

# Nurses' Motivation and its Relationship to the Characteristics of Nursing Care Delivery Systems: A Test of the Job Characteristics Model

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## Abstract

The purpose of the study was to describe the relationship among motivation, job satisfaction and the characteristics of nursing care delivery systems using the Job Characteristics Model of Work Motivation (Hackman & Oldham, 1980), and to test a framework of nursing care delivery system attributes that have been found to contribute to job satisfaction and good patient care outcomes. The present era of cost containment pressures means that nurse administrators need to ensure that nurses have a work environment with the characteristics of work known to be linked to job satisfaction, motivation and good outcomes. The model was tested with nurses working in medical-surgical areas of four Montreal teaching hospitals. Findings included the applicability of the Job Characteristics Model to the work of nursing and that the addition of four attributes of nursing care delivery systems, namely support for autonomy, communication, adequate time for patient care and the degree of environmental uncertainty contributed to job satisfaction and motivation.

## Introduction

There are several different perspectives on work and how to improve productivity and job satisfaction in today's society. The single basis on which they rest has generally achieved widespread acceptance; namely, we know that jobs affect people and people affect job outcomes. People work to achieve positive work and personal outcomes when motivation to work is present. Motivation, the central concept guiding human behaviour, is defined as that which activates, directs and sustains human behaviour. Although the significance of motivation is readily apparent, it is remarkable how little until recently we have been aware of its importance in the work of nursing.

Peter Senge (1990) quoted business leaders who illustrated the kind of thinking that many organizations are now attempting to adopt:

Whether it is research and development, company management or any other aspect of business, the active force is people. If the employees themselves

are not sufficiently motivated to challenge the goals of growth and technological development..... there will simply be no growth, no gain in productivity, and no technological development.....The fundamental task of the organization of today is to provide the enabling conditions for people to lead the most enriching lives they can (p.126).

The bottom line for any organization is how successful it is in the production of its goods and services. Health care and hospitals in particular are in the business of promoting health for its clients. Health, quality of care and positive client outcomes are complex phenomena to measure. Sochalski et al., (1998) reported the recent development of a conceptual framework to illustrate how nurse staffing influences patient outcomes. The framework holds that the effect of nurse staffing on patient outcomes is not simple and linear, but rather it is mediated by the presence of key organizational attributes of professional nursing practice (p. 22). Consequently, at some point in any study of client outcomes in health care, the impact of dissatisfied nurses will appear. The major influence in any organization is people, and nurses comprise the largest group of employees in health care institutions in Canada. There is agreement among administrators and researchers that major structural changes in job design are needed to create a better work world which will foster high motivation and performance in professional nursing practice (Glouberman & Mintzberg, 1992).

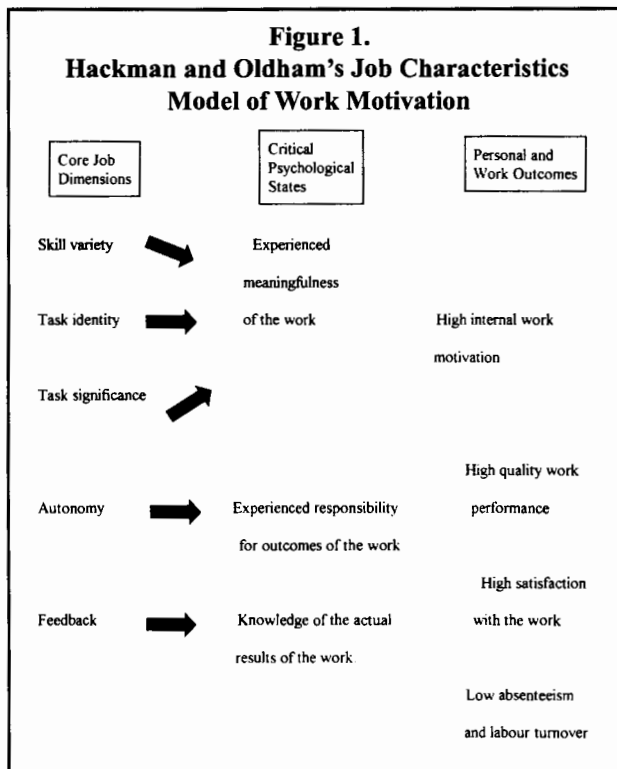
The format used to deliver patient care is referred to as a practice model or nursing care delivery system. To the extent that a system for the delivery of nursing care allows work motivation and work outcomes to improve, an instrument that links motivation, satisfaction and the characteristics of work should demonstrate that relationship. The Job Characteristics Model of Work Motivation (Hackman & Oldham, 1975; 1980) is the most used and highly regarded model and theoretical construct used in the area of work design today. It combines the divergent factors of motivation, performance and satisfaction in a meaningful way.

The purpose of the study was to describe the relationship between motivation, job satisfaction, and characteristics of nursing care delivery systems, within the work of nursing, and to consider the applicability and usefulness of the Job Characteristics Model (JCM) of work motivation to the work of nursing in four McGill University teaching hospitals in Montreal, Canada.

## Description of the JCM

The basic proposition for the present study is that work motivation arises from the characteristics of jobs. Jobs that have attributes of autonomy, feedback, task identity, skill variety and task significance create the conditions for

high work motivation, satisfaction, performance and low labour turnover. There are three factors that intervene between the specific job attributes and their outcomes. The model states that the presence of three core attributes of experienced psychological states (meaningfulness of the work, knowledge of the results, and responsibility for the outcomes of the job) will lead to motivation, performance and satisfaction. Hackman and Oldham (1980) based their model of job characteristics of the relation between the design of jobs and worker motivation. Additionally the theory states that people respond differently to the same jobs, so that the characteristics of workers as well as the jobs themselves need to be considered as work is designed. Figure 1 presents the Job Characteristics Model of Work Motivation, and the key concepts of the model are defined in Box 1.



### Research on Nursing Care Delivery Systems and Motivation

There is a sparsity of nursing literature specifically directed to motivation; however, many of the articles on job satisfaction appeared to be measuring aspects of motivation. Fewer than ten studies were found in the nursing literature that used the JCM and none sought to define the actual practice model in use.

Primary nursing has been the most frequently researched model with reports generally pointing to a moderate degree of nurse satisfaction (Hartz et al., 1989). Case management or managed care research has emphasized cost savings and reduced lengths of hospital stays, but nurse satisfaction has chiefly been measured in anecdotal fashion (McCloskey et al., 1994).

### Box 1. Definitions of the Key Concepts of the JCM

Autonomy	The degree to which the job provides substantial freedom, independence, and discretion to the individual in scheduling the procedures to be used in carrying it out.
Job Feedback	The degree to which carrying out the work activities required by the job provides the individual with direct and clear information about the effectiveness of their performance.
Skill Variety	The degree to which a job requires a variety of different activities in carrying out the work, involving the use of a number of different skills and talents of the person.
Task Identity	The degree to which a job requires completion of a "whole" and identifiable piece of work, that is, doing a job from beginning to end with a visible outcome.
Task Significance	The degree to which the job has a substantial impact on the lives of other people, whether those people in the immediate organization or in the world at large.
Motivational Potential	The potential of a job to foster internal work motivation.
General Satisfaction	Global satisfaction with the job, as reflected in items such as, "Generally speaking, I am satisfied with this job."
Internal Work Motivation	The degree to which an individual experiences positive internal feelings when performing effectively on the job. A sample item is "I feel a great sense of personal satisfaction when I do this job well."
Growth Satisfaction	The degree to which an individual is satisfied with opportunities for growth on the job. A sample item is "The amount of personal growth and development I get in doing my job."
Context Satisfaction	Self-reports of satisfaction with job security, pay, supervision, and co-workers

### Box 1. Definitions of the Key Concepts of the JCM con't

Experienced Meaningfulness	The work has personal meaning for the worker within his own value system.
Experienced Responsibility	The worker is personally responsible for the work outcomes.
Knowledge of Results	The worker is aware if his work has been performed well.

For the purposes of this study, the JCM was modified by the addition of four components of the above practice models that were found consistently in the literature to influence the work life of nurses (Baggs, Ryan, Phelps, Richeson, & Jahnson, 1992; O'Brien -Pallas & Baumann, 1992).

The four components include: Autonomy and its supports or the extent to which nurses are adequately supported to be self-sufficient has been linked to their level of job satisfaction (Guerette, 1995; Tumulty, Jerrigan & Kohut, 1994); Communication, both formal and informal between the nurse and the health care team has been associated with patient outcomes and the retention of nurses (Baggs et al., 1992; Mitchell, Armstrong, Simpson, & Lentz 1989; Knaus, Draper, Wagner, & Zimmerman, 1986).

The preference for the division of tasks between patient or non-patient centered work and the actual proportion of time that the nurse perceives is spent on such tasks reflects nurses' preference for autonomy and its supports, and is an attribute in its own right (Landerweerd & Boumans, 1994). The fourth component concerns the patient environment in which nurses practice. Miliken (1987) defined environmental uncertainty as the frequency with which unanticipated events occur which cannot be predicted by organizational members. Patient care units that vary in their level of environmental uncertainty have been found to be related to satisfaction and motivation.

These factors broadened and complemented the job characteristics of the JCM in regard to their presence in different practice models and their contribution to good patient outcomes and/or nurses' job satisfaction (Kovner, Hendrickson, Knickman, & Finkler, 1993; Lengacher et al., 1993; Guerette, 1995; Allred et al., 1994).

The final framework consists of three factors that have been derived from the research literature and are presented in Box 2.

Since this study was carried out in 1996, a conceptual framework has been published that consists of three organizational attributes that are posited to be key in predicting differential patient outcomes (Sochalski et al., 1998; Aiken & Sochalski, 1997). Their attributes of

### Box 2.

#### Workplace Characteristics for Nursing Related to Positive Job Outcomes added to the Job Characteristics Model

Perceptions of and satisfaction with:

1. The amount of time spent on patient and non-patient tasks,
2. Communication referring specifically to information exchange, and interpersonal relationships,
3. Tangible and emotional support for autonomy,
4. Nursing unit environmental complexity and uncertainty of the patients' requirements.

autonomy, control over resources and relations with physicians are similar to but fewer than those developed for the present study. The specific study questions were:

1. Are the characteristics of the work of nursing related to motivation and satisfaction as measured by the JCM?
2. Is there a relationship between the attributes of nursing care delivery systems and motivation?

### Methodology

The research population consisted of over four hundred nurses who work in the medical surgical units of four McGill University teaching hospitals in Montreal, Quebec. The data collection instrument consisted of the Job Diagnostic Survey (Hackman & Oldham, 1976), a survey developed for the study to identify components of nursing practice models that are conceptually related to the outcomes of motivation, an intent to turnover scale (not discussed in this paper), and demographic information. A total of 159 useable questionnaires were collected for a response rate of forty percent. The study participants were not identified by name and no responses were seen by other than the investigator and research assistants. The questionnaire identified the respondents by hospital only and not by nursing units.

### Instruments

1. The Job Diagnostic Survey (JDS) measures the variables in the JCM. All JDS items are averages of scores on several items, where 1 is low and 7 high. Properties of the instrument and specific scoring information are satisfactory and detailed in Hackman and Oldham (1975; 1980).
2. Framework Questionnaire to Analyse Components of Nursing Practice Models. The questionnaire was developed from the literature for the purposes of the study. Content validity was assessed in a pre-test with twenty-three nurses. A test-retest one week apart established a 95 % response similarity. A panel of nurses reviewed the items for consistency of meaning.
3. Demographic information was collected on age, education, and nursing experience.

**Findings**

The respondents were full and part time nurses with an average age of 36 years and 8 years of nursing experience. The respondents and the non-respondents were similar in age, hospital seniority, and years in nursing. Seventy percent of the nurses were working full time. One-half of the sample held university degrees and the rest held either CEGEP (community college) or hospital diplomas. The sample

consisted of more university prepared nurses than in the population of Quebec nurses, although a higher proportion of university prepared nurses work in large urban centers than in smaller or rural locations.

Question One. Are the characteristics of the work of nursing related to motivation and satisfaction as measured by the JCM?

Table I presents the means and standard deviations

**Table 1**

**Means and Standard Deviations on JDS Scales for the Study Sample Compared to Other Studies**

Variable	Study nurses		Quebec teachers		American professional norms		Pediatric nurses	
	N = 159		N = 246		N = 658		N = 83	
	M	SD	M	SD	M	SD*	M	SD*
<b>Job characteristics</b>								
Skill variety	5.2	1.3	5.5	1.0	5.4	1.0	5.5	
Task identity	4.6	1.1	5.1	1.4	5.1	1.2	4.2	
Significance	6.0	0.8	6.0	0.9	5.6	0.9	6.1	
Autonomy	5.5	0.9	5.4	1.0	5.4	1.0	4.8	
Feedback - job	5.0	1.0	5.0	1.2	5.1	1.1	4.8	
Feedback - agents	3.8	1.3	3.4	1.4	4.2		3.9	
Dealing with others	6.1	0.8	5.5	1.2	5.8		6.1	
MPS	152.0	59.0	157.0	64.1	154.0		129.0	
<b>Psychological states</b>								
Meaningfulness	5.4	0.8	5.6	0.8	5.4	0.8	5.6	
Responsibility	5.3	0.7	5.0	1.1	5.8	0.7	4.4	
Knowledge of results	5.2	0.9	5.0	1.1	5.0	0.9	4.6	
<b>Affective responses</b>								
General satisfaction	4.6	0.1	4.8	1.1	4.9	0.6	4.3	
Internal motivation	5.7	0.1	5.6	0.7	5.8	0.9	5.9	
Growth satisfaction	5.0	1.0	5.2	0.8	5.1	1.1	5.1	
Satisfaction with pay	3.8	0.1	4.3	1.5	4.4		2.7	
Security	3.9	0.1	4.7	1.7	5.0		5.2	
Social	5.4	0.9	5.0	1.0	5.5		5.7	
Supervisory	4.8	0.1	4.7	1.3	4.9		4.7	
Growth Need Strength (GNS)	4.8	1.0	4.8	0.8	5.6		4.6	

MPS=Motivating Potential Score

\*Some SDs unavailable

of the Job Diagnostic Survey (JDS). The table also presents the American professional/technical normative data for the JDS scale, scores from a sample of American pediatric staff nurses who were particularly dissatisfied (Holaday & Bullard, 1991) and those of a sample of Quebec teachers (Barnabé & Burns, 1994) for comparison.

The JDS scores from this study were similar to the normative data in many areas. The means of the present study were higher for the following: job significance, autonomy, knowledge of results, and dealing with others. These findings indicated that the nurses were well aware of the significance of the work they do and the importance of their work with others. Nurses in the sample had freedom, responsibility and judgment for deciding how and when much of their work is accomplished.

They usually knew readily if their work was satisfactory or not.

The low scores included: task identity, skill variety, meaningfulness, growth satisfaction, pay, and job security.

**Task Identity:** Nurses are rarely able to see the complete recovery of their patients as convalescence occurs most often away from the hospital. It is often difficult for the nurse to see what contribution they made to the recovery process.

**Skill Variety:** Shorter lengths of stay for patients may limit the variety of skills that are able to be utilized.

**Meaningfulness:** The lower score on this variable as compared to the teachers' scores may be a reflection of the work as viewed in the scores on the above two variables, or on the recognition nurses feel they receive.

**Table 2**

Correlations of Study Nurses Scores between the Key Concepts of the JDS

Nurses	SkVar	TaskID	TaskSig	Aut	FbJob	ExpM	ExpR	KnR	GenSat	IW Mot
SkVar										
TaskID	0.093									
TaskSig	.333**	0.155								
Aut	.338**	.368**	.316**							
FbJob	0.155	.518**	.342**	.462**						
ExpM	.251*	0.193	0.185	.272**	.328**					
ExpR	0.062	0.247*	.292**	.272**	.273**	.374**				
KnR	0.08	0.181	0.115	.251*	.487**	.368**	.275**			
GenSat	0.075	0.209	-0.037	0.173	0.159	.529**	.260*	.293**		
IWMot	0.067	0.154	0.162	0.159	0.159	.264*	.328**	.333**	0.117	
GrSat	.318**	0.156	.298**	.381**	.281**	.526**	0.227	.291**	.480**	0.05

Bonferonni corrected correlations (gives p value correlated for the number of tests)

\*p < .05, \*\*p < .01

Proposed relationships are boxed to show the relationships between the job dimensions (first five items), and the psychological states (next three items), and between the psychological states and the work outcomes (last three items).

Growth Satisfaction: The challenge and opportunity for personal growth in the job was lower than the sample of teachers.

Satisfaction with pay and job security were low, reflecting a current unrest in the health care sector with the pressures for cost containment.

The JDS also measures two job characteristics not in the JCM. They are Feedback from Agents and Dealing with Others. Feedback from Agents received a lower score than job security, reflecting nurses' dissatisfaction with feedback from their superiors and co-workers. On the contrary, the score for Dealing with Others received the highest score of any item.

A second analysis examined the relationships between the job dimensions and the outcomes to determine whether they are as proposed by the model. Table 2 presents the correlations among the variables of interest. The boxed correlations represent the core propositions of the JCM. The hypothesized relationships were borne out, although the correlations are not as strong as those reported by Hackman and Oldham (1980). The importance of autonomy and feedback is noteworthy. Both variables are significantly related to a number of variables.

The proposals of the Job Characteristics Model were generally supported by the data. The psychological states, referred to by Hackman and Oldham as the causal core of the model, mediated between the core job characteristics and the outcomes. The factors of autonomy, significance and meaningfulness of the work of nursing played an important role in the nurses' perceptions of their jobs.

Question 2. Is there a relationship between the attributes of nursing care delivery systems and motivation?

Table 3.

Means and Standard Deviations of the Questions on Nurses' Views of the Attributes of Nursing Care Delivery Systems and Satisfaction with Those Attributes

Attributes	M	SD	Scale
<b>Actual:</b>			
Time spent on patient care	2.7	1.2	1 = All of it 7 = None of it
Time spent on non-patient care	4.8	1.18	1 = All of it 7 = None of it
Amount of Autonomy	4.8	.44	0 = No autonomy 7 = Total autonomy
Complexity of patient population	2.4	1.35	1 = Usually 5 = Rarely
<b>Satisfaction with:</b>			
Support for Autonomy	2.6	1.09	1 = Completely satisfied 5 = Very dissatisfied
Communication			
Information exchange	2.9	.86	1 = Completely satisfied 5 = Very dissatisfied
Interpersonal relationships	2.6	.94	1 = Completely satisfied 5 = Very dissatisfied

Table 4

Correlations for Nursing Concepts and Psychological States and Outcomes from the

JCM

Nursing work dimensions	ExpM	ExpResp	KnRes	GenSat	InWM
Nursing model	0.04	0.05	0.03	0.09	0.05
Feedback from agents	0.28**	0.05	0.24*	0.21*	0.02
<b>Actual:</b>					
Time on non-patient tasks	0.04	0.12	0.15	0.01	0.1
Time on patient tasks	0.11	-0.18*	-0.05	0.15*	0.01
<b>Satisfaction with:</b>					
Support for autonomy	0.27**	0.092	0.22*	0.29**	-0.2
Exchanging information	0.22	0.19	0.29**	0.19*	0.06
Interpersonal relationships	0.09	0.1	0.07	0.11	-0.01

\*p < .05    \*\*p < .01

Primary nursing/total patient care was almost uniformly selected as the model in use, however the variations in the attributes of delivery systems within that one model attest to the variations that exist within different models. The data in Table 3 indicate that the medical-surgical nurses spent about half of their time on patient care. They were somewhat satisfied with their support for autonomy and with the formal and informal aspects of communication. The mean score and wide standard deviation for the complexity and uncertainty of the patient population indicated the differences among units. Table 4 presents the correlation matrix for the relationships between the nursing variables and concepts from the JCM.

Support for autonomy, time on patient care, and communication related significantly ( $p < .05$ ) to one or more of the psychological states of the JCM. Nurses expressed a strong preference for support for autonomy and time for patient care. The outcome of general satisfaction in the JCM was related to several of the nursing care attributes, specifically more time spent on nursing care, adequate support for autonomy, a less complex patient environment, and good communication. Only unit complexity (not included in the table) influenced general satisfaction directly and not via an intermediating psychological variable.

Support for autonomy was significantly related to skill variety, task identity, autonomy and feedback from the job and agents. The complexity of the unit was positively related only to skill variety. Communication was strongly linked to task identity, autonomy and feedback from agents and the job. With the addition of the attributes of nursing care delivery to the JCM, internal work motivation remained related only to the internal psychological states, suggesting that the nursing attributes exert their effects on outcomes through the internal psychological states.

There were no differences in the study results according to the demographic factors of education, but job satisfaction was higher for nurses with more than 10 years of experience and those who were 50 years of age or older.

## Discussion

The JCM was found to be a useful diagnostic tool and model, while the addition of the four attributes seemed helpful in identifying specific areas of the work of nursing that contribute to satisfaction, although they did not contribute directly to the development of internal work motivation. It appears that support for autonomy may be the aspect of the work environment for nurses that together with the core job characteristic from the Job Characteristics Model contributes significantly to work motivation through a psychological state related to self-esteem. Communication was also one of the core job attributes in nursing that is related to job satisfaction. Although satisfaction with the amount of time spent on patient care tasks was positively related to the outcome of general satisfaction, it was more

significantly linked to a lower complexity of the patient environment.

The importance of the environment in affecting job characteristics and outcomes challenges the use of standard nursing care delivery systems throughout the hospital. Variations in communication techniques and support for autonomy are required to assure satisfactory levels of job outcomes in different areas of environmental complexity.

A modified model of job characteristics for nursing was developed incorporating the attributes of support for autonomy, communication and exchange of information. The support for autonomy factor in this study shares some similarities with Deci and Flaste's (1995) concept of supportive autonomy where a climate of meaningful choice and understanding allows the individual to act responsibly and creatively. Further research on the utility of this model appears warranted.

## Approaches to Implementing Key Findings

Although the work environment is in need of restructuring, it is important to note from a positive perspective, that the job characteristics discussed in this paper are readily amenable to change by nursing leaders at the unit or organizational level either formally or informally. Hackman and Oldham originally designed the JCM to be used as a prelude to redesigning jobs to make them more likely to motivate employees. Some of their specific suggestions are particularly well suited to the work of nursing. The principles for implementing work redesign suggested by Hackman and Oldham (1980) are briefly set out below with a suggestion for the work of nursing. Each of the principles is especially powerful in affecting the standing of a job with respect to one or more of the core job characteristics.

1. Combining tasks to increase skill variety and task identity. Most ways of delivering nursing practice currently combine a variety of tasks. Follow-up phone calls to patients or their families and care givers after discharge from the hospital may allow the nurse to complete a whole and identifiable job, to realize their contribution to the patient, and to increase the variety of nursing skills.

2. Forming natural work units. Natural work units are logical or inherently meaningful groups including the following; geographical, organizational, and customer groups. Nursing relies on a number of natural work units, but modifications are possible to ensure that there continues to be "a logical and meaningful basis that makes good intuitive sense to those who must carry out the work" (Hackman & Oldham, p. 137). The move to ambulatory care holds promise for a recombination of patient groups into geographical or patient needs groups.

3. Establishing client relationships. Creating client relationships is a three-step process (Hackman & Oldham, p. 139). First, the client must be identified. In nursing there

are several categories of clients including the patients, their families, physicians, the work team group, and the public. Second, the most direct contact possible between the worker and the client is established. Third, criteria are set up by which the client can judge the quality of the service provided and relay his judgment back to the worker.

4. Vertically loading the job. Responsibility and authority that were formerly reserved for higher levels of workers are given to the workers at their job level. This method has been applied in nursing but not always with the necessary accompaniments such as support for autonomy and information exchange. The organizational adjustments needed to support and permit the realization of such changes is frequently cumbersome and time consuming and not a priority for the institution, but are possible at the unit level. Shared governance and Nursing Councils are two approaches currently in practice in Quebec to vertically load the work of nursing.

5. Opening feedback channels. Performance appraisals which include contracting to develop professional work goals assist in developing autonomy, and are perceived as supportive. The behaviours of nursing leaders such as promoting employee self-goal setting, self-reward, and staff empowerment, and promoting participation in decision making are consistent with the JCM (Irvine & Evans, 1995).

One of the most effective ways to help employees be aware of how they are doing is to learn about their performance directly from doing the job itself. How to improve job-related feedback varies from job to job, but it may involve simply removing existing blocks (Hackman & Oldham, 1980, p.141). The development of informal and formal communication systems among all the participants in the health care team would allow large amounts of information about patients' well-being and outcomes to be shared. The role of management is changing from that of organizing and controlling to that of encouraging, informing, and supporting (Mintzberg, 1990). As change continues in this direction, feedback channels should widen.

From a cost-effectiveness perspective, it is likely that new systems, such as using non-nurses to deliver care, cross training staff, flattening management layers, organizing patient care teams, and relocating services will continue to be put into place in health care settings. From a research perspective, the use of the JCM with the inclusion of factors relevant to the work of nursing is recommended to monitor the impact of such changes on the core job characteristics.

In summary, the findings of the study supported the utility of the JCM as a model of work motivation and

satisfaction for nurses. The addition of specific attributes of support for autonomy, communication and the exchange of information, and the inclusion of environmental complexity contributed to a fuller understanding of the factors in nursing related to motivation and satisfaction. Our understanding of the complex nature of work motivation may be broadened by its likely connection to self-efficacy and self-esteem, factors of significance to the world of nursing and beyond.

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