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A Job Satisfaction Scale for Nurses

Sik Hung Ng
Victoria University of Wellington

A multi-faceted nursing job satisfaction scale was constructed by first interviewing nurses to identify salient domains of their work experience. An initial pool of 33 items, constructed to represent the work domains, was administered to a national sample of staff nurses in public hospitals (n = 1249) and then again after five months. Twenty-four items were selected and the resulting scale was found to have acceptable internal and temporal reliabilities, an interpretable factorial structure that was replicable in the second survey, as well as cross validity when correlated with organisational commitment. Information on employee turnover over a 15-month period was collected for testing the predictive validity of the scale by means of proportional hazards regression, which is a relatively new and more powerful modeling technique than multiple regression. The results showed that turnover was significantly related to overall job satisfaction, particularly to career prospects and relationships with supervisors.

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Nurses in New Zealand belong to a profession with a proud and long history that began as early as 1882, the year when the first training school for nurses was established in Wellington Hospital (Morse, 1992; see also Christensen, 1990). They also outnumber any other health occupational group in this country. However, despite their importance as an occupational group, nurses have received relatively little research attention in industrial/organisational (I/O) psychology. The Health Department in 1987 commissioned a national survey of nurses in public hospitals to develop a scale for measuring job satisfaction and for assessing the impact of job (dis)satisfaction on the turnover rate of nurses. The overall findings are reported elsewhere (Ng, Jenkins, Dixon, & Cram, 1992). The present paper is specifically concerned with the development of the nursing job satisfaction scale: to reanalyze the scale's reliability and validity to produce a shorter version of the scale, and record the scale's normative data for archival purposes.

Job satisfaction, which has been an important topic in I/O psychology, is usually considered as an evaluative-affective reaction to a job (Locke, 1976). The reaction is multi-faceted, corresponding to various salient aspects of the job, and is known to be correlated with organisational commitment (Mowday, Porter, & Steers, 1982), job withdrawal behaviour and withdrawal intentions (Miller, Katerberg, & Hulin, 1979; Prestholdt, Lane, & Mathews, 1987), and various other job-related variables. The widely used measures of job satisfaction by Brayfield and Rothe (1951), Smith, Kendall and Hulin (1969), and Hackman and Oldham (1975) were developed in nonhospital organisations and do not represent adequately the specific experience of nurses. Despite this inadequacy, one may still argue in favour of applying standard measures on the ground that a common measure would produce comparable, cumulative data. In the present context, this argument is rejected for three reasons.

The first reason is that the use of an externally derived measure may ignore or, worse still, misrepresent features that are indigenous to a different workforce especially when this workforce is made up mainly of women. Mistakes of this kind abound in

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Correspondence should be addressed to the author at the Department of Psychology, Victoria University of Wellington, P.O. Box 600, Wellington.

intelligence testing (Flynn, 1987) and in cross-cultural research (Berry, 1969); they can easily outweigh any gain from the pursuit of universal data. Secondly, a generalized measure has relatively poor diagnostic value — it indicates but does not focus on specific aspects of job satisfaction or dissatisfaction to sign-post intervention. As jobs differ one from another in terms of content and context (Hackman & Oldham, 1980), it is important for the practice of I/O psychology to increase the diagnostic value of the measure by connecting items to aspects of the job in a sufficiently concrete way. Thirdly, no standard measure can expect to be used forever; sooner or later it will be replaced by another measure. These considerations become persuasive in light of the large scale of the present study, which offers the rare opportunity of creating a national data base large enough to stand on its own and has the potential of becoming a reference point for future studies.

In generating items for the nursing job satisfaction scale, eligible items were pooled from Spector's (1985) Job Satisfaction Survey that has been designed for human service employees, and from studies that dealt specifically with nurses (Gray, 1984; King & Fletcher, 1980; Kramer, 1969; Munro, 1983; Slavitt, Stamps, Piedmont & Haase, 1978; Wandelt, Pierce & Widdowson, 1981). A panel of 30 nurses was then interviewed to generate responses for identifying major work domains to be represented in the scale.

Reliability criteria were based on internal reliability (Cronbach's alpha coefficient), a replicable factorial structure and temporal reliability over a five-month period. The scale's validity was examined by first correlating it with a standard measure of organisational commitment (Mowday et al., 1982), and then by testing its ability to predict employee turnover over a 15-month period. Employee turnover was measured on the joint basis of employment status (quitters vs. stayers), a conventional criterion, and the length of employment between survey and quitting (called "job survival duration" hereafter).

The rationale for adding job survival duration to the conventional criterion of employment status is that the combined index of employment turnover would be more informative than employment status alone would. This is because although employment status differentiates between quitters from stayers, it does not differentiate, for example, a quitter with a job survival duration of 14 years from another with only 14 days. For stayers, job survival duration remains indeterminate because they have not yet withdrawn from their job. The truncated (censored) nature of stayers' job survival duration has traditionally posed a difficult methodological problem for researchers who might have otherwise wanted to incorporate job survival duration in their index of employee turnover. The problem is complicated by the inability of conventional modeling techniques such as multiple regression in combining employment status and job survival duration. This raises an important methodological issue for I/O psychology. Proportional hazards regression (PHR), developed by Cox (1972) in relation to life table methodology, offers a means of resolving the issue. In the past, PHR has been used mainly by biomedical and engineering researchers whose data are often based on a few patients (or engineering systems) who either die (analogous to quitters) or survive at particular intervals (analogous to job survival durations) after treatment and have certain characteristics (analogous to job dissatisfaction). More recently, PHR has been applied to social science research (Fergusson, Horwood, & Shannon, 1984; Fichman, 1988; Harrison & Hulin, 1989; Teachman, 1982) and to employee turnover in particular (Morita, Lee, & Mowday, 1989). A technical evaluation of PHR relative to multiple regression showed that PHR was superior both in selecting predictors that were truly significant and in the accuracy of estimating turnover rate (Ng, Cram, & Jenkins, 1991). This superiority is consistent with the fact that PHR makes use of both employment status and job survival duration, whereas multiple regression utilizes only employment status.

Method

Nurse interview

In order to identify domains of job satisfaction that were relevant to nurses, 30 nurses were interviewed and asked to talk about what would make a "good" or a "bad" hospital for nurses to work in. The interview was unstructured, and the interviewer gave prompts only when the interviewee had not spontaneously covered all the major topics culled from the American Academy of Nursing's

Magnet Hospital study (McClure, Poulin, Sovie, & Wandelt, 1983).

The interview responses were transcribed for analysis, the results of which indicated four main domains of job-related experience that were salient to interviewees: (1) *administration* (management style, quality of leadership, work schedule), (2) *professional practice* (autonomy, patient care, communication with patients and other health professionals, relationship with coworkers), (3) *professional development* (ongoing education, recognition and promotion), and (4) *environment* (working environment and equipment).

Job satisfaction items

Items for the first draft of the questionnaire were generated from the interviews and from the literature review outlined in the introduction. The draft questionnaire was amended in consultation with Nurse Advisors in the Health Department and with representatives of the New Zealand Nurses' Association. It was then pilot tested with the help of 15 registered nurses and afterwards revised on the basis of their answers and comments. The revised questionnaire was administered to several nurses and finalized in light of the comments. Demographic and other items that do not concern us here were also included in the questionnaire.

The initial job satisfaction scale consisted of 33 items representing all the categories and subcategories identified in the interviews. Respondents were asked to rate their degree of agreement or disagreement with each item on a 7-point response format ranging from strongly agree (1) to strongly disagree (7). To counter response set, the items were worded negatively for about half of the items and positively for the others; these were then mixed with a 9-item organisational commitment scale (Mowday et al., 1982).

Sample and procedure

The country's largest 20 hospital/area health boards, each employing over 130 full-time-equivalent staff nurses, were selected. All but one board agreed to take part (the board that did not was the subject of a public enquiry at the time of the survey). Participating boards were requested to sample at random from their lists of hospital-based staff nurses, excluding psychiatric nurses. The sampling rate was 20% for the six largest boards, and 25% for the remaining, smaller boards. The initial quota consisted of 1803 eligible nurses.

Questionnaires were dispatched to the chief nurses of the 19 participating boards and distributed to the selected staff nurses through the boards' internal mailing system. A cover letter accompanying the questionnaire explained the nature of the survey and requested cooperation from the nurse. Voluntary participation was stressed. The questionnaires were marked by code numbers to ensure respondents' anonymity, and freepost envelopes were provided for the return of questionnaires directly to our university address.

The questionnaires were distributed in March 1988. An initial 50% response rate was achieved by the first week of April. A follow-up letter and questionnaire were sent to respondents who had not replied. At the end of May, the final response rate increased to 69% (n = 1249), representing a total of 78 hospitals. As far as one could ascertain, no more than three hospitals, all very small, were omitted from the final sample. With this exception, the sample covered all hospitals in the 19 boards.

By August, 48 of the 1249 respondents of Sample 1 had been promoted or were on leave. Of the remainder, 133 had resigned and 1068 stayed in the job. In August and September, the 1068 stayers were surveyed again to obtain job satisfaction responses. Eighty percent of stayers responded; these will be referred to here as Sample 2 (n = 855).

Results

Job satisfaction items that were negatively worded were reverse coded so that 1 = high satisfaction and 7 = low satisfaction. Organisational commitment items were coded so that 1 = high commitment and 7 = low commitment.

Internal reliability

Cronbach's alpha coefficient (Cronbach, 1960), calculated on the basis of Sample 1 responses, was 0.86 for the 33 items. Items that contributed the least to internal reliability were removed one at a time, until 24 items were left that had an alpha coefficient of 0.84. The 24-item scale correlated highly with the 33-item scale (r = 0.98). For Sample 2, alpha coefficients of the 33- and 24-item scales were respectively 0.87 and 0.85. The two versions of the scale correlated with each other at the same level as they did in Sample 1. On the basis of these results, the shorter 24-item scale was used in subsequent analyses (see Appendix for the wording of the items).

Factorial structure

In light of the multi-faceted nature of job satisfaction shown in the literature as well as in the nurse interview, factor analysis was carried out to dimensionalize the 24-item scale. For Sample 1, seven of the extracted factors (principal components) had eigen values above 1 and these accounted for 54% of the variance. As the likelihood of a general factor was low, the seven factors were rotated by varimax

Table 1
Highest Factor Loadings, Means, and Standard Deviations of Job Satisfaction Items*

Factor/item	Loadings		Mean	SD
	Sample 1 (n = 1249)	Sample 2 (n = 855)		
Administration				
1. Support nurses	0.78	0.80	4.18	1.88
2. Care about nurses	0.78	0.78	4.38	1.86
3. Consult with nurses	0.72	0.63	4.32	1.94
4. Nursing goals of administration	0.54	0.67	4.12	1.91
Co-worker				
5. Help one another	0 69	0.71	2.14	1.49
6. Accept one another as colleagues	0.69	0.53	2.00	1.33
7. Petty quarrelling	0.64	0.65	3.75	2.00
8. Incompetence	0.59	0.65	3.16	1.87
Career				
9. Professional development	0.76	0.77	3.37	1.88
10. Dead-end job	0.69	0.68	2.52	1.88
11. Promotion	0.54[a]	0.49	4.24	1.74
Patient care				
12. Patient care	0.76	0.77	3.94	1.89
13. Professional judgement	0.51	0.54	3.45	1.90
14. Patient needs	0.39	0.30[b]	3.04	1.91
Relationship with supervisor				
15. Close supervision	0.64	0.66	2.37	1.57
16. Requests for leave	0.63	0.68	1.79	1.19
17. Staff rostering	0.60	0.45	3.16	2.04
18. Working relationship	0.49	0.70	2.02	1.33
Nursing education				
19. Courses and seminars	0.65	0.53	4.32	1.91
20. Orientation programme	0.55	0.69	3.91	1.96
21. Inservice training	0.54	0.62	3.90	2.01
Communication				
22. Appreciation by patients	0.73	0.70	2.37	1.39
23. Communication with patients	0.61	0.58	2.18	1.26
24. Understanding by surgeons	0.39[c]	0.52	2.87	1.55

*Note.** Loadings of items 11, 14, and 24 marked by a superscript were the second highest. The highest loading of [a] was on the administration factor (0.57); [b] was on the co-worker factor (0.39); and [c] was on the patient care factor (0.57). The final grouping of items under the factors shown in Table 1 was based on the combined results of Sample 1 and 2 and on the contents of the items concerned (see Appendix). Means and standard deviations were based on Sample 1.

rotation to simplify the columns of the factor matrix. Items that loaded the highest on the rotated factors were grouped and the results indicated the following interpretable factors: administration, co-workers, patient care, relation with supervisor, career, nursing education, and communication (see Table 1). As the seven factors were distinct in content and also corresponded to those already revealed in the nurse interview, it was decided to retain all of them rather than to use Scree-test to determine the number of factors.

A confirmatory factor analysis was carried out on Sample 2 by specifying a 7-factor solution. The seven factors accounted for 54% of the variance and items that loaded the highest on the factors overlapped considerably with those of Sample 1 (see Table 1). Although the overall results were highly convergent, three of the 24 items loaded the highest on different factors across samples and these were in need of reexamination by taking into account their contents (see Appendix). All the three items (11, 14 and 24) showed the same pattern of ambiguity in that their second highest loadings in Sample 1 were on factors that attracted the

highest loadings in Sample 2, and vice versa. In the case of item 14, the highest loading was 0.39 on the patient care factor and the second highest was 0.34 on the co-workers factor (Sample 1); the corresponding figures in Sample 2 were 0.38 (co-workers) and 0.30 (patient care), respectively. Its contents indicated a better fit with the patient care factor (as in Sample 1) than with the co-workers factor; accordingly, its final factor membership remained the same as in Sample 1. On the other hand, it was deemed more appropriate to adhere to the results of Sample 2 and group item 11 under the career factor, and item 24 under the communication factor.

The final grouping of items represented seven areas of work each measured by three or four items. The work areas correlated (Pearson *r*) with one another moderately on the basis of both Sample 1 (*r*s varied between 0.24 and 0.39) and Sample 2 (*r*s varied between 0.25 and 0.44) results, indicating that they were interrelated and yet were relatively distinct from each other.

Temporal reliability

The temporal reliability at five months was assessed by correlating Sample 2 responses with the responses of the same subgroup of subjects in Sample 1. A highly positive correlation was found, Pearson $r = 0.75$, $p < 0.001$.

Cross validity

The 9-item organisational commitment scale had an alpha coefficient of 0.85. It was used to cross validate the job satisfaction scale, resulting in a highly positive correlation, Pearson $r = 0.64$, $p < 0.001$.

Predictive validity

Job satisfaction scores obtained in Sample 1 were used to test the ability of the job satisfaction scale to predict turnover during a 15-month period. Respondents from one health board which did not supply employment data were excluded from the analysis ($n = 24$), as were those with missing identifications. Sixty-seven quitters who had resigned for involuntary reasons (pregnancy, ill health, spouse/partner moved to another town, etc.) were also excluded in light of the important distinction between voluntary and involuntary quitters (Abelson, 1987). To keep the data base as homogeneous as possible for regression analysis, male respondents, who were few in number anyway ($n = 44$), were not included in the analysis. The following proportional hazards regression analyses were carried out on 168 (voluntary) quitters and 836 stayers.

In the proportional hazards regression analyses, job survival duration and quitter status were used to define the "time to response" and the "response" respectively (Hopkins, 1988). Job satisfaction scores based on the full scale were entered as the sole predictor in the first analysis. The resulting regression coefficient was significant ($\beta = 0.048$, standard error = 0.013, $t = \beta/\mathrm{SE} = 3.585$, $p < 0.001$), indicating that the likelihood of quitting increased with low job satisfaction. Next the seven job satisfaction subscores, based on the grouping of items shown in Table 1, were simultaneously entered as predictors. Only two of the subscores were significant: career ($\beta = 0.166$, standard error = 0.064, $t = 2.595$, $p < 0.01$) and relation with supervisor ($\beta = 0.242$, standard error = 0.080, $t = 3.014$, $p < 0.005$). Likelihood of quitting increased with low satisfaction in each of the two job areas. These results were consistent with the distribution of quitters and stayers in the high and low satisfaction categories (based on the median split) in each job area. As shown in Table 2 there were relatively more quitters than stayers in the low than in the high satisfaction category.

Job satisfaction levels

Table 1 above records the means and standard deviations of individual items to show the scale norms based on Sample 1. Nursing administration was a generally low satisfaction area. Essentially the same pattern of results was obtained when the normative data were examined at the level of individual hospitals. An interesting result emerged when the 78 hospitals were grouped according to size, based on the number of staff nurses employed. The highest as well as the lowest level of satisfaction with administration were both found in the small category of hospitals (50 or fewer staff nurses). By contrast, satisfaction levels in the larger hospitals were well within this range.

Discussion

In this paper, the case was made for developing a nursing job satisfaction scale that was grounded in the specific job content and job context of New Zealand nurses. The resulting indigenous scale, based on a large

Table 2. *Distribution of Stayers and Quitters stratified according to High and Low Categories of Satisfaction in the Job Areas of Career and Relationship with Supervisor*

	Stayers		Quitters	
	n	%	*n*	%
Career				
High satisfaction	429	87.6	61	12.4
Low satisfaction	407	79.2	107	20.8
Relationship with supervisor				
High satisfaction	408	87.7	57	12.3
Low satisfaction	428	79.4	111	20.6

Note. High and low categories were based on the median split. Unequal numbers in categories were due to tied scores.

sample of nurses drawn at random from 19 of the country's largest health boards, represents a departure from the all too frequent use of imported, general scales in I/O psychology and constitutes a rigorously derived tool for measuring job satisfaction in one predominantly female occupational group.

The 24-item job satisfaction scale was found to have an acceptable level of internal reliability and temporal reliability. Its factorial structure, which was replicated to a large extent over a five-month period and consistent with the nurse interview results, consisted of seven factors relating to nursing administration, co-workers, nursing career, patient care, relationship with supervisor, nursing education, and communication.

Consistent with extant research showing a positive correlation between job satisfaction and organisational commitment, the present scale correlated significantly in the positive direction with Mowday et al.'s (1982) organisational commitment measure. The scale's predictive validity, tested by means of proportional hazards regression that utilized both employment status and job survival durations, was positive. This predictive ability is robust in light of the relatively long period of fifteen months. Of the seven job satisfaction subscores, those relating to career and to relationship with supervisor were significant in predicting the likelihood of quitting; the remainder did not contribute any additional significant information for predicting quitting. It appeared that in so far as the decision to stay in or resign from a job was concerned, the decision was most critically affected by nurses' relationships with their supervisors and by their perceived career prospects. The important role of the former facet of job satisfaction in turnover is understandable in light of the fact that social relationships are particularly valued by women (e.g., Mottaz, 1986). As for the important role of career prospects, it may be difficult to be reconciled with the commonly held stereoptype that (women) nurses are not career-oriented and that they would stay in their jobs merely to generate a second, supplementary income for the household. Against this stereotype, one must recognise that as a result of recent changes in the training and occupational aspirations of nurses (see Christensen, 1990; Ng, Cram, & Dixon, 1988), nurses have become more career-oriented.

Note that employee turnover was used here only as a criterion of predictive validity, and that our aim was *not* to model the process of employee turnover as such. So, even though a significant relationship was found to exist between job satisfaction and turnover in support of the predictive validity of the scale, this does not mean that job dissatisfaction leads directly to turnover. Other research has shown, for example, that quitting intention mediates between dissatisfaction and withdrawal behaviour (Ng et al., 1991; Miller et al., 1979; Mobley, Griffeth, Hand, & Meglino, 1979; Sheridan & Abelson, 1983).

The present scale for measuring job satisfaction among nurses, and the normative data reported herein, can serve a variety of practical applications. The scale can be used, for example, to assist with the evaluation of quality of work life and similar other

programmes by assessing changes in the satisfaction levels of various job areas before and after the implementation of a programme. The normative data can provide a baseline for assessing national trends associated with ongoing restructuring of the health sector, especially in the area of nursing management. During the time of the survey, most nurses were managed by nurse administrators under the traditional triumvirate structure of hospital management, which comprised of three executives (a doctor, a nurse, and an administrator). Originally imported from the United Kingdom, triumvirate management in the recent past has been widely condemned and held responsible for many ills found in the public hospital system (e.g., Gibbs, Fraser, & Scott, 1988). In the specific domain of nursing management, it is interesting to note from Table 1 that this was the area of the lowest job satisfaction. Along with the State Sector Act 1988 and health sector restructuring, general management has been introduced to phase out triumvirate management. Most nurses in public hospitals are now managed by general managers who are unlikely to be nurses themselves. The effect of the new management environment on nurses' job satisfaction can be gauged on a national level against the present normative data.

Appendix
Wording of Job Satisfaction Items

1. I know that the hospital administration is there to back nurses up.
2. There is no doubt that this hospital administration cares a good deal about the welfare of nurses.
3. The nursing administrators generally consult with the nursing staff on daily problems and procedures.
4. The nursing goals of this hospital administration are unclear to me.
5. The nurses on my unit don't hesitate to pitch in and help one another out when things get in a rush.
6. Even though our basic training may differ, the nurses on my unit accept one another as colleagues.
7. Nursing personnel on my unit do a lot of petty quarreling.
8. I find I have to work harder at my job than I should because of the incompetence of the people I work with.
9. There are enough opportunities on my unit for developing my professional skills.
10. This is a dead-end job for me.
11. Nurses I know who do well on the job stand a fair chance of being promoted.
12. The house surgeons/registrars don't consult me about patient care as often as I would like.
13. I am sometimes required to do things on my job that are against my better professional judgement.
14. I have the feeling that my unit is not organized in such a way that the needs of patients are given top priority.
15. I feel that I am supervised more closely than I need to be.
16. My requests for leave are fairly handled without personal bias.
17. Staff rostering is not flexible enough to suit my needs.
18. I have a good working relationship with my charge nurse.
19. There is insufficient support for nurses wanting to attend courses and seminars outside the hospital.
20. I found the orientation programme inadequate for my needs.
21. The provisions for inservice training adequately meet my needs.
22. My patients fully appreciate the care I have given them.
23. There is good communication between patients/relatives and nurses on our unit.
24. House surgeons/registrars on my unit generally understand and appreciate what the nursing staff do.

Note. The items are arranged in the order of their grouping under seven factors: Administration (1,2,3,4), Co-workers (5,6,7,8), Career (9,10,11), Patient care (12,13,14), Relationship with supervisor (15,16,17,18), Nursing education (19,20,21), and Communication (22,23,24).

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