Association of organizational and patient behaviors with nurse well-being in China: a cross-sectional study

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Abstract

Background: Nurse play a primary care role, although existing research about improving nurse well-being mainly focus on the workplace environment, there is controversy regarding the underlying factors. The purpose of this study was to investigate the relationship between organizational and patient behaviors with nurse well-being.

Methods: A cross-sectional quantitative study was carried out in 77 hospitals in China between July 2014 and April 2015.

Results: Of the 4885 respondents, 58.78% nurses reported being satisfied with their life; however, only 36.14% nurses were satisfied with their work, and 79.85% nurses reported they would not choose nursing again if given the opportunity. Within the organizational behaviors, nurses reporting very poor pay justice tended to report a higher turnover intention (OR = 2.03, 95% CI:1.29-3.21) and lower life happiness (OR = 0.67, 95% CI:0.45-0.98). Similarly, very poor attention to staff interests (OR = 1.79, 95% CI:1.15–2.77) and opinions (OR = 2.41, 95% CI: 1.55–3.73) were strongly associated with higher turnover intention. Within the patient behaviors, a low level of patient trust was more strongly and negatively associated with job satisfaction (OR = 0.44, 95% CI: 0.32–0.61) and life happiness (OR = 0.53, 95% CI: 0.37–0.75) compared with unreasonable demands by patients, and more positively associated with turnover intention (OR = 5.61, 95% CI: 3.66–8.60).

Conclusion: Given the widespread distress among nurses, these findings suggest that interventions targeting improved nurse well-being should be expanded from individual nurses to hospital organization and patients, reflected the internal and external hospital environment, respectively.

Background

Clinical nursing is demanding and stressful [1-4]. Compared with physicians, nurses share equal responsibility for patient safety and quality of care, and in some cases, such as in chronic disease, nurses play a primary care role. Therefore, the promotion of nurse well-being optimizes not only their own health and career development [5-7], but also, patient safety and quality of care [8-11].

In the face of prevalent nurse distress [12-15], growing evidence suggests that intervention should focus not on the susceptibility of individual nurses but rather, on environmental factors [16-17], such as perceptions of autonomy, hospital teaching attributes, control over practice environment, schedule flexibility, collaboration with physicians, and patient satisfaction. Environment factors [18] have been associated with nurses' distress; however, there has so far been limited guidance for administrators and policymakers considering interventions for environmental factors, which can be broad in scope and relatively complex. Some environmental factors are hospital-related, such as perceptions of autonomy, schedule flexibility, and pay justice, while others, such as patients' attitudes and requirements, are patient-related. Their corresponding intervention targets are various, requiring intervention at the level of the hospital organization and society itself. Environmental factors may be easier or more difficult to change.

For example, among organizational factors [19-21], pay justice may be more amenable to change compared with nurse autonomy or patient satisfaction–driven compensation policy. There is a now need to explore just how organizational and patient behavioral factors, reflected the internal and external hospital environment, respectively, influence nurse well-being, to identify priority targets for the promotion of nurse well-being.

The present study used data from a nationally representative survey of Chinese nurses, to systematically investigate the association of both organizational and patient behaviors with multiple measures of nurse well-being, adjusting for various nurse-related and organization-related characteristics.

Methods

Study design, setting and participants

The study employed a combination of stratified and cluster sampling to identify the sample population. A total of 85 hospitals across seven provinces (Shandong and Jiangsu from Eastern, Gansu and Yunnan from Western, Guangdong from Southern, Beijing from Northern and Hubei from Central) in China were invited to participate in the study, which ran from July 2014 to April 2015; of these, 77 hospitals (90.59%) agreed to participate. Within each hospital, nurses were recruited from four different surgical specialty units and four internal medicine units (obstetric and pediatric units were excluded). Convenience sampling was used to select nurses from each of the participating units. Participation was voluntary, and all data were confidential. In all, 9093 nurses, from 528 units, were asked to complete survey. A total 6667 (73.32%) nurses completed the survey. After excluding 1085(11.93%) nurses who provided invalid questionnaires and a further 697 (7.67%) nurses who provided questionnaires missing key responses in this study, we were left with a study sample of 4885 nurses (Figure S1 in the Additional file 1).

Data collection

Most study data, including primary outcomes, primary independent variables and the control variables, were collected using a self-administered paper survey questionnaire (Additional file 2). Trained survey interviewers sent copies of the questionnaire to each unit, along with an explanation of the survey purpose and method. After 1 or 2 days, the survey interviewers returned to collect completed questionnaires. Additional data on the number of physicians, nurses, and beds in the unit were obtained from the unit head. The academic status of each hospital was obtained from the official hospital website and in the case of teaching hospitals, verified first with the hospital administration and then, with the respective affiliated universities (since some teaching hospitals in China have nominal teaching activity) (Additional file 3).

Study measures

The primary independent variables consisted of three organizational behaviors (organizational justice, leadership attentiveness, and group interaction) and two patient behaviors (patient trust and

unreasonable demands by patients). Existing scales assessing organizational justice, including most notably Colquitt's Organizational Justice Scale [22], have previously been reported to be laborious and impractical. Therefore, in the study organizational justice was assessed using just two items adapted from the full Colquitt's scale, namely pay justice (a component of Colquitt's distributional justice) and task justice (a component of Colquitt's procedural justice). Similarly, leadership attentiveness was assessed by the items attention to staff interests (reflecting material requirements) and attention to staff opinions (reflecting spiritual requirements). Group interaction was also assessed by two items, the number of dinners with colleagues per month (reflecting social interactions) and the number of clinical case discussions per month (reflecting work-related interactions). Finally, patient behaviors were assessed using the two items patient trust (an intrinsic behavior) and unreasonable demands by patients (an explicit behavior). Each question was categorized on a 5-point Likert scale with possible responses ranging from "not at all" to "extremely". Once categorized, each item was recoded into quarter variables.

In previous studies [23, 24], well-being has been measured by several items, including quality of life, job satisfaction, life happiness, and burnout. In the present study, the primary outcomes were limited to three measures of nurse well-being: job satisfaction ("Overall, how would you rate your satisfaction with your work?"), turnover intention ("If you had another opportunity to choose your profession, how likely are you to become a nurse?"), and life happiness ("Overall, what do you think your happiness score is?").

The outcome variable questions including job satisfaction and turnover intention were categorized on a 5-point Likert scale with possible responses ranging from "very low" to "very high"; the response for life happiness was converted to categorical variable (0–19 =very low; 20–39 =lower; 40–59 =average; 60–79 =higher; 80–100 =very high) and then, recoded as binary variables (i.e., satisfied versus dissatisfied, low versus high turnover intention).

Previous research [9] has demonstrated an association between nurse well-being and several nurse- and institutional-related factors. Based on this, our analysis controlled for the following potentially confounding factors: sex, age, marital status, education level, title, economic status, family support, hospital level, hospital type, academic status, nurse specialty, and nurse-to-patient ratio.

Data analysis

To adjust for nonresponses, the data were weighted by respondent age and sex, according to the available hospital personnel demographic information issued by the National General Hospital in 2015. Standard descriptive summary statistics were used to characterize the nurses. For crude comparisons, chi-square tests or Kruskal-Wallis tests were used to analyze categorical variables, with type I error rates of 0.05. Binary logistic regression models were used to examine the association of organizational and patient behaviors with nurse well-being.

Sensitivity analyses were conducted to test the robustness of the results, including: (1) modeling without the few cases of male nurses; (2) adjustment for interactions between the measures of well-being, i.e., adjusting for the effects of life happiness in the modeling of job satisfaction and for the effects of job

satisfaction in the modeling of turnover intention and life happiness, respectively; (3) all new models adjusted for the previously described potentially confounding nurse- and institutional-related factors. All analyses were done using IBM SPSS Statistics for Windows, version 22.0 (IBM Corp., Armonk, NY).

Results

Table 1 depicted the sociodemographic characteristics of the nurse sample. Of the 4885 respondents, 103 (2.10%) were men, and 4782 (97.90%) were women. Most (46.00%) nurses were between 25 and 34 years old, and 66.68% were married. More than half of nurses (55.36%) held an undergraduate degree or higher, and less than 6% reported good financial status.

Table 1. Personal and Professional Characteristics of 4885 Participating Nurses

Characteristic	No.(%)
Demographic information	
Sex	
Men	103(2.10)
Women	4782(97.90)
Age	
≤24	826(16.90)
25-34	2247(46.00)
≥35	1812(37.10)
Marital status	
Married	3176(66.68)
Single/Other	1588(33.32)
Education level	
Secondary	311(6.61)
Specialist	1791(38.03)
Undergraduate and above	2606(55.36)
Self-reported economic status	
Very poor	830(17.11)
Poor	1126(23.20)
Average	2643(54.45)
Good	254(5.24)
Title	
Other	300(7.24)
Primary	2346(56.58)
Intermediate and above	1501(36.18)
Hospitals and Departments	
Hospital level	
Secondary	615(12.58)
Tertiary	4270(87.42)
Hospital type	
Traditional Chinese Medicine	1309(26.80)
Western Medicine	3576(73.20)
Academic medical center	
No	3824(78.27)
Yes	1061(21.73)
Nurse specialty	
Internal medicine	2513(51.44)
Surgery	2372(48.56)
Nurse-to-patient ratio	
≤0.40	2573(53.48)
0.40-0.60	1843(38.31)
≥0.60	395(8.21)
Family support	
Very small/Smaller	247(5.06)
Average	1416(29.05)
Larger/Very large	3212(65.89)

Table 2 showed the well-being reported by the nurses. Overall, more than half (58.78%) of nurses reported being satisfied with their life; however, only 36.14% nurses were satisfied with their work. Most (79.85%) nurses reported they would not choose nursing again if given the opportunity. Nurses reported relatively poor organizational and patient behaviors, with 51.32% and 50.23% reporting they had bad pay justice and patient trust, respectively. Similarly, they reported poor leadership attentiveness, with more than half agreeing that unit leaders attached little importance to their interests (53.18%) and opinions (53.19%). Group interaction was even poorer, in that 0–1 colleague dinners and case discussions per month were reported by 78.51% and 62.16% of nurses, respectively (Table 3).

Table 2. Job Satisfaction, Turnover Intention and Life Happiness of Nurses

Variable description	No. (%)	Re-categorization
Job Satisfaction		
Very low	298(6.09)	No
Lower	367(7.52)	No
Average	2455(50.25)	No
Higher	1399(28.64)	Yes
Very High	367(7.50)	Yes
Turnover Intention		
Very low	66(1.36)	No
Lower	197(4.04)	No
Average	720(14.75)	No
Higher	900(18.43)	Yes
Very High	3000(61.42)	Yes
Life Happiness		
Very low	360(7.37)	No
Lower	465(9.53)	No
Average	1188(24.32)	No
Higher	1688(34.56)	Yes
Very High	1183(24.22)	Yes

Table 3. Multivariable Logistic Regression Results for Correlates of Organizational and Patient Behaviors-Related Effects for Nurses

Variables	%	Job Satisfaction <i>OR(95%CI)</i>	Turnover Intention <i>OR(95%CI)</i>	Life Happiness <i>OR(95%CI)</i>
Organizational Behaviors				
Organizational Justice				
Pay justice				
Very poor	25.31	0.97(0.68,1.38)	2.03(1.29,3.21)**	0.67(0.45,0.98)*
Poor	26.01	0.86(0.62,1.19)	1.31(0.91,1.90)	0.96(0.67,1.38)
Average	40.17	0.69(0.52,0.93)*	0.94(0.69,1.29)	1.13(0.81,1.58)
Better/Very good	8.51	1.00	1.00	1.00
Task justice				
Very poor	10.89	0.80(0.58,1.09)	0.82(0.50,1.34)	0.63(0.45,0.87)**
Poor	16.34	0.80(0.61,1.04)	1.36(0.96,1.94)	0.59(0.45,0.78)***
Average	54.33	0.87(0.71,1.07)	1.07(0.84,1.35)	0.70(0.56,0.87)**
Better/Very good	18.44	1.00	1.00	1.00
Leadership Attentiveness				
Attention to staff interests				
Very small	30.17	0.85(0.60,1.21)	1.79(1.15,2.77)**	0.82(0.56,1.19)
Smaller	23.01	0.76(0.56,1.05)	1.83(1.27,2.65)**	0.72(0.51,1.02)
Average	36.25	0.67(0.50,0.88)**	1.33(0.99,1.81)	0.82(0.60,1.13)
Larger/Very large	10.56	1.00	1.00	1.00
Attention to staff opinions				
Very small	30.37	0.62(0.43,0.88)**	2.41(1.55,3.73)***	0.81(0.55,1.18)
Smaller	22.82	0.53(0.39,0.74)***	1.91(1.32,2.78)***	0.95(0.67,1.35)
Average	36.49	0.65(0.49,0.86)**	1.37(1.01,1.86)*	0.88(0.64,1.22)
Larger/Very large	10.32	1.00	1.00	1.00
Group Interaction				
The number of dinners with colleagues per month				
≥4times	5.58	0.91(0.67,1.25)	0.74(0.51,1.06)	1.63(1.16,2.30)**
3times	4.38	0.73(0.51,1.03)	0.53(0.37,0.77)***	1.52(1.06,2.18)*
2times	11.53	0.89(0.71,1.12)	0.81(0.62,1.05)	1.17(0.93,1.48)
0-1time	78.51	1.00	1.00	1.00
The number of clinical case discussion per month				
≥4times	11.76	1.52(1.22,1.90)***	0.88(0.66,1.17)	0.82(0.65,1.04)
3times	7.54	1.30(0.98,1.71)	0.66(0.48,0.92)*	0.85(0.64,1.13)
2times	18.53	1.02(0.84,1.23)	0.81(0.64,1.02)	0.97(0.80,1.17)
0-1time	62.16	1.00	1.00	1.00
Patient Behaviors				
Patient Trust				
Very low	18.12	0.44(0.32,0.61)***	5.61(3.66,8.60)***	0.53(0.37,0.75)***
Lower	32.11	0.41(0.31,0.55)***	3.70(2.69,5.09)***	0.70(0.50,0.97)*
Average	41.87	0.51(0.39,0.67)***	2.17(1.62,2.90)***	0.72(0.52,1.00)
Higher/Very high	7.90	1.00	1.00	1.00
Unreasonable Requests by patients				
A lot	5.98	1.09(0.79,1.50)	2.03(1.09,3.80)*	0.64(0.46,0.90)**
More	23.81	0.84(0.69,1.02)	1.25(0.97,1.61)	0.68(0.56,0.82)***
Average	33.68	0.79(0.67,0.94)**	1.18(0.96,1.45)	0.74(0.62,0.88)***
Less/Rarely	36.52	1.00	1.00	1.00

Covariates: Characteristics of social demographic, characteristics of hospitals and departments, family support
 *p<0.05, ** p<0.01, *** p<0.001

Differences in well-being of nurses were observed by organizational behaviors and patient behaviors, respectively (Figure 1 and Figure 2). In general, in addition to the number of dinners and clinical case discussions with colleagues per month, the increase in negative organizational and patient behaviors

would lead to a decline in job satisfaction and life happiness, while the intention to leave nursing would rise ($P < 0.001$). Among them, in terms of organizational behaviors, leadership attentiveness (i.e., attention to staff interests and attention to staff opinions) was strongly associated with both job satisfaction and turnover intention. Specifically, the most serious decline (10.64%) in job satisfaction was seen in the responders who reported the attention to interests from “very small” to “very large”; Similarly, the greatest increase (34.04%) in turnover intention was seen in the responders who reported the attention to opinions from “very small” to “very large”. With respect to patient behaviors, the biggest decline for affecting job satisfaction and life happiness and the greatest increase in turnover intention were associated with patient trust. (concrete results are given in the Additional file 1, in Table S1, S2).

Table 3 summarized the association of organizational and patient behaviors with nurse well-being, adjusted for several nurse-related and organization-related factors. After adjustment, patient behaviors were, in general, more significantly associated with nurse well-being than were organizational behaviors. Within the patient behaviors, a low level of patient trust was more strongly and negatively associated with job satisfaction (OR = 0.44, 95% CI: 0.32–0.61) and life happiness (OR = 0.53, 95% CI: 0.37–0.75) compared with unreasonable demands by patients, and more positively associated with turnover intention (OR = 5.61, 95% CI: 3.66–8.60). Within the organizational behaviors, nurses reporting very poor pay justice tended to report a higher turnover intention (OR = 2.03, 95% CI: 1.29–3.21) and lower life happiness (OR = 0.67, 95% CI: 0.45–0.98). Similarly, very poor attention to staff interests (OR = 1.79, 95% CI: 1.15–2.77) and opinions (OR = 2.41, 95% CI: 1.55–3.73) were strongly associated with higher turnover intention. Case discussion ≥ 4 times per month was positively and significantly associated with job satisfaction (OR = 1.52, 95% CI: 1.22–1.90), while ≥ 4 dinners with colleagues per month was also associated with increased life happiness (OR = 1.63, 95% CI: 1.16–2.30). (complete results are given in the Additional file 1, in Table S3).

In the sensitivity analyses of additional adjustment for life happiness in job satisfaction, job satisfaction in turnover intention and life happiness in two outcome models, respectively—and that of excluding male nurses with few cases in all study participants— low job satisfaction and life happiness, high turnover intention were also observed respectively; and notably, low job satisfaction was found to be associated with high turnover intention (OR = 2.70, 95% CI: 1.80–4.03) and low life happiness (OR = 0.50, 95% CI: 0.40–0.64) (Table S4).

Discussion

This study provides nationwide data on nurse well-being and is pertinent given the current focus on nurse well-being worldwide. We found that in China, nurses report relatively low well-being, and about 80% report turnover intention. In particular, our study focused on the correlation between organizational and patient behaviors and nurse well-being, and built on previous work suggesting the need for a shift in focus—away from the focus on individual nurses to a focus on the organization and on patients. Indeed, among our findings the positive proportions for both organizational and patient behaviors studied were

relatively unfavorable, and these were associated with job satisfaction, life happiness, and turnover intention, although in different ways.

In our findings, organizational justice, assessed by pay justice and task justice, was associated with nurse well-being. Notably, poor pay justice was reported significantly more often and was more strongly associated with well-being. This is consistent with earlier studies that showed distributional justice [25] (measured by pay justice in our study) has a more decisive effect [26] on well-being of nurses. It may be that nurses perceive their workload to be relatively demanding and therefore, judge that their pay should be (commensurately) increased. A perception of unfair resource allocation (i.e., expenditure of labor disproportionate to the reward) in turn, affects nurses' perception of their work and life, and potentially explains the association of organizational justice with nurses' job satisfaction, turnover intention, and life happiness in our study.

Our findings regarding leadership attentiveness were important in that both poor attention to staff interests and to staff opinions were reported by more than half of nurses, which to some extent reflects leaders' poor attention to nurses. Leadership attentiveness correlated significantly with job satisfaction and turnover intention but did not correlate significantly with life happiness, although it also reduced life happiness. In general, leadership attentiveness was more strongly correlated with well-being than was organizational justice. One reason may be that leadership attentiveness exerts a direct effect on nurses' behaviors and interests, whereas organizational justice belongs to the set of institutional standards [27] and may exert only an indirect effect on nurse behaviors (and in turn, well-being)—coupled with the dual roles of nurses' family and career [28-31], the direct influence on nurse behaviors and interests is, of course, stronger. A second explanation may be that nurses make a significant contribution to patient care [32-33] and yet, compared with physicians, have relatively little autonomy in their work—in the context of this traditional structure, the behaviors of unit leaders may have an important impact on nurse well-being. Additional studies are needed to better understand this finding.

In the present study, both the number of dinners with colleagues and clinical case discussions per month were associated with nurses' turnover intention, but while the number of dinners with colleagues was more strongly correlated with life happiness than with job satisfaction, the number of case discussions was more strongly correlated with nurse's job satisfaction—this was unsurprising since dinners with colleagues mainly involve social interactions, whereas clinical case discussions mainly foster the focus on work.

Notably, poor patient trust was reported by more than 50% of nurses, both of patient trust and unreasonable demands by patients were strongly correlated with nurse well-being. Elsewhere, the association between patient trust [34-36] and nurse well-being was shown to be significantly stronger than that between unreasonable patient demands and nurse well-being. A possible explanation for the strong relationship between patient behaviors (and particularly, patient trust) and well-being may rest in the recent, strong efforts by nursing leaders to promote patient-centered care. Further, it may be that patient behaviors, especially distrust, reflect general societal views about nurses, including regarding

nurses' social status, and that this contributes to the strong correlation between patient behaviors and nurse well-being.

The strengths of our study were the inclusion of multiple organizational and patient behavioral factors and the adjustment for a broad array of potentially confounding nurse- and organization-related factors known to influence nurse well-being, and the broad sampling method that increased the generalizability of the findings. Nonetheless, intrinsic nurse factors (e.g., work attitude, personality characteristics) not measured in our study might also influence their well-being, warranting further study. Our study had other limitations. Nurses self-reported characteristics of organizational and patient behaviors. Both underreporting and overreporting may have occurred, with the potential for variation in overreporting and underreporting by nurse characteristics, yielding uncertain net impact on the study findings. The observational cross-sectional nature of the analyses precludes causal inference—our study was not designed to address this; however, our findings provide robust multivariate data to support future in-depth causal research.

Conclusion

Our study found that poor well-being and in particular, low job satisfaction and high turnover intention are common among nurses in China. The study also found that nurse well-being is strongly correlated with organizational behaviors and patient behaviors. Given the widespread distress among nurses, these findings suggest that interventions targeting improved nurse well-being should be expanded from individual nurses to hospital organization and patients, reflected the internal and external hospital environment, respectively.

Abbreviations

WM: Western Medicine; TCM: Traditional Chinese Medicine; TH: Tertiary Hospital; SH: Secondary Hospital

Declarations

Ethics approval and consent to participate

The institutional review board at the Tongji Medical College, Huazhong University of Science and Technology (Wuhan, China) approved the study protocol [No. IORG0003571]. Participants provided oral informed consent for interviews. The reason for not adopting written consent forms was that the signature of medical staff might affect anonymity and the institutional review board at the authors institutes approved the study protocol.

Consent for publication

Not applicable.

Availability of data and materials

The authors confirm that the data supporting our findings of this study can be found from additional supporting files.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

XYW is the first author and was major contributor to analyzing the data and drafting the manuscript. BZY was involved in data analysis and contributed to the revision of the paper. XG was involved in the revision of the manuscript for important intellectual content. YL made substantial contributions to the concept and design of the study and critically reviewed the paper. All authors (XYW, BZY, XG, YL) contributed substantially to the interpretation of results. All authors read and approved the final manuscript.

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Additional Files

Additional file 1. Supplementary Material (Supplementary analysis)

Additional file 2. Interview Guide (Nurse questionnaire)

Additional file 3. Availability of Data (The data supporting findings)

Figures

Figure 1

Organizational Behaviors with Nurse Well-being A. High Job Satisfaction B. High Turnover Intention C. High Life Happiness

Figure 2

Patient Behaviors with Nurse Well-being A. High Job Satisfaction B. High Turnover Intention C. High Life Happiness

Supplementary Files

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- [Additionalfile1Appendix2020622.docx](#)
- [Additionalfile2Questionnaire2020622.doc](#)
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