The Relationship between Nurse Staffing and Patient Care Quality : Used Psychiatric Hospital Accreditation Data in Taiwan

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Purpose

The shortage of nursing professionals is a long-standing problem in the world. According to Taiwan statistical data, there were 158,318 nurses in 20161. Taiwan's nurse-patient ratio was 2 to 3 times that of Japan, Australia, and the United States of America. Previous studies showed that nursing staff shortage and high nurse-patient ratio lead to inpatient incident events (such as patient falls, medication error).

It is necessary in psychiatric hospitals to provide sufficient nursing staff to deal with patients at risk of escape, fall, violence and accidents. Then, the high nurse-patient ratio caused high nurse turnover rates. Review that the current domestic nursing staffing research less to explore the impact of psychiatric hospital nursing staff on patient outcomes, so this study aims to explore the effects of psychiatric hospital nursing staff on quality of inpatient care and inpatient care outcome.

Table 1：Descriptive statistics of patient incidents in Taiwan psychiatric hospitals

No.	Incident (harmful)	Numbers (%) 3552 (41.08%)	Incident (non-harm)	Numbers (%) 5094 (58.92%)
1	fall down	1806 (50.84%)	attack	2448 (48.06%)
2	attack	1389 (39.10%)	fall down	2000 (39.26%)
3	other	260 (7.32%)	security	264 (5.18%)
4	treatment	40 (1.13%)	drug	168 (3.30%)
5	drug	32 (0.90%)	other	130 (2.55%)
6	security	13 (0.37%)	public	43 (0.84%)
7	public	12 (0.34%)	treatment	41 (0.80%)

Note：
Incident event：
[1]Fall down incident means fall to the ground or other plane.
[2]Attack incident means patient do some adverse behaviors to him or herself or others, including language or body violence, suicide, or harmful actions.
[3]Treatment incident means medical, treatment and care related to the abnormal events.
[4]Drug incident means the events associated with the administration process.
[5]Security incident means theft, harassment, missing patients, violations, homicide events.
[6]Public incident means hospital buildings, access roads, other work, fire, natural disasters, leakage of hazardous substances, information systems events.
[7]Other incident means other patient safety events.
Non-harm incident event means patient had happened but no one got hurt.

Table 2：Multiple regressiong analysis of patient care quality results in Taiwan psychiatric hospitals

	Mean	S.D	p-value[1] Incident (harmful)	p-value[1] Incident (non-harm)	mortality rate
hospital status					
acute beds	100.100	103.911	0.032*	0.040*	0.012*
chronic beds	212.400	145.910	0.045*	0.000***	0.000***
nurse staffing					
day shift (acute)	8.23	2.89	0.907	0.781	0.145
evening shift (acute)	15.00	5.01	0.764	0.329	0.270
night shift (acute)	19.42	7.99	0.148	0.170	0.843
day shift (chronic)	31.76	12.49	0.732	0.947	0.196
evening shift (chronic)	41.64	21.03	0.616	0.982	0.504
night shift (chronic)	55.24	30.63	0.157	0.277	0.028*
resignation rate (%)	13.56	16.90	0.000***	0.003**	0.350
education (hrs)	51.07	39.43	0.649	0.649	0.014*

Note：
Nurse staffing account nurses worked in clinical only.
p value：*p<0.05, **p<0.01,***p< 0.001.

Results

In our study, psychiatric patient incidents occured 8,646 times from 2014 to 2016. According to the descriptive statistics of patient incidents, we found 5,094 times (58.92%) non-harm incident that more than half percentage of total incident and 3,552 times (41.08%) harmful incident. However, fallen down and attack events were the main factors between harmful incident and non-harm incident. On the other hand, regression results showed there was a significant effect that high level hospital beds and nurse resignation rate could increase the incident no matter it's harm or not. Furthermore, hospital beds, night shift nursing staff and education hours had a correlation with patient mortality rate significantly.

Methods

The total 34 hospitals data resources were collected from the psychiatric hospital accreditation data, self-assessment tools and nurse-patient ratio by questionnaires from 2014 to 2016. Variables included acute beds, chronic beds, nursing staff, nurse resignation rate, education of nurses, patient incidents and patient mortality rate. We used multiple regression to analyze the effect and correlation among these variables in Taiwan psychiatric hospitals.

Conclusion

Generally, hospital nurse staffing and education always affect patient safety and mortality in many past studies. This study collected the data from psychiatric hospitals in Taiwan, and found the similar results that nurse resignation rate, staffing and education also cause raising or dropping of patient incident and mortality. Finally, JCT will provide the results to MOHW for reference when the relevant policy will be needed.

Acknowledgement

References

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