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Association of Nurse Education Level and Nurse Staffing With Hospitalized Patient Perception of Hospital Care

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Objective

To examine the associations between unit nurse education level, unit nurse staffing, and hospitalized patient perception of hospital care in Guangdong province, China.

Methods

- Design: A cross-sectional study.

- Measures:
a) Hospitalized patient perception of hospital care was measured by Hospital Consumer Assessment of Healthcare Providers and Systems Scale.
b) Unit nurse education level was measured by the proportion of nurses holding a baccalaureate or higher degree on the unit.
c) Unit nurse staffing was measured by the nurse-patient ratio (dividing unit nurse number by average patient number reported by nurses on the unit) at unit level.

- Data Analysis: Structural equation modeling analysis (variables controlling: hospital level, unit nursing practice work environment, unit type, unit nurses' average age, and patient age, gender, education level, health status, and length of stay).

Samples and Setting

Nurses (n=1,582) responsible for direct care and randomly sampled patients (n=1,330) who were aged 14 years and above had been hospitalized for at least 3 days on 111 medical and surgical units from 23 hospitals in Guangdong, China in 2014.

Table 1 Hospital and unit characteristics.

Characteristics	*n* (%)	Characteristics	*n* (%)
Hospital level (*n*=23)		Unit nurse-patient ratio [c](*n*=111)	
Level 3 (major hospitals)	12 (52.2)	.2-	28 (25.2)
Level 2 (medium size hospitals)	11 (47.8)	.3-	39 (35.2)
Unit type (*n*=111)		.4-	30 (27.0)
Medical	58 (52.3)	.5-.8	14 (12.6)
Surgical	53 (47.7)	Unit proportion of nurses with baccalaureate and higher degree [d](%; *n*=111)	
Unit nurses' average years working in nursing [a] (*n*=111)		.0-	32 (28.8)
1.0-	32 (28.8)	25.0-	43 (38.8)
5.0-	63 (56.8)	50.0-	29 (26.1)
10.0-13.6	16 (14.4)	75.0-100.0	7 (6.3)
Unit nurses' average age [b](*n*=111)			$\bar{x} \pm s$
22.9-	20 (18.0)	Unit nursing practice environment	3.14± .27
25.0-	74 (66.7)	(*n*=111)	
30.0-35.1	17 (15.3)		

Note: [a] Nurses' average years working in nursing of all units was 6.65±2.74; [b] Nurses' average age of all units was 27.49±2.67; [c] The average nurse-patient ratio of all units was .38±.12; [d] The average proportion of nurses with baccalaureate and higher degree of all units was (38.08±23.20)%.

Table 2 Patient characteristics [*N*=1,330; *n* (%)][a]

Characteristics		Characteristics	
Age (years; *n*=1,322) [b]		Self-assessed health status (*n*=1,314)	
14-	42 (3.2)	Excellent	45 (3.4)
20-	274 (20.7)	Very good	286 (21.8)
40-	459 (34.7)	Good	514 (39.1)
60-	443 (33.5)	Fair	370 (28.2)
80-99	104 (7.9)	Poor	99 (7.5)
Gender (*n*=1,321)		Education level (*n*=1,319)	
Female	640 (48.4)	No schooling	136 (10.3)
Length of stay (days; *n*=1,313) [c]		Primary school	368 (27.9)
3-	703 (53.5)	Junior high school	380 (28.8)
8-	354 (27.0)	Senior high school	258 (19.6)
15-	135 (10.3)	College and higher	177 (13.4)
22-364	121 (9.2)		

Note: [a] Sample size for different characteristics varied because of missing data. [b] Patients were 53.41±18.38 years old on average. [c] Patients' length of stay was the inpatient days by the time of study. Patients' average length of stay was 11.30±17.57days, with a median (P_{25},P_{75}) of 7.00 (4.00, 12.00) days.

Results

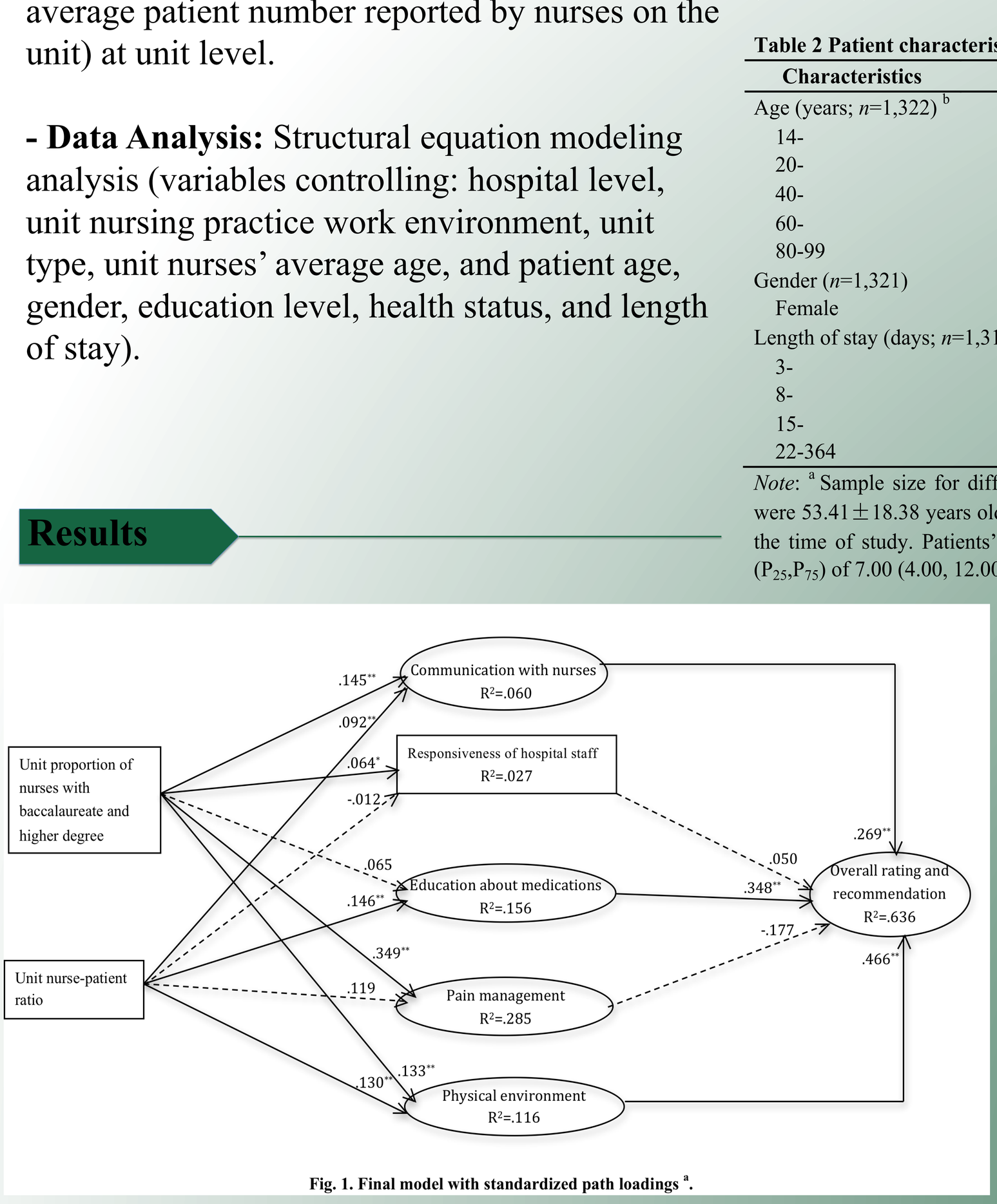

Fig. 1. Final model with standardized path loadings [a].

The model fit data well [CFI=.947, TLI=.903, SRMR=.033, and RMSEA=.030 (90%CI:.025-.036)].

Conclusions

Increasing nurse staffing and upgrading nurses' education level may be potentially helpful to improve patient perception of hospital care.

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