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## High Involvement Work Practices and Temporary Employment Practices: Do They Make Workers Work Harder, Smarter, or Kinder?

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This paper examines how two popular employment practices, high involvement work practices (HIWPs) and temporary employment practices, work on workers and firms, using a survey of nurses in New Jersey, U.S.A., hospitals. For this purpose, discretionary work effort construct is developed, resulting in three factors - working harder, working smarter, and working kinder effort. Then, a positive relationship is found between HIWPs and perceived quality of work, partially mediated by working smarter effort, and a negative relationship is found between temporary employment practices and perceived quality of work through partial mediation by working harder effort. The simultaneous investigation of HIWPs and temporary employment practices, with these different relationships, gives a chance to reconsider on the use of these two employment trends.

Keyword : employee involvement, high involvement work practices, temporary employment practices, discretionary work effort, quality of care

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## I . Introduction

The recent increase in the use of high involvement work practices (HIWPs)<sup>1)</sup> and contingent employment practices at organizations raises an interesting question. Do both HIWPs and contingent employment practices have the same effects on workers, and organizational performance? Little attention has been paid to in this regard, even though a lot of studies have been done with each set of practices.

In the previous studies, HIWPs are reported to lead to high organizational performance - in terms of productivity, ROA, ROE, Tobin's Q, and so on (Huselid 1995; Ichiniowski et al. 1996; Applebaum et al. 2000). There are some studies that show that these practices also enhance employee outcomes - satisfaction, commitment, and wages (Scholarios et al. 1999; Applebaum et al. 2000). Regarding contingent employment practices, major focuses of the previous studies have been on their negative effects on contingent workers (Belous 1989; duRivage 1992; Tilly 1992). Recent studies enrich our knowledge in this field by doing in-depth research such as diverse labor market intermediaries (Bernhardt et al. 2001), the use of nonstandard workers in a specific category - core production work by Gramm and Schnell (2001), for example - and the linkage between organizational strategies and the use of nonstandard workers (Lautsch 2000).

This study sees how HIWPs and temporary employment practices work on employee behaviors, especially their discretionary work efforts, and firm performance.

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1) High performance work practices, high commitment work practices, high involvement work practices, participatory work practices, etc. have been used interchangeably in the existing studies to describe the emerging new work practices. In this study, the term high involvement work practices is used for several reasons. First, the key characteristic of this new system of work could be summarized as a high level of worker involvement in decision-making and work processes. Second, high performance work practices or high commitment work practices might not be a good term because the words themselves include the testable results (high performance and high commitment, respectively).

Discretionary work effort is defined here as workers' voluntary effort to enhance work performance both in quantity or quality.

## II. Literature Review

Some aspects of the relationship between HIWPs and contingent employment practices have been addressed in the previous studies. Osterman (2000) shows that firms with HIWPs are using less nonstandard workers than firms without them. On the other hand, Lewin's research (2001) shows that an absolute majority of firms, including those with HIWPs, use nonstandard employment practices. However, he doesn't directly compare the use of nonstandard employment practices between firms with HIWPs and firms without them. Drago (1998) also shows that a firm, well known for its HIWPs, uses somewhat extensive nonstandard employment practices.

While there are a few studies that examine the trend in the use of both HIWPs and nonstandard employment practices, fewer studies examine HIWPs and contingent employment practices together in relation to employees and organizations. Lewin (2001) approaches this issue by examining the effects of HIWPs and nonstandard employment practices on organizational performance. His results show that, in addition to the positive effects of HIWPs on organizational performance, nonstandard employment practices (referred by him to as low involvement work practices) also have positive effects on organizational performance. He then concludes that HIWPs and nonstandard employment practices are complementary.

All of the above studies are done only on the manufacturing sector. On the service sector, little study investigates HIWPs and nonstandard employment practices together. Nonetheless, it might be useful to review what have been done on the service sector, regarding HIWPs. Liao et al. (2009) defines an HPWS for service quality as "a system of HR practices designed to enhance employees' competencies, motivation, and performance in providing high-quality service to external customers"

(p.373). They, using Japanese bank data, conclude that employee- perceived HPWS affect individual employees' service performance, measured by supervisor evaluation and customer satisfaction, through mediation by employee human capital, employee psychological empowerment, and employee-perceived organizational support. Schneider et al.(1998) also examine employee participation, training, and other "foundation issues" in a bank, which lead to service climate, and in turn, customer evaluation of service quality. There are some studies that use hard numbers, such as quit rate or sales growth, for performance in the service sector (e.g. Batt 2002 - in the call center). However, most studies on HIWPs in the service sector use soft measures such as quality of service and customer satisfaction as performance measurements. Even though it does not deal with HIWPs, Yoon and Suh's study, on Korean travel agencies, shows a positive relationship between organizational citizenship behaviors (OCBs) and organizational effectiveness, measured by service quality perceived by customers (2003).

Therefore, studies on HIWPs in the service sector share common components of HIWPs (participation, training, and motivation/incentive) with those in the manufacturing sector. And, in both areas, the mechanism through which HIWPs are transformed into high performance is not addressed enough, still rendering it as a black box, with just a few studies trying to show the mediating mechanism (e.g. collective human capital and degree of social exchange in Takeuchi 2007). One significant difference between these studies in the manufacturing and the service sector is how to measure performance. While in manufacturing hard measures such as ROA, ROE, stock price, etc. are used for performance (Huselid 1995; Ichiniowski 1996), in service soft measures such as quality of service and customer satisfaction are generally used.

This study, by adopting an individual employee level approach, examines how HIWPs and temporary employment practices are associated with service performance (quality of care perceived by employees) through workers' discretionary work effort in the healthcare industry.

### III. Development of Discretionary Work Effort Construct

A few studies which investigate effects of HIWPs on employees have focused on general employee outcomes such as wage, satisfaction, and commitment. While these general employee outcomes are valuable information regarding HIWPs, they deal with working conditions and employee perceptions, not with employee behaviors. Therefore, it will be more helpful theoretically and practically if how HIWPs work on employee behaviors can be figured out. Here comes discretionary work effort as a type of employee behaviors. Discretionary work effort can also provide a great way to examine how temporary employment practices affect employees.

Even though some studies mention discretionary work effort as an important construct in the analysis of HIWPs (Appelbaum et al. 2000), the construct has not been clearly developed yet. Thus, it is one of this study's tasks to develop the construct.

The first step starts from delving into related concepts; organizational citizenship behaviors<sup>2)</sup>, contextual performance<sup>3)</sup>, and extra-role behaviors<sup>4)</sup>. Some of key areas in these concepts seemed very relevant to "discretionary work effort" as defined in this paper. The individual initiative domain in Organizational Citizenship Behaviors

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2) Organizational citizenship behavior could be defined as "individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization" (Organ 1988).

3) Contextual performance is defined as individual efforts "that are not directly related to their main task functions but are important because they shape the organizational, social, and psychological context that serves as the critical catalyst for task activities and processes" (Borman and Motowildo 1993).

4) Extra-role behaviors are defined as "those behavior[s] that go beyond specified role requirements, and are directed towards the individual, the group, or the organization as a unit, in order to promote organizational goals" (Somech and Drach-Zahavy 2000).

(OCBs) “involves engaging in task-related behaviors at a level that is so far beyond minimally required or generally expected levels that it takes on a voluntary flavor (Podsakoff et al. 2000, p.524).” The job dedication domain in Contextual Performance also contains similar things: “(a) put in extra hours to get work done on time, (b) pay close attention to important details, (c) work harder than necessary, (d) ask for a challenging work assignment, (e) exercise personal discipline and self-control, (f) take the initiative to solve work problems, (g) persist in overcoming obstacles to complete a task, and (h) tackle a difficult work assignment enthusiastically (Van Scotter 2000, p.86).” Extra-role Behavior, on the other hand, has been examined at different levels; the individual level (donating behaviors), the team level (sharing and cooperative behaviors), and the organizational level (volunteering for unpaid tasks) (Somech & Drach-Zahavy 2000).

Despite some of the above domains overlap with the discretionary work effort construct, however, OCBs, Contextual Performance, or Extra-role Behaviors have limitations to be used in the place of discretionary work effort. First, these constructs cover many different types of behaviors: For OCBs, all of helping behavior, sportsmanship, organizational loyalty, organizational compliance, individual initiative, civic virtue, and self development are included (Podsakoff et al. 2000). While Cappelli and Rogovsky (1998) examine effects of HIWPs on OCBs, constructs with many domains are too broad to apply to this study, which focuses on more directly work-related effort. Second, whereas individual initiative and job dedication domains could be borrowed from these OCB/contextual performance/extra-role behavior constructs, the two domains are only marginal ones in these constructs (Organ 1988). Next, Contextual Performance and Extra-role Behavior studies tend to define these concepts by differentiating them from task performance and in-role behaviors, respectively (Motowildo 2000). However, this approach doesn't match the assumption that having broader job descriptions and being assigned to implicit roles fit into and support HIWPs. Therefore, discretionary work effort as a separate construct would be better to examine effects of HIWPs on workers.

## 1. Measurement of Discretionary Work Effort

In Appelbaum et al.'s (2000), discretionary effort is included into organizational commitment construct, measured by the question, "I am willing to work harder than I have to in order to help this company succeed." Even though this measure could capture workers' general feeling about discretionary work effort, it is perception-oriented, not behavior-oriented.

To develop measurement for discretionary work effort as concrete behaviors, the individual initiative domain identified by Podsakoff et al. (2000) and the job/task citizenship performance area classified by Coleman and Borman (2000) are selected and compared. After careful checking of the original studies referenced, it is confirmed that Coleman and Borman (2000)'s job/task citizenship performance category includes all of the Podsakoff et al. (2000)'s individual initiative domain contents. Thus, questions are modified from the job/task citizenship performance category in the previous studies or made up to reflect specific working situations of nurses, the subjects of this study.

While making questions, it is intuitively noticed that these items can be classified into some sub-domains of discretionary work effort: working harder, working smarter, and working kinder discretionary effort. This is based on a debate around HIWPs; whether they make workers work harder or work smarter? The working kinder effort is added, based on a unique characteristic of the healthcare industry, one of the important areas of the service sector. To measure the real behaviors of nurses during the recent past, for each item, "Last month, did you do the following things regarding your work?" is used with the scale of 1. Never, 2. A few times a month, 3. Every week, 4. A few times a week, and 5. Every day. The items for a pre-test are as follows:

**Working harder discretionary effort** 1. I volunteered to take difficult/challenging tasks that nobody wanted (based on Van Scotter 2000). 2. I worked so hard that I hardly had time for lunch or breaks (based on Smith et al. 1983). 3. I volunteered

for overtime work when I didn't have to (based on Van Dyne et al. 1994). 4. I worked after-hours or took my work home to finish it on time. 5. I took fewer days off than allowed (based on Smith et al. 1983).

**Working smarter discretionary effort** 1. During my shift, I reorganized my task schedules to reduce wasted time. 2. I suggested some ideas to improve the quality of patients' care or to reduce costs in my unit (based on Borman & Motowildo 1997). 3. I voluntarily served on committees for the improvement of my facility's performance (based on Borman & Motowildo 1997). 4. I attended education/training programs, which were not required, to develop my skills and competency (based on George & Jones 1997). 5. I read professional materials to keep my knowledge and skills up to date (based on George & Jones 1997). 6. I checked results of patient surveys to improve my services. 7. I organized patients' records and other work-related documents so that anyone could find them fast when needed (based on Puffer 1987).

**Working kinder discretionary effort** 1. I provided some services to meet patients' needs, which my job didn't require. 2. I spent my personal time with patients for better care. 3. I put a smile on my face even though I didn't feel that way. 4. I went extra miles to give detailed instructions and answer patients' questions. 5. I spent some time with patients' families to comfort them. 6. I memorized my patients' names.

## 2. Exploratory Factor Analysis of Discretionary Work Effort Items

The pre-testing is done using a sample of 104 nurses from New Jersey hospitals. The results of pre-testing on Discretionary Work Effort show that the 18 items are related with each other without any two items measuring the same aspect.<sup>5)</sup> Thus,

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5) The pre-test results show that 81 among the total 153 pairs of discretionary work effort items have statistically significant relationships with each other at the 0.05 significant level; all relationships are positive. Full results are available from the author upon request.



the 18 discretionary work effort items are kept intact for the main survey.

In the main analysis, an exploratory factor analysis is done to assure the possibility of having the proposed three sub-dimensions. A factor analysis, over a principal component analysis, is chosen because discretionary work effort is assumed to be an underlying construct (Tabachnik & Fidell 1996). For the extraction of factors, two extraction criteria are examined: Kaiser's eigenvalue and the scree plot. The eigenvalue result shows that two factors have eigenvalues of more than one, which suggests a two-factor analysis solution. On the other hand, a look at the scree plot suggests a two-factor analysis solution with two factors before the bending point, or a three-factor analysis solution with three factors including a factor right at the bending point.<sup>6)</sup> While a two-factor analysis solution is more strongly suggested from the above two criteria, a three-factor analysis solution is chosen based on two considerations. The first follows Tabachnick and Fidell (1996)'s advice: the three-factor analysis reduces considerably the number of large and moderate residuals from the two-factor analysis solution. The second consideration is my priori theory of having the three (working harder, working smarter, and working kinder) discretionary effort domains. Promax rotation is used because three factors are not assumed to be orthogonal from one another. The 0.32 (10 percent overlapping variance) criterion is used as a cutoff for a large loading (Tabachnick & Fidell 1996).

Most of discretionary work effort items fit into the three proposed subcategories as suggested,<sup>7)</sup> while the two-factor analysis solution shows that, whereas working kinder discretionary effort stands alone as a distinctive factor, working harder and

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6) Full results are available from the author upon request.

7) Among working harder effort items, "Use fewer days off" and "Spend personal time with patients" have low loadings, thus not included in any factor. Among working smarter effort items, the "Reorganize schedule" item has a large loading on the working harder factor. Since "Reorganize schedule" can be also thought as a kind of working harder effort, it is included into the working harder factor. "Suggest ideas" has large cross-loadings on both the working harder and the working smarter factors, but it is included into the working smarter factor for consistency with the priori assumption. The "Provide additional services" item among working kinder items has a large loading on the working harder factor, thus included into the factor.

working smarter discretionary effort tie together into the other factor. The resulting three factors and the loadings of items are listed on <Table 1>.<sup>8)</sup>

<Table 1> Factor Analysis of Discretionary Work Effort

Items	Factors		
	Harder	Smarter	Kinder
Hardly have time for lunch	<b>0.6058</b>	-0.0878	-0.2006
Provide additional services	<b>0.5778</b>	-0.0281	-0.1704
Take difficult tasks	<b>0.4535</b>	0.1619	-0.0596
Volunteer for overtime	<b>0.3427</b>	0.2797	0.0933
Reorganize schedule	<b>0.3409</b>	0.0801	-0.1535
Work after-hours	<b>0.3377</b>	-0.0453	-0.0247
Use fewer days off	-0.1075	0.3185	-0.0066
Spend personal time	0.0251	0.2937	-0.1686
Check survey results	-0.0287	<b>0.5896</b>	-0.0115
Organize records efficiently	-0.1336	<b>0.4792</b>	-0.2965
Serve on committees	0.2835	<b>0.4379</b>	0.1998
Attend voluntary training	0.1556	<b>0.3942</b>	0.1148
Suggest ideas	0.3900	<b>0.3851</b>	0.0807
Read professional materials	0.1489	<b>0.3826</b>	-0.0641
Give detailed instructions	0.0797	-0.0707	<b>-0.8154</b>
Comfort family	0.1429	0.0163	<b>-0.6961</b>
Put a smile	-0.0325	0.0371	<b>-0.6073</b>
Memorize names	-0.0223	0.0946	<b>-0.4406</b>

## IV. Research Design

### 1. Research Framework and Hypotheses

This study focuses on exploring a mechanism through which HIWPs and temporary employment practices affect firm performance. Here the mechanism is suggested as discretionary work effort.

8) All Cronbach's coefficient alphas for the items on each factor are around 0.70, which is acceptable. The correlation coefficient among the three factors is 0.67.

The relationship between HIWPs and different factors of discretionary work effort has important implications regarding the debate around effects of HIWPs on workers. While some argue that HIWPs lead to higher organizational performance through making workers work smarter, extracting workers' innovative creativity and implicit knowledge of work, others argue that these practices lead to high organizational performance just through making workers work harder (speeding-up, peer-control over work, or "management by stress") (For the lean and mean production argument, see Parker & Slaughter 1994). These arguments suggest possible differences in the relationships of HIWPs with discretionary work effort. Logically, to sustain the positive effects of HIWPs on organizational performance, these practices should enhance the working smarter effort among workers, rather than the working harder aspect, even if all of working harder, working smarter, and working kinder effort might be needed for high organizational performance. This could be especially true when firm performance is measured in terms of quality of service, like one used in this study.

**H1: HIWPs are related with quality of care through mediation of working smarter discretionary effort.**

HIWPs' relationship with quality of care could be mediated through working kinder discretionary effort. HIWPs, expressed in its term itself, make employees involved in a firm's decisions in some way. Employees under the HIWPs, therefore, would develop ownership about their firm, which would, in turn, make them serve customers kindlier.

**H2: HIWPs are related with quality of care through mediation of working kinder discretionary effort.**

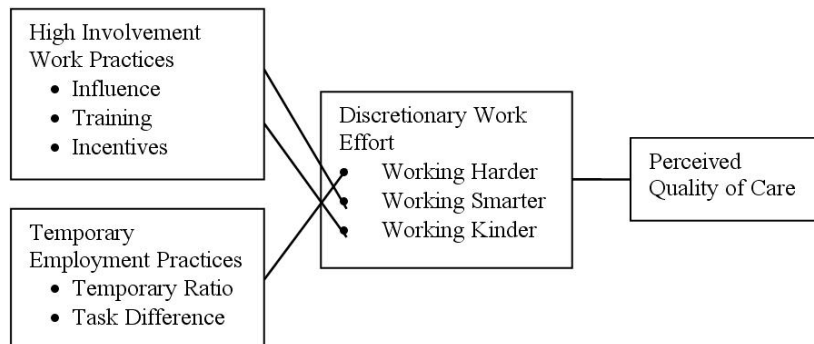
Temporary employment practices have not been studied regarding their relationships with employee work behaviors or organizational citizenship behaviors yet. However, it can be proposed that the degree of temporary workers and the task difference between regular and temporary workers impact discretionary work effort. In the OCB literature, it is suggested that one of the ways in which OCBs affect organizational performance is by stimulating and making an atmosphere for other

workers' similar behaviors (Podsakoff et al. 2000). If temporary workers tend to not exert a high level of discretionary work effort for reasons such as unfamiliarity with work and other workers and/or supposedly lower level of commitment to the job, regular workers working with them might be discouraged to do it themselves (Hulin & Glomb 1999). Similarly, if regular and temporary nurses do more similar tasks, the possible negative effects of temporary nurses on discretionary work effort might be greater because a direct comparison between temporary and regular nurses is possible. However, it is also possible that the degree of temporary workers and task difference between regular and temporary workers are differently related with the different discretionary work effort factors. For example, the higher the percentage of temporary workers is, the harder regular workers should work to do some "make-up" work left behind by temporary workers. Another example would be that the more different the tasks between regular and temporary workers are, the smarter regular workers can work since they can focus on more complicated tasks. However, in this study, the relationship between temporary employment practices and quality of care is hypothesized to be mediated by working harder discretionary effort, more importantly than by working smarter discretionary effort.

**H3: Temporary employment practices are related with quality of service through mediation of working harder discretionary effort.**

The research framework is diagrammed in [Fig. 1].

(Fig. 1) Research Framework



## 2. Research Design

Nurses working at acute-care hospitals in New Jersey, U.S.A. are the subjects of this study. This choice is based on some considerations. First, for the detailed examination of key issues and the power to control for industry-specific characteristics, one occupation in one industry is preferred. Second, the occupation should have many temporary workers, and regular and temporary workers should have close contacts at work. Third, the industry should be one of the industries where HIWPs have been introduced extensively. Nursing fits these qualifications. In nursing, temporary nurses are used a lot, even with a nursing shortage, working side by side with regular nurses, and many hospitals went through nursing work redesign, similar to HIWPs in manufacturing.

This study uses a cross-sectional survey of nurses in New Jersey hospitals. Using a one-time survey has a potential issue of causality. To reduce this possible problem, this study measures practices of temporary employment practices and HIWPs, not workers' perceptions on the presence of these practices. It is more plausible to expect causal relations from practices to perceptions and behaviors, rather than from perceptions and behaviors to practices. Influence in HIWPs is an exception because it is measured as workers' perceptions about their influence. However, it is reported by Cappelli and Rogovsky (1998) that the vector of causation running from the involvement variable to Organizational Citizenship Behaviors is much stronger than that running from OCBs to involvement.

Using only an individual-level survey might introduce another issue, common method variances. To reduce possible common method variances, this study tries to use behavior-assessing questions, rather than perception-assessing questions for discretionary work effort. But it should be mentioned that quality of care is measured as one perceived by nurses, not as a behavior-oriented one.

### 3. Measurement for Major Variables

#### 3.1. High Involvement Work Practices

HIWPs in this study include influence, training, and incentive, based on Appelbaum et al. (2000)'s argument that high performance work systems consist of three basic elements; participation, skills, and incentive. Most high involvement work practice studies measure participation as the presence and/or coverage of work team and/or quality circles. In nursing, however, teamwork is inherent nature for quality care because work should be done in coordination among care-givers. Thus, participation in this study is measured as influence over work process within a unit, following the cases of Freeman and Rogers (1999) and Cappelli and Rogovsky (1998).

**Influence** measure is modified from Cappelli and Rogovsky's Involvement in Work Organization questions (1998). "How much influence do you think you actually have in the following decisions? - The way work is done, Keeping track of quality, Task assignment within your group, Work schedule, Selection/purchase of products for patient care, Training needed, Hiring/staffing/budgets, Amount and processing of paperwork, and Information given to patients. Answers are scaled as 1=No influence, 2=Only a little, 3=Some, 4=Considerable, or 5=A lot of influence. The mean of scores on the nine items is used as an influence index.

**Training** represents the skill element in HIWPs in this study. The key role of training in successful nursing restructuring is stressed by Brown (1995). Nurses should be continuously trained clinically. However, interpersonal and managerial skills are as much important as clinical skills in implementing HIWPs. Thus, how many kinds of training were provided by the respondent's hospital (training diversity) and, for each type of training, how many hours they were trained (training intensity) were asked in the survey. Training diversity is measured as "During last year, did you receive any training from your facility in the following areas? a. for your clinical skills, b. for your communication skills, and c. for your managerial skills. "If yes,

how many hours?” are followed in each area to measure training intensity. Then, to make a single training index, each of training diversity and training intensity is standardized with 0 mean and 1 standard deviation. The final training index is calculated as a mean of these standardized training diversity and standardized training intensity.

**Incentive** includes the use of pay for performance plans and the presence of job security contracts. Studies on nursing redesign rarely report changes in pay system. However, a few case studies report the introduction of pay for performance with a work redesign initiative in nursing (Miller & Falco 1995; Gordon et al. 1995). In high involvement work systems, job security practices have been receiving a varying degree of attention. Following Levine and Tyson’s logic (1990) that participation is more positive with high degree of employee commitment and employee-management trust, this study includes the presence of job security-related contracts into incentive.

Pay for performance is measured by “Is some of your pay based on your facility’s profits or performance (for example, quality improvement or cost reduction)?” “Is some of your pay based on your workgroup’s or unit’s performance?” and “Is some of your pay based on your individual performance?” (modified from Appelbaum et al. 2000). The mean of three answers is used for pay for performance. There are two questions for the presence of job security-related contracts; “Is there any written contract (including union contract, except for seniority provision in union contract) in your unit that provides job security for regular nurses?” and “Is there any written contract (including union contract) in your unit that regulates the use of temporary nurses?” The mean of answers to the two questions is used as a measure of presence of contracts on job security. The incentive index is calculated as the mean of standardized pay for performance score and standardized presence of job security contract score.

### 3.2. Temporary employment practices

Temporary employment practices in this study include the temporary nurse ratio and the task difference between regular and temporary nurses.

**Temporary nurse ratio** is measured the proportion of temporary nurses among all

nurses within the respondent's shift.

For **task difference** between regular and temporary nurses, 23 nursing tasks are chosen from Preuss (1998); transport patients, distribute food trays, feed patients, clean patient rooms, draw blood, bathe patients, do EKGs, provide respiratory therapy, insert IVs, give IV push medications, maintain IV site care, conduct sterile procedures, educate patients regarding medications, assess patients upon admission, assess patients during stay, take vital signs, conduct discharge planning, receive physician telephone orders, update physician on patient development, round with physicians, direct work of other employees, managing care over an illness episode, and others. Survey participants are asked to check tasks regular nurses do and temporary nurses do on their current shift, respectively, on the 23 task list. Then, the number of tasks either regular or temporary nurses do, but not both do, is calculated for each survey participant, creating the task difference index.

### 3.3. Perceived quality of care

The average of scores on two items, "I feel confident having someone close to me receive care in the facility where I work" and "I feel the quality of care in my facility is good" is used as a score on perceived quality of care. These items are scaled as 1=Strongly agree, 2=Agree, 3=Neither disagree nor agree, 4=Disagree, or 5=Strongly disagree."

The perceived quality of care measurement used in this study is not solid enough to capture firm performance. The author tried to get hard performance data or customer satisfaction data from the participating hospitals in vain. First, many hospitals didn't have data by units. Second, even if they did, they definitely didn't want to share them with outsiders. However, the previous studies lend some validity to the measurement, quality of care perceived by employees, used in this study, in the service setting. A study on a bank reports that employees' attitudes about overall quality provided to customers are strongly correlated with customers' assessment of service quality ( $r = .67, p < .01$ ) (Schneider 1980). And the same result is replicated by a later study ( $r = 0.63, p < .01$ ) (Schneider & Bowen 1985).<sup>9)</sup>



### 3.4. Control variables

To control for possible differences in the degree of the nursing shortage across units or hospitals, workload is included as a control variable. In addition, considering the possibility of different perceptions about the use of temporary nurses according to tasks respondents are doing, task breadth is also included as another control variable. Facility size (the number of beds) is also used to control for organizational characteristics, and specialty area, managerial position, employment status (regular full-time, regular part-time, or temporary), tenure, weekly working hours, and hourly earning are controlled for individual characteristics.

### 3.5. Analysis Method

Hierarchical regression is used in analyses to investigate the relationships between HIWPs / temporary employment practices and perceived quality of care through mediation by discretionary work effort.

## V. Data

Data in this study were collected from nurses at 16 participating hospitals in New Jersey, U.S.A. The hospitals distributed to their nurses the first wave of the survey, reminding letters after two weeks, and the second wave of the survey after another two weeks. Participation by individual nurses was completely voluntary and anonymous. Data collection took almost one year, from fall 2001 to summer 2002. Finally, 376 responses were received with a 16 percent response rate. One reason for the low response rate seems to come from the high workload of nurses.<sup>10)</sup> For this

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9) The author came across a similar result in a hospital during this research. An internal research by the hospital produces high correlation between its employees' perception of service quality and customers' assessment of service quality. However, the hospital doesn't want to open the research result to the public, which prevents the author from citing the result.

study, 290 completed survey responses are used.

<Table 2> summarizes some characteristics of respondents.

<Table 2> Descriptive Statistics

Variables	Mean	SD	Max	Min
Perceived Quality of Care	3.62	0.99	5.00	1.00
Discretionary Work Effort				
Working Harder Effort	2.84	0.76	4.67	1.00
Working Smarter Effort	2.37	0.68	4.50	1.00
Working Kinder Effort	4.08	0.89	5.00	1.50
High Involvement Work Practices				
Influence	2.71	0.81	5.00	1.00
Training	0.02	0.81	5.70	-0.86
Incentive	0.02	0.70	2.10	-0.98
Temporary Employment Practices				
Temporary Nurse Ratio	0.16	0.16	1.00	0.00
Task Difference	2.55	5.60	23.00	0.00
Control Variables				
Workload	129.32	117.72	988.00	4.00
Task Breadth	16.10	3.82	23.00	1.00
Facility Size	315.14	172.08	900.00	5.00
Specialties				
Medical/Surgical, Orthopedics, Neurology	0.30	0.46	1.00	0.00
ICU/CCU, ER, OR/PACU	0.26	0.44	1.00	0.00
Ob/Gy, Pediatrics/Neonatal	0.23	0.42	1.00	0.00
Psychiatric/Mental Health	0.10	0.30	1.00	0.00
Other Specialty	0.11	0.32	1.00	0.00
Manager	0.16	0.36	1.00	0.00
Employment Status				
Regular Full-time	0.74	0.44	1.00	0.00
Regular Part-time	0.15	0.36	1.00	0.00
Temporary	0.11	0.31	1.00	0.00
Tenure	10.35	8.27	33.00	0.00
Weekly Hours of Work	40.38	12.07	100.00	8.00
Hourly Earning	28.98	11.02	75.00	7.95
Number of Sample	290			

- 10) While I was contacting hospital managers to solicit participation in the research, some of them mentioned nurses' high workload as a reason for rejection to participation.

Respondents are working at hospitals with 315 beds on average. Full-time regular nurses are 74 percent, part-time regular nurses 15 percent, and temporary nurses 11 percent, and managers represent 15% of the respondents. The average tenure of respondents is 10.4 years. When respondents are grouped into similar specialty areas, those working at medical/surgical, orthopedics, or neurology units are 30 percent, those at ICU/CCU, ER, or OR/PACU are 26 percent, those at OB/GY or pediatrics/neonatal are 23 percent, those at psychiatric/mental health are 10 percent, and those at other specialties are 11 percent. On average, these responding nurses work 40.4 hours a week and their hourly earning is \$29.

The respondents perceive the quality of care in their facility somewhat favorably (3.62 in the 1-5 scale). The average score for working harder discretionary effort is 2.84 (close to every week), the mean of working smarter discretionary effort is 2.37 (close to a few times a month), and the mean of working kinder discretionary effort is 4.08 (close to a few times a week). The average score on the 1-5 scale for influence over work process is 2.71. On average, the temporary nurse ratio to all nurses is 16 percent, and the number of tasks that either regular or temporary nurses do exclusive of the other is 2.55 out of 23.<sup>11)</sup>

## VI. Results

### **H1: HIWPs are related with quality of care through mediation of working smarter discretionary effort.**

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11) The simple correlation coefficients, which can be provided upon request, show that perceived quality of care is negatively correlated with working harder and temporary ratio (both at the 0.1 significance level) and task difference (at the 0.01 significance level), and positively correlated with influence, training, and incentive at the 0.01 significance level. HIWPs are all positively correlated with one another at the 0.05 significance level. Among HIWPs and temporary employment practices, the only negative correlation is detected between training and task difference. It is also observed that both a higher temporary ratio and more task difference between regular and temporary nurses are positively correlated with working harder effort.

<Table 3> shows influence has a statistically significant, positive relation with working smarter discretionary effort. <Table 4> indicates that working smarter discretionary effort is positively related to perceived quality of care and the relationship between influence and perceived quality of care is partially mediated by

<Table 3> Relationships between HIWPs / Temporary Employment Practices and Discretionary Work Effort

	Working Harder	Working Smarter	Working Kinder
High Involvement Work Practices			
Influence	-0.01	0.16 ***	0.04
Training	0.07	0.06	0.02
Incentive	0.02	0.04	-0.04
Temporary Employment Practices			
Temporary Ratio	0.59 **	0.19	0.26
Task Difference	0.02 **	0.01 **	0.01
Control Variables			
Workload	0.00	0.00 *	-0.00
Task Breadth	0.02	0.03 **	0.05 ***
Size	0.00	0.00	0.00
ICU/CCU, ER, OR/PACU	0.04	-0.01	-0.15
Ob/Gy, Pediatrics/Neonatal	-0.04	0.02	0.24
Psychiatric/Mental Health	-0.36 **	-0.09	-0.00
Other Specialty	-0.05	-0.10	0.05
Manager	0.27 **	0.11	0.03
Part-time Regular	-0.06	-0.29 **	-0.12
Temporary	-0.08	-0.02	0.17
Tenure	0.01 ***	0.01	0.01 **
Weekly Hours of Work	0.01	0.00	-0.00
Hourly Earning	0.00	-0.00	0.00
Constant	1.92 ***	1.12 ***	3.09 ***
N	290	290	290
R-Squared	0.1489 ***	0.1895 ***	0.0959 *

\* for  $p < 0.1$ , \*\* for  $p < 0.05$ , and \*\*\* for  $p < 0.01$ .

(Table 4) Mediation Results of Discretionary Work Effort between HIWPs / Temporary Employment practices and Quality of Care

	Perceived Quality of Care		
Discretionary Work Effort			
Working Harder		-0.29 ***	-0.21 **
Working Smarter		0.29 ***	0.17 *
Working Kinder		-0.02	-0.00
High Involvement Work Practices			
Influence	0.38 ***		0.35 ***
Training	0.13 *		0.14 **
Incentive	0.11		0.11
Temporary Employment Practices			
Temporary Ratio	-0.75 **		-0.66 *
Task Difference	-0.03 ***		-0.03 ***
Control Variables			
Workload	-0.00	-0.00	-0.00
Task Breadth	-0.03 *	-0.03 *	-0.03 *
Size	0.00	0.00	0.00
ICU/CCU, ER, OR/PACU	-0.13	-0.14	-0.12
Ob/Gy, Pediatrics/Neonatal	0.03	-0.04	0.02
Psychiatric/Mental Health	-0.51 **	-0.63 ***	-0.57 ***
Other Specialty	0.14	0.24	0.14
Manager	-0.10	0.21	-0.06
Part-time Regular	0.02	-0.01	0.05
Temporary	0.18	-0.04	0.17
Tenure	0.01 *	0.01 **	0.01 **
Weekly Hours of Work	-0.01 *	-0.01 **	-0.01
Hourly Earning	0.00	0.00	0.00
Constant	3.36 ***	4.53 ***	3.58 ***
N	290	290	290
R-Squared	0.2586 ***	0.1418 ***	0.2775 ***

\* for  $p < 0.1$ , \*\* for  $p < 0.05$ , and \*\*\* for  $p < 0.01$ .

working smarter discretionary effort. However, other HIWPs components, training and incentive, are found to be not related with working smarter discretionary effort. Training is shown to be marginally related to perceived quality of care. Thus H1 is partially supported. In addition, the lack of relationship between HIWPs and working harder discretionary effort indicates that HIWPs, especially influence, make workers

work smarter, rather than work harder.

**H2: HIWPs are related with quality of care through mediation of working kinder discretionary effort.**

<Table 3> and <Table 4> show that, different from the hypothesized expectation, a statistically significant relationship between working kinder effort and HIWPs or between working kinder effort and perceived quality of care is not found. Thus, H2 is not supported in this study. Little effect of HIWPs on working kinder discretionary effort might be because many nurses fulfill this aspect of their jobs anyway, based on their occupational commitment with little relevance to other working conditions. The highest mean of working kinder discretionary effort (4.08 out of 0-5 scale), compared to working harder (2.84) or working smarter (2.37), gives some support to this interpretation. Or no relationship of working kinder discretionary effort with any of HIWPs, temporary employment practices, and perceived quality of care suggests that working kinder discretionary effort might have some other antecedents and consequences. It should be a task for further study in the future to examine relationships around working kinder discretionary effort, in the service setting in particular.

**H3: Temporary employment practices are related with quality of service through mediation of working harder discretionary effort.**

Table 3 also shows that both temporary ratio and task difference are positively related to working harder effort, and the task difference is also positively related to working smarter effort. The positive relationship between temporary ratio and working harder effort can be easily interpreted as that the higher the proportion of temporary workers is compared to regular workers, the harder workers should work to pick up some work left by temporary workers. However, the positive relationship of task difference with both working harder and working smarter effort is not straightforward to interpret. As regular and temporary workers do different tasks, regular workers might have to do more make-up work, which could make them work harder, or they might be able to focus on their own, usually more complicated tasks, giving routine

tasks to temporary nurses, thus having a higher chance to work smarter. However, both temporary ratio and task difference have negative relationship with perceived quality of care, shown in <Table 4>. This might mean that a supposedly positive relationship of task difference with working smarter discretionary effort is overshadowed by its stronger relationship with working harder discretionary effort. Temporary employment practices are related to perceived quality of care, through partial mediation of working harder discretionary effort, thus partially supporting H3.

Even though using perceived quality of care as an organizational performance measure makes it impossible to fully understand the relationship between discretionary work effort and organizational performance, this finding is very interesting in that, contrary to the findings by Lewin (2001), using many temporary workers, even though leading to making workers work harder, might not lead to high organizational performance, at least with a quality concern. On the other hand, empowering employees as with HIWPs, can lead to making employees work smarter, and in turn, high quality of service. This finding is especially critical since it is drawn from the healthcare industry where quality of care is one of the most important aspects of performance. Therefore, this finding could have significant implications for the service sector.

The above results, with working harder discretionary effort and working smarter discretionary effort having different relationships with relevant variables, also support the three-factor approach on discretionary work effort, explored in this study.

## VII. Conclusion

Discretionary work effort, developed and measured in this study, is shown to have the proposed three factors; working harder, working smarter, and working kinder. Working harder effort is positively related to temporary ratio and task difference, and working smarter effort is positively related to influence and task difference. The

different relationships of HIWPs and temporary employment practices with different factors of discretionary work effort become more interesting when they are examined with perceived quality of care. While working smarter effort is positively related to perceived quality of care, working harder effort is negatively related to perceived quality of care. This means that the effects of HIWPs and temporary employment practices on organizational performance might go through different mechanisms from the employees' point of view. It seems like that HIWPs lead to higher working smarter discretionary effort, not working harder effort, even though this study doesn't provide causality. Furthermore, HIWPs, influence in particular, is positively related to perceived quality of care directly and indirectly through mediation of working smarter discretionary effort. And temporary employment practices, both temporary ratio and task difference, are negatively related to perceived quality of care directly and indirectly through mediation of working harder discretionary effort.

These findings have some practical implications. If a hospital wants to really take advantage of positive association between HIWPs and quality of care, it has to try to reduce the use of temporary nurses. However, even though quality of care is an important component of organizational performance, especially in the service sector, using the measurement as performance has limitations. One is that quality of care perceived by nurses is not a solid measurement for performance by itself. Other hard data or perception data from others such as customers are needed to capture the whole performance dimension. Another is that the single source bias might affect the results on perceived quality of care. To see how much the perceived quality of care could be a proxy for quality of care, the simple correlations between staffing ratios and the perceived quality of care are examined. A previous study (Preuss 1998) reports that quality of care is closely related to higher RN ratio. The perceived quality of care in this study is negatively correlated to Aide to RN ratio (correlation coefficient - 0.1279 with statistical significance at the 0.05 level). From this examination, it seems that the perceived quality of care can be a proxy for quality of care, even though it might not be a strong one. For future research, it will be a big challenge to develop



good measurements for performance in the service sector, in both quantitative and qualitative terms.

With measurement cautions, however, it is a big contribution of this study to show that HIWPs make workers work smarter, not work harder, which in turn leads to high perceived quality of care, and that more use of temporary workers, while making worker work harder, is perceived negatively for organizational performance in a quality term.

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## 고성과(고참여)작업관행과 임시고용관행: 노동자들을 더 열심히 일하게 만드는가, 더 현명하게 일하게 만드는가, 아니면 더 친절하게 일하게 만드는가?

김 혜 진

본 연구는 미국 뉴저지 주의 소재 병원들에 종사하는 간호사들의 설문조사를 통해, 고성과(고참여)작업관행과 임시고용관행이 노동자들에게 어떤 영향을 미치는지 고찰했다. 이를 위해 임의적 노력이라는 개념이 개발되었는데, 이는 요소 분석을 통해 더 열심히 일하기, 더 현명하게 일하기와 더 친절하게 일하기라는 세 가지로 분류되었다. 고성과(고참여)작업관행은 이 중 더 현명하게 일하기로 부분적으로 매개되어 돌봄 서비스 질 인식과 긍정적 관계를 보여주었으며, 임시고용관행은 더 열심히 일하기로 부분적으로 매개되어 돌봄 서비스 질 인식과 부정적 관계를 보여주었다. 이 연구는 이렇게 상이한 상관관계를 가진 고성과(고참여)작업관행과 임시고용관행을 동시에 연구함으로써 현재 많이 사용되고 있는 이들 관행들의 사용을 재고해 볼 필요를 제기한다.

핵심용어: 종업원참여, 고성과(고참여)작업관행, 임시고용관행, 임의적 노력, 돌  
봄 서비스 질