

Quality of Relationship with Supervisor and Work Exhaustion among Nurses

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نوعية العلاقة مع المشرف وانهك العمل عند الممرضات

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المخلص: الهدف: لدراسة أثر نوعية العلاقات مع المشرفين في انهك العمل عند الممرضات العاملات في مستشفى بعمان. الطريقة: جمعت المعطيات من 229 ممرضة باستخدام استبيان. النتائج: ظهر أن العلاقة الايجابية بين المشرف والمرضة لها تأثير عكسي مباشر على انهك العمل. وكذلك على تجربة المؤسسة والتجربة المهنية ومستوى التعليم والقناعة بالوظيفة وبالمهنة والتداخل الوظيفي في شؤون العائلة. الخلاصة: ظهر أن العلاقة المتميزة مع المشرف لها تأثير كبير بتخفيف انهك العمل عند الممرضات.

مفتاح الكلمات: الظاهرة النفسية والعمليات. مهني. عمان.

ABSTRACT Objectives: To study the impact of quality of relationships with supervisors, operationalised as leader-member exchange (LMX), on work exhaustion among nurses working for a hospital in Oman. **Methods:** Data were collected from 229 nurses using a questionnaire. **Results:** LMX was found to be a significant negative correlate of work exhaustion directly, as well as beyond the controlled-for correlates of gender, organisation experience, occupation experience, education level, job satisfaction, occupation satisfaction and work interfering with family. **Conclusion:** A perceived higher quality work relationship with one's supervisor appears to have a significant impact on reducing perceived work exhaustion among nurses.

Keywords: Psychological phenomena and processes; Burnout, professional; Oman.

Advances in Knowledge

- Leader-member exchange (LMX) was found to impact work exhaustion after controlling for a powerful collective of control variables including: gender, organisation experience, occupation experience, education level, job satisfaction, occupation satisfaction and work interfering with family.
- Tested for the impact of LMX on work exhaustion in a non-Western sample.

Applications to Patient Care

- Work exhaustion and burnout may have negative implications for employee and patient safety in health care organisations.
- Improving the quality of work relationship between supervisors and subordinates may help to prevent health care professional burnout.

CHANGES AT WORK, INCLUDING GREATER global competition, increased demand for services, increased use of technology, the

corporate trend towards mergers, coupled with downsizing, and greater micromanagement, have collectively helped to create a more demanding work envi-

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ronment for many employees.^{1,2} Such changes have resulted in increased levels of employee burnout and exhaustion among various kinds of health care providers in developed Westernised countries, including: doctors,³ nurses,⁴ radiology technologists,⁵ direct-care professionals working with the mentally disabled,⁶ volunteer counsellors caring for the terminally ill and medical technologists.⁷ Employee exhaustion has *not* been extensively studied in health care providers *outside* Westernised countries, i.e., generally Europe, the United States, Canada, Australia, and Israel.⁸ The purpose of this study is to investigate correlates of work exhaustion for nurses working in a hospital in Oman.

DISTINGUISHING WORK VERSUS EMOTIONAL EXHAUSTION

Two types of employee exhaustion have been examined in the burnout literature: emotional exhaustion⁹ and, more recently, work exhaustion.¹⁰ Emotional exhaustion is primarily due to extensive job-required interpersonal contact, while general work exhaustion has wider application to all types of jobs. Moore has defined work exhaustion as: “the depletion of emotional and mental energy needed to meet job demands”. Therefore, work exhaustion is meant to encompass emotional exhaustion.¹¹ Given the wide variety of the nurses sampled in this study, it will be argued that work exhaustion was the more appropriate measure to use.

Many researchers have argued that emotional or work exhaustion is the key component to experiencing burnout,¹² as well as the first stage of the burnout process.^{13,14} Moore has argued that work exhaustion should be studied as a “stand alone” outcome. Work exhaustion has been empirically linked to higher job turnover intention for information technology professionals.¹⁵ The meta-analysis of Lee and Ashforth showed that emotional exhaustion was significantly related to increased turnover intention.

ROLE OF LEADER-MEMBER EXCHANGE IN REDUCING WORK EXHAUSTION

Leader-member exchange (LMX) theory¹⁶ has argued that supervisors do not use the same style in dealing with all their subordinates, but instead develop different types of relationships or exchanges, including low LMX (based strictly on formalised employment contracts and job descriptions) to high LMX (characterised by mutual trust, emotional support, respect and reciprocal influence). LMX is typically measured

from the subordinate perspective; while supervisor perceived exchange (SLMX) can also be measured.¹⁷ Prior research has found many positive outcomes for higher LMX levels, including greater job satisfaction and commitment, stronger performance appraisal ratings, and lower stress.^{18,19,20} Work exhaustion is one kind of stress. Most empirical LMX research, including studies already cited, also focus on Westernised country samples from Europe and the United States (for a recent exception, working with a Chinese work sample, see Aryee & Chen).²¹

Although less empirical research has directly tested the specific relationship of LMX to work exhaustion, a negative relationship would be expected. Based on the conservation of resources theory of stress of Hobfoll,²² LMX would be conceptualised as a resource condition, where a resource is defined as “any object, condition, personal characteristic or energy that is valued or serves as a means of obtaining resources that are valued”. This theory suggests that work exhaustion can occur when resources, such as LMX, are lost or perceived to be inadequate. Related research has found consistent negative relationships between supervisor support and emotional exhaustion across different Westernised country samples of teachers, police officers, social workers, nurses and other health care professionals.²³ It seems logical that higher LMX subordinates would have less work exhaustion because potential stressors such as demands and task overload are mitigated by higher levels of support from one’s supervisor.²⁴ Using a large sample of Dutch university employees, Bakker, Demerouti and Euwena²⁵ found that the quality of the relationship of the subordinate with the supervisor was negatively related to exhaustion. This suggests the first hypothesis: H1 – LMX will be negatively related to work exhaustion.

CONTROLLING FOR OTHER CORRELATES OF WORK EXHAUSTION

Prior research on emotional exhaustion suggests that demographics can affect work exhaustion, including gender (females higher), and work experience (positive). Prior research has not controlled for *both* organisational and professional (occupational) work experience. Although they are related, employees changing organisations generally happens much more frequently than employees changing occupations. For example, Bolles²⁶ has pointed out that the average USA worker under 35 years of age will go job-hunting in a different organisation every one to three years, while over

35 year olds will go look for a change of organisations every five to eight years. Bolles also points out that many individuals will change occupations at least three times before exiting the work force.

Workload has been found to be positively related to emotional exhaustion. Consistent with the idea of increased education credentials often leading to increased workload responsibilities for health care professionals,²⁷ education level was also controlled for, as a proxy for workload responsibilities. Thus, gender, organisational and professional (occupational) experience, and education level were controlled for in this study.

Most prior research on burnout is cross-sectional. Therefore, job satisfaction can also be conceptualised as a negative antecedent or correlate of work exhaustion, i.e., lower job satisfaction leading to higher exhaustion. To the authors' knowledge, prior studies have not controlled for both job satisfaction *and* occupational satisfaction. Academic research on occupational satisfaction and leaving one's occupation suggests that this is typically a much more difficult type of work transition (versus leaving one's organisation) due to the greater costs of retraining and human capital investment, disrupted work relationships, and lost time and income, typically associated with occupational change.^{28, 29, 30} Thus both job satisfaction and occupational satisfaction were controlled for in this study.

Role conflict is positively related to emotional exhaustion. One type of role conflict is work interfering with family,³¹ which is also a demand on the individual. Cordes and Dougherty have argued that individual and organisational demands placed on employees are the key determinants of their exhaustion. Blau and colleagues found that work interfering with family was positively related to work exhaustion for medical technologists working in the USA. Work interfering with family was therefore also controlled for. Cumulatively, this suggests the following second hypothesis: H2 – LMX will have a significant impact on explaining work exhaustion beyond the controlled for correlates of gender, organisational experience, occupational experience, education level, job satisfaction, occupational satisfaction and work interfering with family.

METHODS

The sample consisted of nurses working at Sultan Qaboos University Hospital (SQUH), a large teaching hospital in the Sultanate of Oman. Heads of various

nursing departments in the hospital were asked to distribute surveys to the nurses in their departments. As a token of appreciation for completing the survey, a packet of candy was given to each department. A box was provided in the nursing superintendent's office for submitting completed surveys. Out of 448 surveys distributed, 275 completed surveys were returned, giving a response rate of 61.38%. However, due to missing values, the final sample used for analysis consisted of 229 nurses (51.12%). We were surprised to learn during survey pre-distribution and working with hospital administration that so many of the nurses were non-Omani or expatriates. Therefore, we decided to control also for expatriate status in the measures section. Most of the expatriate nurses were from India and the Philippines, with a smaller proportion of ethnic Chinese Malaysians. Due to the international nature of the nursing and other hospital staff, English was the official language of the hospital and proficiency in English was a requirement of employment.

Work exhaustion was measured using a six-item measure based on previous research. Copyright restrictions and cost associated with the Maslach Burnout Inventory, as well as survey length constraints and the diversity of nursing grades across shifts sampled, made using this general exhaustion measure more appealing. Subsequent reliability analyses, including item-total statistics (Statistical Package for the Social Sciences, SPSS-PC, version 14), indicated that one item from the work exhaustion measure, "I am often tired or fatigued", had a lower squared multiple correlation with the other five items, and that deleting this item would improve the alpha or internal consistency of the scale. Accordingly, this item was removed and five items were retained. Sample retained items are: "my job demands too much from me", and "at times I feel like giving up at my job". These retained items are more consistent with the definition of work exhaustion suggested by Moore, "the depletion of emotional and mental energy needed to meet one's job demands", while the deleted item focuses more on physical energy. Unless otherwise noted, all multi-item scales used a 6-point response scale, where: 1 = strongly disagree; 2 = disagree; 3 = slightly disagree; 4 = slightly agree; 5 = agree and 6 = strongly agree.

Leader-member exchange was measured using Version 6 of the LMX scale, which is a seven item measure and well accepted in the LMX literature. A sample item is: "my supervisor understands my prob-

Table 1: Means, Standard Deviations, Reliabilities and Correlations for All Study Variables

Variable Name	M	SD	1	2	3	4	5	6	7	8	9	10
Gender ^a	0.92	0.27	(NA) ^b									
Organisation Experience ^c	2.31	0.95	0.01	(NA)								
Occupational Experience ^c	3.66	0.96	0.05	0.34	(NA)							
Expatriate Status ^d	0.93	0.26	0.05	0.07	0.46	(NA)						
Education Level ^e	2.04	0.95	-0.16	-0.01	-0.05	0.21	(NA)					
Job Satisfaction	4.95	0.84	-0.15	0.04	0.14	0.11	-0.26	(NA)				
Occupation Satisfaction	5.21	0.71	0.16	0.01	0.19	0.19	-0.20	0.70	(NA)			
Work Interfering With Family	3.77	1.05	-0.12	-0.06	-0.13	-0.26	-0.04	-0.31	-0.31	(NA)		
Leader-Member Exchange	5.02	0.67	-0.05	-0.02	-0.02	0.06	-0.08	0.43	-0.47	-0.14	(NA)	
Work Exhaustion	3.06	1.01	-0.10	-0.07	-0.04	-0.11	0.11	-0.51	-0.50	0.49	-0.36	(NA)

Note. N = 229. $r > .13$ ($p < .05$); $r > .18$ ($p < .01$) both two-tailed

a - Gender: 0 = male, 1 = female

b - Coefficient alpha in parentheses, NA = not applicable

c - Categories are: 1 = less than one year; 2 = 1-5 years; 3 = 6-10 years; 4 = 11-20 years; 5 = more than 20 years

d - Expatriate Status: 0 = Omani; 1 = Expatriate

e - Education level: 1 = diploma; 2 = diploma plus post-basic specialization certificate; 3 = Bachelor's degree; 4 = Masters degree

lems and needs”.

The control variables were as follows: gender was measured by indicating 0 = male, 1 = female; organisational experience was measured by asking, “you have worked for SQUH for...” (which category): 1 = less than one year, 2 = 1-5 years, 3 = 6-10 years, 4 = 11-20 years, and 5 = more than 20 years; occupational experience was measured by asking, “you have been a nurse for...” and the above same 5 categories were used; expatriate status was measured by asking, “you are”: 0 = Omani, 1 = Expatriate; education level was measured by asking respondents to “check their level of professional qualification”, using the following choices: 1 = diploma; 2 = diploma plus post-basic specialisation certificate; 3 = bachelor's degree, and 4 = masters' degree. The diploma is the basic qualification for being a nurse. However, the education level attained is also affected by the expatriate status variable. For example, the qualification of Omani nurses is a diploma, awarded by the Omani Institute for Health Services, while the Indian nurses working at the hospital would have received a bachelor's degree based on their training in India. Due

to survey constraints, job satisfaction was measured using a three-item measure based on Cammann, Fichman, Jenkins & Klesh.³² A sample item is: “in general, I like my job”. Occupational satisfaction was measured by creating a parallel three-item measure, again due to survey constraints. A sample item is: “overall, I like working in the nursing profession”. Work interfering with family was measured using the four-item measure developed by Gutek and colleagues. A sample item is: “my work takes up time that I would like to spend with family/friends or just relaxing by myself”.

Beyond these formal control variables, we need to comment on shifts. Shift work research, on Westernised country samples, has generally shown that nurses on rotating shifts have higher job stress than nurses on fixed shifts.^{33,34} However, in the Omani hospital studied, all nurses were on “permanent rotation”, i.e., everyone worked a few days of night shift, then a morning shift, and then an evening shift and so on. Thus, the current shift data we collected was very temporary. We did not control for shift as part of formally testing

Table 2: Hierarchical Regression for Explaining Work Exhaustion

Variable Entered	B	Adjusted R2	Change R2	R2 Significant F Change
Gender				
Organisation Experience	-0.07			
Occupational Experience	-0.10			
Expatriate Status	0.03			
Education Level		0,02		2.00
Job Satisfaction	-.27**			
Occupation Satisfaction	-.26**			
		0.29	0.27	43.77**
Work Interfering With Family	.34**			
		0.40	0.11	39.71**
Leader-Member Exchange	-0.18*			
		0.41	0.01	4.04*

Note. N = 229, * $p < .05$; ** $p < .01$ (two-tailed)

H2 because of additional missing data for this variable. However, to check for the potential impact of the current shift a separate series of t-tests was performed. These tests revealed that the current shift (morning versus evening versus night) did not affect work exhaustion.

RESULTS

GENERAL

Table 1 presents the means, standard deviations, scale reliabilities, and correlations for all study variables. Inspection of the scale indicates that nurses were overwhelmingly female expatriates, with high levels of job satisfaction, occupation satisfaction and leader-member exchange. This sample had prior occupational experience to that with their present employer. All multi-item scale reliabilities were over .70.³⁵ Correlation results suggest that increased education level is associated with decreased job satisfaction and occupation satisfaction. Job satisfaction and occupation satisfaction, while highly related, show less than 50% overlap ($r = .70$), and will be retained as distinct variables. Consistent with the LMX literature, job satisfaction is positively related to LMX ($r = .43$). Consistent with the exhaustion literature, job satisfaction is negatively related to work exhaustion ($r = -.51$) and work interfering with family is positively related to work ex-

haustion ($r = .49$).

TESTS FOR HYPOTHESES

The results in Table 1 support Hypothesis 1(H1), LMX is negatively related to work exhaustion, $r = -.36$ ($p < .01$). Hierarchical regression analysis was used to test H2, and the results are shown in Table 2.

Controlled-for correlates were stepped into the regression equation as follow: Step 1 - gender, organisational experience, occupational experience, education level, and expatriate status; Step 2 - job satisfaction and occupational satisfaction; Step 3 - work interfering with family, and Step 4 - LMX. The results show that LMX results in a very modest but still significant increase. ($B = -.18$, change in $R^2 = 1\%$, $p < .05$) in explaining work exhaustion, beyond these controlled-for correlates. As such these results support H2. Overall 41% ($p < .01$) of the variance in work exhaustion was accounted for.

DISCUSSION

Using a unique sample of nurses in Oman and a powerful collective set of control variables, this study found that leader-member exchange (LMX) had a significant impact on reducing work exhaustion. As noted earlier, research testing LMX and work exhaustion variables in non-Western samples is less prevalent. As described earlier, the expatriate nurses came from

India, the Philippines and a smaller proportion from Malaysia. To the authors' knowledge, research has not tested for the impact of LMX on work exhaustion using a research design with as many relevant control variables. Particularly in health care settings, where burnout and work exhaustion are too often found,³⁶ the importance of a perceived higher quality work relationship with one's supervisor in reducing perceived exhaustion cannot be underestimated.

There are some limitations to this study. From a measurement perspective, the high mean levels for the job and occupation satisfaction and LMX variables, while reassuring to the participating hospital, undoubtedly contributed to lower correlational findings through restriction of range. Survey length constraints necessitated using proxy variables, such as education level for increasing task responsibilities. Future research directly testing the relationship of task responsibilities to work exhaustion and burnout is needed. Such constraints also necessitated using very short measures of job satisfaction and occupational satisfaction. Although adequate reliabilities were found for both measures, testing the robustness of findings using more common job satisfaction measures, such as the Job Diagnostic Survey³⁷ is recommended.

As noted earlier, work exhaustion was only partially measured, due to cost and survey length, and broader sample applicability issues. The measure of work exhaustion used demonstrated strong internal consistency ($\alpha = .81$) and has been previously used.⁷ Certainly testing for the impact of LMX on overall burnout and its specific components, emotional exhaustion, depersonalisation, and diminished personal accomplishment would be useful. While the Maslach Burnout Inventory or MBI is still the most common measure of overall burnout, and its components, problems have been noted with the MBI and alternative measures do exist.³⁸ Studying the relationships of LMX to different types of burnout and its component measures is clearly needed in other health care organisation settings.

A limitation of the research design is the focus on one demand, work interfering with family. Given more survey space, it would have been desirable to have focused on other demands such as physical and emotional work demands. Bakker and colleagues found some support for quality of relationship with one's supervisor significantly interacting with work demands to decrease work exhaustion, which is consistent with the

Demand-Control Model of Karasek.³⁹ Unfortunately, we did not find that LMX interacted with work interfering with family to affect work exhaustion. Casting a 'broader net' of work demand variables, to test for such interactive effects would have been useful, and is highly recommended for future research.

All data was collected at one point in time so that causal inference is limited. In addition, there is a common method variance problem since all data is self-report. Future research testing the impact of LMX on work exhaustion by assessing supervisor-perceived exchange or SMLX⁴⁰ is also needed. In order to test for the impact of common method variance on our results, we performed the Harman one-factor test.⁴¹ If such a test shows that the majority of the covariance between independent and dependent variables loads on one factor, then method variance is a problem. We factor analysed all study variables and found seven factors with eigenvalues over one, including the first factor which only accounted for 28% of the cumulative covariance. Given that our ratio of number of study respondents to total number of items in the scale of 229/27 (almost 9:1) was far over the minimum recommended of 5:1 for stable factor analysis,⁴² we are confident that method variance alone is not driving our results.

Future research designs working with LMX, work exhaustion, and burnout in health care organisation settings should include other antecedent and outcome variables. For example, Lapierre, Hackett and Taggar recently found that the reverse of work interfering with family (WIF) which is measured as family interfering with work (FIW), has a negative relationship to LMX. Using a longitudinal research design and a sample of Spanish teachers, Carmona, Buunk, Peiro, Rodriguez and Bravo⁴³ found that social comparison and coping style affected self-reported burnout over time. More specifically, the social comparison of downward identification, e.g., "when I see colleagues who are doing worse, I experience fear that my future will be similar", was positively associated with burnout, while using a direct coping style, e.g., "planning ahead", was negatively associated with burnout. In addition, the implication of work exhaustion and burnout for motivating health care professionals to change their occupations⁴⁴ makes it important to continue to study in *non-Westernised* countries. Though the nurses were of different nationalities, we grouped them together as expatriates. Perhaps future studies can examine if there

are national differences in the relationship between the quality of relationship with a supervisor and work exhaustion. Future studies could also use qualitative methods to uncover the nuances of the relationship between supervisors and employees and their effects on perceived work exhaustion.

CONCLUSION

As already noted, from a practical implications perspective, this study shows the importance of a perceived higher quality work relationship with the supervisor in reducing perceived work exhaustion. Prior research strongly suggests that work exhaustion is the key component to experiencing burnout, as well as the first stage of the burnout process.⁴⁵ Therefore a high quality work relationship with the supervisor may help to prevent burnout among health care professionals. We were surprised at the high ratio of expatriate to Omani nurses who participated in the study. Staffing requirements for many types of organisations, including health care, may necessitate the need to hire and retain expatriates.⁴⁶ Given the overwhelming percentage of expatriates comprising our sample (93%) we were not able to realistically test the impact of expatriate status on work exhaustion. To the extent that burnout may be more prevalent among expatriates, due to work and non-work factors (e.g., cultural differences in work settings, less family support), this is important for future research.⁴⁷ Finally, work exhaustion and burnout may have negative implications for employee and patient safety in health care organisations.⁴⁸ We hope this paper stimulates follow-up research on such issues.

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