depersonalization (Gil-Monte, 2008), burnout, and emotional exhaustion (Sherring and Knight, 2009) were all linked with higher rates of absenteeism among hospital nurses. Similarly, poor health status (Josephson et al., 2008), deteriorated mental health (O'Brien-Pallas et al., 2010), physical injuries (Brewer et al., 2011; Morris et al., 2009), and burnout (Strordeur et al., 2007; Suzuki et al., 2010), were all shown to lead to increased nurse turnover. Although several antecedents were found to impact absenteeism and turnover, both variables were in turn found to impact

health and wellbeing of nurses in hospitals. More specifically, absenteeism was found to cause feelings of suffering among present nurses (Martins and Robazzi, 2009), and both absenteeism and turnover were found to significantly increase the level of burnout among the remaining nurses (Sherring and Knight, 2009). In summary, burnout was found to impact, and to be impacted by, both absenteeism and turnover.

3.4. Interpersonal level

The second level of variables refers to characteristics of an employee's interpersonal interactions with different stakeholders in the workplace, which we divided into two categories; management style and relationships. Interpersonal level variables are still considered as micro level variables but are distinguished from the previous variables for being *relational variables*, which describe the relationship of a unit of analysis with another one at the same level (Hox, 1995).

3.4.1. Management style

"*Management style*" referred to a manager's, supervisor's and/or decision-maker's approach to interacting professionally with employees. Several studies looked at such relationships and consistently found effective leadership and feeling respect from supervisors to be associated with lower levels of absenteeism (Schreuder et al., 2010b, 2011a,b). In support with these finding, Nyathi and Jooste (2008) investigated the impact of inadequate delegation of autonomy to hospital nurses and found it to be associated with higher absenteeism rates. Along the same lines, poor leadership (Jamieson and Taua, 2009; Josephson et al., 2008), non-transformational leadership (Raup, 2008), unskillful facilitators and clinical educators (Webster et al., 2009), inability of managers to solve work-related problems (Alotaibi, 2007; Karlowicz and Ternus, 2009), unrealistic expectations of employers (Jamieson and Taua, 2009), and lack of professionalism (Karlowicz and Ternus, 2009), negative perceptions about supervisor support and innovation (Cohen et al., 2009), and about team leaders, (Foglia et al., 2010; Sellegren et al., 2009; Webster et al., 2009) were all associated with an increase in turnover rates among hospital nurses.

Nurse turnover is higher in contexts where there are

3.4.2. Relationships

The second category, "*relationships*" included aspects relating to personal and professional interactions between employees, or between employees and other stakeholders (e.g., patients). Three articles assessed the impact of interpersonal relationships on nurse absenteeism and found feeling respect from coworkers (Schreuder et al., 2010b) and having a supportive organizational climate (Stone et al., 2007) to be negatively associated with nurse absenteeism. Nyathi and Jooste (2008), on the other hand, demonstrated that inadequate group cohesion causes higher levels of nurse absenteeism. Several other relationship-related factors were also found to contribute to higher rates of turnover, such as feeling undervalued (Bamford and Hall, 2007), being disrespected by colleagues (Webster et al., 2009), having an unsupportive work climate (Jamieson and Taua, 2009; Karlowicz and Ternus, 2009; Sellegren et al., 2009; Suzuki et al., 2008), negative attitudes of employees (Meraviglia et al., 2008), destructive relationship with nurse manager (Strordeur et al., 2007), lack of support from coworkers (Webster et al., 2009), lack of regular interaction with counseling staff (Karlowicz and Ternus, 2009), and lack of collegiality and team effort (Karlowicz and Ternus, 2009; Webster et al., 2009). Only one study examined the impact of nurse absenteeism on interpersonal factors and found it to contribute to disorganized work as it leads to disintegration of teams and worsening of social relationships between nurses (Martins and Robazzi, 2009).

3.5. Job Level

This level included variables pertaining to the job that may impact employee attendance, performance, and satisfaction. These variables are considered macro level variables since they typically refer to an aggregate of individual data or to variables that describe a subunit of the organization, or the organization as a whole. This level included two categories: job demand and job control. These two categories seem to fit Karasek's (1979) job demand-control, upon which much of the job stress research is rooted (De Jonge et al., 1999).

3.5.1. Job demand

"*Job demand*" included variables that refer to the amount of mental, physical, and emotional energy required for the fulfillment of a particular job such as; mental load and time pressures. Variables such as high workload (Chen et al., 2008; Nyathi and Jooste, 2008; Sellegren et al., 2009; Webster et al., 2009), demanding nature of the job (Josephson et al., 2008; Karlowicz and Ternus, 2009; Strordeur et al., 2007), adverse working conditions (Josephson et al., 2008), exerting strenuous physical activity (Josephson et al., 2008), and work/family conflict (Josephson et al., 2008; Strordeur et al., 2007; Webster et al., 2009) were found to be associated with higher rates of both, absenteeism and turnover among nurses. Additionally, ineffective routinization was shown to directly impact absenteeism rates only (Nyathi and Jooste, 2008), whereas task-oriented roles, that are limited in scope (Karlowicz and Ternus, 2009), stressful work environments (Foglia et al., 2010; Jamieson and Taua, 2009), complex jobs (Foglia et al., 2010), and being exposed to occupational risk (Strordeur et al., 2007) were found to increase job turnover. Interestingly, only one study in our review investigated job factors as outcomes of nurse absenteeism and found that higher absenteeism among nurses may lead to work overload and job stress among the remaining nurses (Martins and Robazzi, 2009).

3.5.2. Job control

"*Job control*" is related to the extent to which the conditions of the job provide an opportunity to the employee to use his or her skills and capabilities (i.e., skill discretion) and the amount of control the employee has over their work situation (i.e., decision latitude and

autonomy). Only one study in this review reported links between job control variables and absenteeism. Specifically, Nyathi and Jooste (2008) showed that role ambiguity is significantly related to higher absenteeism rates. However, most of the variables that we grouped under this category were shown to increase the rate of turnover among hospital nurses such as feeling incapable of contributing to decision making (Karlowicz and Ternus, 2009), not having the autonomy to decide when to work overtime (Brewer et al., 2011), and having role ambiguity and conflicts (O'Brien-Pallas et al., 2010; Strordeur et al., 2007). O'Brien-Pallas et al. (2010) highlighted the reciprocity of the relationship between turnover and role ambiguity, since having high rates of turnover among hospital nurses were also shown to increase role ambiguity among remaining nurses.

3.6. Organizational level

The fourth level incorporated organizational level variables that directly or indirectly impact nurse behaviors. These are macro level variables and included two categories: human resource practices and structure.

3.6.1. Human resources practices

"*Human resources practices*" brought together variables pertaining to policies, rules and regulations that typically fall within the realm of Human Resources Management (HRM). According to the analysis, there are several antecedent variables related to the HR practices, at a hospital, that influence the rate of absenteeism and turnover among nurses. Specifically, higher effort/reward ratio was found to lead to higher rates of absenteeism (Schreuder et al., 2010a), and turnover (Strordeur et al., 2007; Webster et al., 2009). Whereas, lack of career ladder (Hodgin et al., 2010), lack of growth and development opportunities (Bamford and Hall, 2007; Halfer et al., 2008; Karlowicz and Ternus, 2009; Lee and Tzeng, 2009; Morris et al., 2009; Webster et al., 2009), inequitable pay scales (Alotaibi, 2007; Jamieson and Taua, 2009; Karlowicz and Ternus, 2009), barriers to learning (e.g., unskillful mentors, incomprehensive orientation and insufficient professional advising) (Webster et al., 2009), and failure in the recruitment process (Alotaibi, 2007) were all associated with increased rates of turnover. Additionally, high turnover significantly increased costs associated with recruitment, orientation, and temporary labor coverage for vacant nurses' positions (Halfer et al., 2008; Lee and Tzeng, 2009).

3.6.2. Structure

"*Structure*" included variables that describe characteristics of the context encapsulating the healthcare organization and that define the way processes and procedures are executed to meet the organization's goals. For example, specific healthcare fields (i.e., geriatric and primary care areas) were shown to have higher rates of nurse absenteeism compared to other healthcare areas (Josephson et al., 2008). Along the same lines, Staggs and Dunton (2012) revealed that turnover among nurses is less in neonatal units, as compared to pediatric units, and less in pediatric units, as compared to adult units. According to Karlowicz and Ternus (2009) and Alotaibi (2007) nurse turnover is higher in hospital settings where there is lack of responsiveness of administration to safety issues and lack of utilization of research in staff development (Romp and Kiehl, 2009). Other variables that may increase turnover among nurses are: shortage of resources (Foglia et al., 2010), relatively smaller unit size (Sellegren et al., 2009), inconsistent application of policies and procedures (Karlowicz and Ternus, 2009), unsupportive organizational culture (Webster et al., 2009), roster inconvenient for child care (Jamieson and Taua, 2009), providing geriatric and primary healthcare services (Josephson et al., 2008), non-government ownership, not being Magnet® designated, lower skill mix (Staggs and Dunton, 2012), and the negative influence of dealing with ill patient (Sellegren et al., 2009). Additionally the structure of work in hospital settings, which includes factors such as; shift work (Jamieson and Taua, 2009), working time (Strordeur et al., 2007), work schedule (Josephson et al., 2008; Strordeur et al., 2007; Webster et al., 2009), handover of shifts (Strordeur et al., 2007) were also shown to increase turnover. The physical work place (Suzuki et al., 2010), work environment (Cohen et al., 2009; Meraviglia et al., 2008; Webster et al., 2009), not having a night-shift clinical nurse specialist (Becker, 2013), and hospital's location (Suzuki et al., 2010), were also shown to lead to an increase of job turnover. The strong impact of turnover was also highlighted by Jones et al. (2009) who specifically showed that turnover of nurse executives leads to loss of important nursing and patient advocates.

3.7. National level

The final level of variables pertained to characteristics that are typically external to the healthcare organization but may influence employee behavior within this organization. This domain included one level, namely; labor supply, since 'nurse shortage' was the only related external variable, retrieved from this review, that was found to impact the rates of turnover within hospitals (Jamieson and Taua, 2009). Although we identified only one such variable in this review, there are many others that could potentially exist but that have not been heavily investigated in the past five years or were identified in studies that did not meet the inclusion criteria of this systematic review. Examples of these are legislation, external health policy, alternative job opportunities, political stability, nursing image, and economic situation (Davidhizar et al., 2010; Markham and McKee, 1991; Yen-Ju Lin et al., 2008).

3.8. Nurse absenteeism and turnover

As for the relationship between absenteeism and turnover, it was not investigated in any of the studies identified in this review. However, the positive relationship between these two variables is well established across the literature (e.g., Morrow et al., 1999). Absenteeism consistently predicts turnover, through a progression of the withdrawal process (Cohen and Golan, 2007; Steel and Lounsbury, 2009). For example, Griffeth et al. (2000) suggested that absenteeism has a carryover of nonattendance-generating

process. That is, absenteeism of personnel often influences the subsequent work environment by increasing the pressure on the staff left behind, and in turn, influencing their attendance motivation (Steers and Rhodes, 1978).

4. Discussion

Consistent with the literature reviewed in this paper, staff nurse turnover and absenteeism is influenced by macro (i.e., job, organizational, and national) as well as micro (i.e., individual and interpersonal) level variables. When designing interventions to tackle nurses' attendance behavior, all these levels should be included as they represent the full environment within which nurses operate. None of the studies in this review addressed absence and turnover from a system's thinking standpoint, which involves understanding how things influence one another within a whole. The proposed JOINT multilevel model has the potential of fully capturing attendance phenomena in healthcare settings. As is the case with the ecological multilevel model typically used in public health initiatives (Edwards, 1998; Heise, 1998), the JOINT conceptual model is based on the assumption that attendance behavior can be viewed as the outcome of continuous interactions among many factors at multiple levels.

Single level research is currently predominant in the literature, be it macro or micro, such research cannot fully account for organizational behavior (Klein and Kozlowski, 2000). Macro researchers use aggregation in order to conduct their analyses, and may commit fallacies if they generalize to lower-level phenomena; while micro level researchers rely on individual level variables and may also commit fallacies if they generalize to higher-level phenomena (Klein and Kozlowski, 2000).

The ecological fallacy occurs when researchers draw inferences at the individual-level based on group-level data (Diez-Roux, 1998). As a hypothetical example, say a researchers found investment in training to be strongly associated with lower rates of turnover; they would commit an ecological fallacy if they assume that investing in training a particular individual would lead them to stay longer in the organization. The atomistic fallacy, on the other hand, occurs when individual-level data is used to draw inferences about higher-level phenomena (Diez-Roux, 1998). As another hypothetical example, say nurses, with high cognitive abilities, are significantly less likely to be absent, a selection process that produces higher aggregate cognitive abilities is not necessarily better at decreasing absenteeism in this organization. Diez-Roux (1998) describes additional types of fallacies that may occur when researchers fail to account for contextual variables. Regardless of the type of fallacy, single-level research is not sufficient for fully capturing the phenomena of absenteeism and turnover among nurses. On the other hand, adopting a multiple-level approach poses a different set of methodological and theoretical challenges. Accordingly, to reliably analyze a phenomenon from multiple levels, researchers need to start from a rigorous theoretical ground and then aim for an operationalization that is methodologically sound (Rousseau, 1985). The JOINT model offers a theoretical tool for beginning to conceptualize multilevel research on sound grounds. As for methodological considerations, several researchers have provided through reviews of these (e.g., Dansereau and Markham, 1987; Klein and Kozlowski, 2000; Rousseau, 1985).

We first present the JOINT model interactions and how it could be adapted by researchers to form the basis of their hypothesis development. We then outline the practical managerial implications of applying this model in practice.

4.1. The multilevel model interactions

In epidemiological research, Loomis and Wing (1990) argue that causal theories, that dominate research in heath care, are reductionist since they fail to acknowledge that the cause of epidemics is a compound of the "systems in which the population phenomena of health and disease occur" (p. 2). Similarly, the causes of absenteeism and turnover as individual behaviors can be better perceived as resulting from properties of the whole healthcare system within which nurses operate. Comprehensively understanding such individual behaviors may therefore require analysis of individual characteristics, as well as, those of the social group(s) they belong to (Diez-Roux, 1998). Multilevel research has the potential of facilitating this perspective, and allowing researchers and practitioners to conceive turnover and absenteeism as resulting from relational properties rather than mere aggregates of individuals. This multilevel perspective was deemed necessary to the study of organizations and their performance ever since organizational behavior began to be considered as a social science (Rousseau, 1985). However, the complexity of developing theoretical formulations that relate and link the multiple levels poses a significant challenge in multilevel analyses (Diez-Roux, 1998). Nonetheless, this complexity is likely to be a better reflection of reality than the simpler multi-causal models prevalent today (Loomis and Wing, 1990).

In the JOINT model, we consider absenteeism and turnover as individual level decisions that are influenced by variables from multiple levels of measurement, and analysis and interactions between them. However, we do not predetermine the directionality of relationships or the roles that different variables might play in the conceptualized model. We offer this model as the basis of thinking from a multilevel perspective while allowing the researcher to adapt it in order to fit their hypothesized relationships. To illustrate, we will propose the interactions between the levels of the JOINT hypothesized model by relying on Nishii and Wright's (2007) multilevel model of how HRM practices impact individual and organizational performance. Nishii and Wright distinguish between intended and actual HRM practices. They argue that intended HRM practices turn into actual HRM practices upon implementation. These are, in turn, interpreted by employees within the same organization differently due to individual differences between them. The outcomes of such interpretations result in cognitive, attitudinal, and/or behavioral changes that impact individuals' and consequently organizations' performance. HRM practices represent a category in the JOINT model that belongs to the

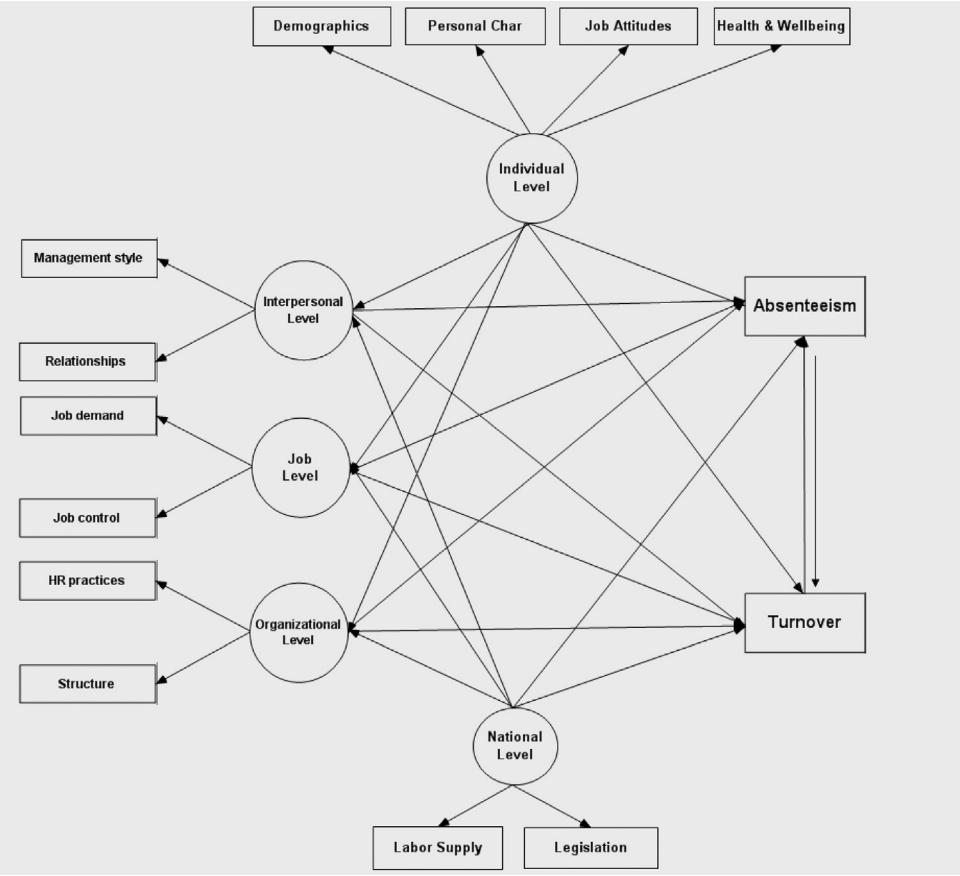

Fig. 2. An adapted version of the JOINT conceptual model based on Nishii and Wright's SHRM model.

organizational level. We will therefore assume that variables from any category of the organizational level could be perceived and interpreted by employees differently. We propose that the national and individual levels can moderate the relationship between the organizational level variables and nurses' decision to attend (or not) to work. As for job and interpersonal levels, they could be considered as having similar effects as the organizational level with the same moderation effects as illustrated in Fig. 2. By building this basis, we can identify specific variables from the whole environment surrounding nurses and test the relationships between them.

4.2. Implications for administrators and policymakers locally and internationally

Nurse administrators need to be careful when designing attendance management programs in terms of accounting for both; the internal and the external contexts of their organization. They could benefit from addressing problems in attendance using a system's approach that captures both micro and macro levels. By accounting for the national policies for labor and aligning them with those of the organization and "Nursing Practice Acts" of their respective countries, nurse managers can ensure better clarity of roles, responsibilities, and expectations for their nurses. Additionally by considering absenteeism in the context of the organizational, job, and interpersonal levels, they could have a more accurate representation of their nurses' pressures and decision to attend to work.

Although absenteeism and turnover among nurses have been addressed (though inconclusively), in the literature, the translation of research findings into practice may be problematic; when managers use inferences about individual behavior based on research on group level data to shape their managerial practices, they may be falling for the fallacies described earlier. Similarly, it may not be meaningful for nurse managers to implement policies and procedures based on individual level inferences. Accordingly, the literature would benefit from research highlighting the application of research findings by nursing managers within their organizations in order to ensure congruence between theory and application.

Finally, this model is applicable in to both low and high resource settings, but may require additional testing in low resource settings due to the lack of nursing workforce studies from low and middle income countries.

4.3. Future directions

One major inconsistency across research on nursing absenteeism is around the measurement of this behavior. In some studies, researchers relied on estimates of nonattendance whereas in others, they utilized actual

measures of absenteeism. Considering that the majority of employees tend to underestimate their absenteeism (Gaudine and Gregory, 2010), relying on estimates can lead to deflated figures. In this review, the majority of articles (70.73%) relied on actual absenteeism data and it is advisable that researchers continue this trend to avoid biases that may contaminate research findings.

Additionally, most of the articles in this review did not differentiate between voluntary and involuntary absenteeism. For example; involuntary absence may be due to work or non-work related health problems whereas voluntary absences may be a result of a nurse's coping strategy for dealing with the stresses of work or managing one's schedule. Since different types of absenteeism may require different managing strategies, such a distinction is crucial for advancing our understanding and management of employee non-attendance.

Similarly, none of the studies captured in this research focused on male only samples even though 9.8% of the studies were conducted with female only samples. Research focused on male nurses is particularly important considering the men's relative underrepresentation in the nursing world. In order to create a more balanced gender representation among nursing staff, it would be valuable for future research to investigate absenteeism and turnover from a 'male lens'. Such focused research can help distinguish those variables that need to be manipulated in order to better tackle absence and turnover among male nurses.

As a final point, some of the studies in this review have been conducted in Asia, Middle East, and Africa while the majority of studies were conducted in North America and Western Europe (73.2%). Interestingly, none of the studies in this review compared employee behavior in more than one country. According to Tsui (2007), single-country research done outside the US is only one way of taking context into consideration in international management research. Single-country research often omits global or cultural contextual factors that may be contributing to nursing absenteeism or turnover. In such a global economy where nurses' migration is becoming more prominent, cross-cultural research can help identify characteristics that are essential for building a more comprehensive understanding of attendance behaviors (Gelfand et al., 2007). From a theoretical standpoint, cross-cultural investigations that consider contextual variables, as proxy, can help facilitate drawing the boundaries of results' generalizability.

As a follow up to this study, the JOINT conceptual model can be translated into a measurement tool for assessing and predicting nurse attendance behaviors. Future research can focus on developing a comprehensive questionnaire that translates all the variables identified in this model into items. Such research can help consolidate the findings and structure of the JOINT conceptual model.

4.4. Study limitations

There are several limitations to this review. First, the nature of systematic reviews requires the reliance on secondary data for analysis. One major disadvantage of such approach is that the data collection in every study is not originally designed to answer the specific research questions of this review (Boslaugh, 2007). While this is typical challenge to systematic reviews, we ensured that the data retrieved is analyzed rigorously according to the procedure explicitly defined earlier. Additionally, inherent in our study's design is the reliance on other published studies, which generally tend to over-report finding. We deal with this issue by proposing a general model for understanding nursing absenteeism and turnover, which can be tailored to the researcher's hypothesis or the organization's context. Consequently, this minimized our reliance of specific findings. Another limitation of this research relates to a reporting bias, which may result from including English only studies (Davey et al., 2009). Although other relevant findings may have been available in other languages, the generic nature of the proposed model may have accounted for these. Furthermore, the inclusion and exclusion criteria as well as the keywords adopted in any systematic review remain the most subjective part of this approach (Tranfield et al., 2003). This will consequently lead to some important academic contribution being left out of the review. As per the argument above, the generic nature of the proposed model may have accounted for these. Finally, there are several search strategies that could be adopted in systematic reviews (e.g., hand search from reference lists, search engines, etc.). Future research can benefit from a comparison of different approaches and the impact they may have on the findings of a particular systematic review.

5. Conclusion

Our review of the research literature on nurses' attendance behaviors revealed a multiplicity of influences on nurse attendance behavior. We attempted to integrate all the available evidence into a systematic conceptual JOINT model. From an interventional perspective, the proposed conceptual JOINT model can provide nurse managers with a new lens for investigating and managing attendance behavior in their organizations. From a theoretical perspective, the JOINT model was designed from a multilevel lens in order to serve as guiding framework for researchers interested in capturing absenteeism and turnover from a multi-dimensional perspective.

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