Perception of nurses on the practice environment: Experience from Malaysia

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ABSTRACT

Introduction: Positive professional practice environments are crucial to safeguard a healthy and safe working conditions for health workforce, including nurses; so as to ensure provision of quality healthcare and safety of patient.

Methods: This was a cross-sectional study to assess nurses' perceptions towards nursing practice environment and factors associated with their perceptions. A validated Practice Environment Scale of the Nursing Work Index (PES-NWI) questionnaire was administered to nurses working in two Ministry of Health hospitals. The questionnaire comprises of five subscales: Participation, Foundation, Managers Support, Workforce Adequacy and Physician/Nurse Relations. Mean scores of >2.50 were considered as favourable, and ≤2.50 were considered as unfavourable. Simple linear and multiple linear regression analysis were employed to identify factors associated with their perceptions. Analysis was carried out using STATA version 14.0.

Results: A total of 366 respondents took part in the study, with a response rate of 98.4%. Majority were working shift (89.6%) and working extended hours (62.3%). In general, the nursing practice environments were rated as favourable. Overall mean score was 2.90±0.03 and four out of five subscales' mean scores were >2.50. Foundation for quality nursing care was perceived as the most favourable subscale, while workforce adequacy was perceived as the least favourable. There were statistically significant association between working extended hours, doing double shift and working during day off with perceived unfavourable workforce adequacy.

Conclusion: Nursing practice environment was perceived as favourable in the studied hospitals. Policy makers, service providers, and hospital managers could explore further on human resource planning and management of nursing personnel to tackle the issue of nurse staffing in the country.

KEYWORDS:
Nursing, hospitals, practice, working, environment

INTRODUCTION

Positive practice environments (PPEs) for healthcare professionals have gained growing attention globally.[1,2] PPEs are defined by the World Health Organization[1] and Baumann[3] as "settings that ensure the health, safety and personal well-being of health professionals, improve motivation, productivity and performance of individuals and organization, and thus, support the provision of quality patient care".

In Malaysia, the employers are responsible in provision and maintenance of work settings that are functional, safe, risk-free and sufficient pertaining to the amenities for their well-being at workplace. The purpose is to encourage a working condition for workers that conform to their needs.[4,5] Malaysia has a dual healthcare system where both the private and public healthcare services co-exist.[6] The main provider of public healthcare services is the Ministry of Health Malaysia, together with the Ministry of Higher Education and Ministry of Defence. On the other hand, private healthcare services are delivered in autonomous clinics or hospitals.

Nurses form the biggest healthcare professionals in Malaysia. There were 102,564 nurses in both private and public sectors in 2016[7] constituting almost 50% of healthcare professionals. Seven in ten of nurses were practicing in the public sector. Many issues related to nursing such as insufficient staff in workplace, inadequate skill mix, excessive nurse migration, low job satisfaction, stressful experience, poor retention and high turnover were reported not being noticed or voiced out.[8,9] These issues were thought to be related to Nursing Practice Environment (NPE) factors.[10] NPE refers to the institutional characteristics of a work environment that encourages or restricts professional nursing practice from providing quality care to patients.[11] A good environment for nurses to practice at workplace (such as job aid, management style and relationship, growth opportunities, mentoring-coaching, and physical work environment) play an important role towards the retention and job satisfaction of nurse. Nursing practice environment, along with nursing knowledge, skills and competencies, are important factors in ensuring provision of quality healthcare and patient safety.[3,12,13]

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There are several instruments used to measure nursing practice environment such as Nursing Work Index, Revised Nursing Work Index (NWI-R), Job Characteristics Survey Inventory (JCI), Ward Organization Features Scale (WOFS), Work Quality Index (WQI) and Assessment of Work Environment Schedule (AWES).[14] However, recent empirical evidence published suggest that the Practice Environment Scale of the Nursing Work Index (PES-NWI) is considered to be the most applicable and suggested for future research.[14,15] The PES-NWI had also been adopted by a local study to measure NPE in public university hospitals[16] and private hospitals in Malaysia.[17]

Studies showed that nursing practice environment was unfavourable in university hospitals,[16] whereas it was favourable in private hospitals in Malaysia.[17] There is a paucity of research assessing nursing practice environment in public hospitals. Given this, the present study was conducted with the objective to assess Nursing Practice Environment among nurses in selected public (Ministry of Health) hospitals in Malaysia using a validated tool. This study provides information valuable for introducing changes in practice that are likely to create positive practice environments.

MATERIALS AND METHODS

Study design

A cross-sectional study using a validated questionnaire was carried out among nurses working in two MOH hospitals, namely Hospital Putrajaya and Hospital Ampang situated in the central region of Peninsular Malaysia. Data collection were conducted from September to October 2017. By using the sample size formula for frequency in a population study, a minimum sample size of 290 (from a total estimation of 1,176 eligible nurses in both hospitals) was calculated using OpenEpi online sample size calculator Version 3.0,[18] using 50% response distribution, 95% confidence interval and 5% level of precision. In order to adjust for potential non-response (20%), the minimum sample size needed was 363. A convenience sampling method was used. All nurses who worked in the clinical setting were recruited in the study, whereas nurses who were on long leave were excluded. Overall, 372 questionnaires were distributed.

Study instrument

The questionnaire used was divided into two parts. The first part consisted of seven items that assessed the socio-demographic and work-related characteristics of respondents such as age, sex, marital status and education level (certificate, diploma and higher), while items related to their work included working experience, department, and working patterns (normal work shift, working extended hours, doing double shifts, working during day off). A continuous age and working experiences variables were re-coded into categorical variables for ease of interpretation.

The second part of the questionnaire contained 31 items of PES-NWI, which were grouped into five subscales: (1) "Nurse participation in hospital affairs" (Participation); (2) "Nursing Foundations for Quality of Care" (Foundation); (3) "Nurse Manager Ability, Leadership and Support of Nurses" (Managers Support); (4) "Staffing and Resource Adequacy" (Workforce Adequacy); and (5) "Collegial Nurse - Physician Relations" (Physician/Nurse relations). A four-point Likert scale format (1 = "strongly agree", 2 = "agree", 3 = "disagree", and 4 = "strongly disagree") was used to assess the responses for the PES-NWI. The scoring was reversed for each item, thus greater agreement reflected by higher scores.

Initially, the English version of the original questionnaire was forward translated to the Malay language, and then translated back to English, by two independence translators. The questionnaires were then compared and discussed by the two translators to resolve any existing ambiguities and discrepancies. The bilingual versions of the questionnaires were then tested for validity and reliability. Content validity was conducted by seven experts in the field of nursing. The experts rated each item of the questionnaire on a four-point scale (from 1 = not relevant to 4 = very relevant) to validate the appropriateness of the construct studied. An overall percentage of agreement between the experts was calculated to get Scale-Content Validity Index/Average (S-CVI/Ave) for each subscale and the entire questionnaire. Of the five subscales, all had adequate S-CVI/Age at the subscale level except the Subscale 1 (S-CVI/Age = 0.84) which was just slightly below the desired S-CVI/Ave of 0.90.[19] The S-CVI/Ave for the entire questionnaire was 0.91 and considered acceptable (Table II).[19] Comments from the experts were used to improve the terminology and structure of the items in the questionnaire. The revised questionnaire was then pre-tested with cognitive debriefing among 20 nurses to determine the clarity of the terms used. The words were made appropriate to suit their current work environment. The bilingual version of the questionnaire was then pilot tested for internal consistency using Cronbach's alpha. The Cronbach's alpha value for the subscales were ranged from 0.68 to 0.85. All the subscales showed sufficient internal consistency except for Subscale 5, which was just slightly below moderate ($\alpha<0.7$).[11] The reliability for the overall PES-NWI was considered high ($\alpha=0.92$) (Table II).[11]

Operational definitions

A normal work shift is considered to be a work period of seven consecutive hours each day on weekdays. In this study the term working extended hours was defined as working extra hours which was more than the normal work shift and doing double shifts was defined as working two normal work shifts. Working during day off was defined as working on weekends.

Data Collection

Questionnaires were distributed to eligible nurses with a Respondent Information Sheet explaining the survey during a training session. Their anonymity and confidentiality were reassured. The completed questionnaires were collected at the end of the session.

Data analysis

Data was analysed using STATA version 14.0. Nurses' socio-demographic characteristics and perceptions of NPE was analysed using descriptive statistics. Analysis of NPE was done in terms of subscale and overall scores, and the mean score was calculated for each subscale. The mean summary scores were then calculated for each subscale and overall,

Table I: Socio-demographic and work-related characteristics of respondents (N=366)

Items	n	%
Age (years)		
21-30	206	56.3
31-40	134	36.6
More than 40	26	7.1
Sex		
Male	13	3.6
Female	353	96.4
Marital status		
Single	100	27.3
Married	266	72.7
Highest education level		
Certificate	33	9.0
Diploma and higher	333	91.0
Working experience (years)		
Less than 3	67	18.3
3-10	221	60.4
11-20	71	19.4
More than 20	7	1.9
Working normal shift		
Yes	328	89.6
No	38	10.4
Working extended hours		
Yes	228	62.3
No	138	37.7
Doing double shifts		
Yes	200	54.6
No	166	45.4
Working during day off		
Yes	136	37.2
No	230	62.8

Table II: Practice Environment Scale – Nursing Work Index (PES-NWI): Content Validity Index, Internal Consistency, and Descriptive Statistics (N=366)

Scale	S-CVI/Ave	α	Mean	SD	Min	Max	Skewness	Kurtosis
Overall PES-NWI scale	0.91	0.92	2.90	0.314	1.90	4.00	0.003	0.003
Subscale 1: Participation	0.84	0.85	2.85	0.402	1.44	4.00	0.116	0.011
Subscale 2: Foundation	0.93	0.77	3.12	0.274	2.40	4.00	<0.001	<0.001
Subscale 3: Managers Support	0.91	0.74	2.85	0.449	1.20	4.00	<0.001	<0.001
Subscale 4: Workforce Adequacy	0.96	0.74	2.44	0.550	1.25	4.00	0.166	0.446
Subscale 5: Physician/Nurse Relations	0.95	0.68	3.00	0.391	1.33	4.00	0.002	<0.001

S-CVI/Ave = Scale-Content Validity Index/Average; α = Cronbach's alpha; SD = standard deviation; min = minimum; max = maximum

based on the number of items in the subscale and total number of items in the scale, respectively.

Neutral midpoint (2.50) for a four-point response set was used to categorise the score.[20] Mean scores of >2.50 were considered favourable, and mean scores of ≤2.50 and below were considered unfavourable.[11,16] The setting was then classified into either favourable, mixed and unfavourable, based on the composite subscale scores. For setting with four or five subscales with scores of >2.50, it will be classified as favourable. Mixed was classified for setting with two or three subscales with scores of >2.50, while unfavourable was classified for setting with none or one subscale with score of >2.50.[20]

For the bivariate analysis, values on the PES-NWI (considered as dependent variables) were assessed in relation to the independent variables (age, sex, marital status, education level, working experience, and working patterns that is normal work shift, working extended hours, doing double shifts, working during day off) using simple linear regression as statistical hypothesis tests. Finally, multivariate analysis was performed through multiple linear regression. Independent variables obtaining statistical significance ≤0.20 at bivariate level were considered as predictive variables and included in the final analysis. 95% Confidence intervals were calculated (95%CI). All analyses were conducted with a significance level of ≤0.05.

RESULTS

General characteristics

Out of 372 questionnaires distributed, a total of 366 valid questionnaires were included in the final analysis (response rate 98.4%). More than half of the respondents (56.3%) were aged between 21 and 30 years and majority of them were female (96.4%). Majority of the respondents were married (72.7%) and had diploma and higher (88%) as their highest educational level. Majority were working normal shift (89.6%) and working extended hours (62.3%). Table I shows

Table III: Summary scores of the subscales and overall PES-NWI by age, gender, marital status, education level, years of experience, and working patterns

Variable	Participation (maximum value: 36) Mean (95% CI)	Foundation (maximum value: 40) Mean (95% CI)	Managers Support (maximum value: 20) Mean (95% CI)	Workforce Adequacy (maximum value: 16) Mean (95% CI)	Physician/Nurse Relations (maximum value: 12) Mean (95% CI)	Overall (maximum value: 124) Mean (95% CI)
Age (years)						
21-30	25.56 (25.04-26.08)	31.27 (30.87-31.68)	14.11 (13.80-14.41)	9.82 (9.52-10.13)	9.01 (8.84-9.18)	89.78 (88.37-91.18)
31-40	25.51 (24.95-26.06)	30.96 (30.56-31.35)	14.17 (13.78-14.56)	9.56 (9.18-9.94)	8.96 (8.76-9.16)	89.16 (87.66-90.66)
More than 40	27.31 (25.78-28.83)	32.19 (31.06-33.32)	15.31 (14.47-16.15)	10.35 (9.57-11.12)	8.96 (8.72-9.20)	94.12 (90.39-97.84)
p value	0.140	0.651	0.060	0.903	0.698	0.274
Sex						
Male	23.53 (20.41-26.67)	30.23 (28.37-32.10)	13.15 (11.43-14.88)	8.62 (7.03-10.21)	8.69 (7.63-9.75)	84.23 (76.12-92.35)
Female	25.75 (25.37-26.12)	31.26 (30.97-31.54)	14.25 (14.02-14.49)	9.80 (9.58-10.03)	9.00 (8.88-9.12)	90.07 (89.07-91.06)
p value	0.031	0.184	0.084	0.056	0.350	0.033
Marital status						
Single	25.83 (25.15-26.51)	31.27 (30.70-31.84)	14.23 (13.83-14.63)	9.78 (9.32-10.24)	9.00 (8.74-9.26)	90.11 (88.12-92.10)
Married	25.61 (25.16-26.05)	31.20 (30.88-31.53)	14.21 (13.93-14.49)	9.76 (9.50-10.02)	8.99 (8.85-9.12)	89.76 (88.60-90.92)
p value	0.597	0.835	0.941	0.925	0.935	0.761
Highest education level						
Certificate	27.21 (25.93-28.49)	32.48 (31.33-33.64)	15.09 (14.33-15.86)	10.67 (9.97-11.36)	9.42 (8.86-9.99)	94.88 (91.11-98.64)
Diploma and higher	25.51 (25.13-25.90)	31.10 (30.81-31.38)	14.13 (13.89-14.37)	9.67 (9.43-9.91)	8.95 (8.83-9.07)	89.36 (88.34-90.38)
p value	0.019	0.005	0.019	0.013	0.026	0.002
Working experience (years)						
Less than 3	26.25 (25.34-27.16)	31.69 (30.89-32.48)	14.34 (13.75-14.94)	10.45 (9.92-10.98)	9.03 (8.72-9.34)	91.76 (89.24-94.28)
3-10	25.18 (24.70-25.66)	31.04 (30.69-31.38)	13.91 (13.61-14.20)	9.40 (9.10-9.68)	8.97 (8.80-9.14)	88.49 (87.21-89.77)
11-20	26.31 (25.53-27.09)	31.20 (30.58-31.81)	14.82 (14.34-15.29)	10.21 (9.72-10.71)	9.01 (8.82-9.20)	91.55 (89.47-93.62)
More than 20	28.86 (27.05-30.66)	32.86 (30.69-35.02)	16.57 (15.39-17.75)	10.29 (8.90-11.67)	9.14 (8.79-9.49)	97.71 (92.41-103.02)
p value	0.274	0.777	0.020	0.813	0.939	0.412
Working normal shift						
Yes	25.48 (25.10-25.87)	31.15 (30.86-31.44)	14.13 (14.19-15.71)	9.66 (9.42-9.90)	8.98 (8.85-9.10)	89.41 (88.38-90.43)
No	27.24 (26.00-28.47)	31.84 (30.83-32.85)	14.95 (14.19-15.71)	10.63 (9.93-11.33)	9.11 (8.68-9.53)	93.76 (90.13-97.40)
p value	0.005	0.140	0.035	0.010	0.530	0.009
Working extended hours						
Yes	25.27 (24.81-25.72)	31.04 (30.69-31.38)	14.01 (13.72-14.31)	9.41 (9.13-9.69)	8.95 (8.80-9.10)	88.67 (87.49-89.85)
No	26.33 (25.69-26.96)	31.53 (31.04-32.02)	14.55 (14.18-14.92)	10.35 (9.98-10.72)	9.07 (8.86-9.27)	91.82 (90.07-93.57)
p value	0.007	0.094	0.027	<0.001	0.353	0.003
Doing double shifts						
Yes	25.29 (24.80-25.77)	31.00 (30.63-31.37)	13.86 (13.54-14.18)	9.50 (9.20-9.79)	8.87 (8.71-9.02)	88.51 (87.22-89.79)
No	26.13 (25.55-26.70)	31.49 (31.06-31.92)	14.64 (14.32-14.97)	10.08 (9.73-10.43)	9.14 (8.96-9.33)	91.49 (89.95-93.02)
p value	0.027	0.089	0.001	0.011	0.023	0.003
Working during day off						
Yes	25.10 (24.47-25.73)	31.06 (30.55-31.56)	13.70 (13.28-14.12)	9.07 (8.73-9.42)	8.74 (8.54-8.94)	87.68 (86.01-89.34)
No	26.00 (25.54-26.46)	31.32 (30.98-31.65)	14.52 (14.25-14.79)	10.17 (9.88-10.45)	9.14 (8.99-9.29)	91.15 (89.92-92.37)
p value	0.022	0.383	0.001	<0.001	0.002	0.001

the socio-demographic and work-related characteristics of respondents.

Nurses' perception towards practice environment

Table II illustrates the descriptive statistics for overall scale and each subscale of the PES-NWI. Mean values for each subscale were as follows: 2.85 (95%CI: 2.81-2.89) for the subscale Participation; 3.12 (95%CI: 3.09-3.15) for the subscale Foundation; 2.85 (95%CI: 2.80-2.89) for the subscale Managers Support; 2.44 (95%CI: 2.38-2.50) for the subscale Workforce Adequacy; and 3.00 (95%CI: 2.96-3.04) for the subscale Physician/Nurse relations. Overall NPE was rated as being favourable with mean score of 2.90 (95%CI: 2.87-2.93). The study also revealed that four out of five subscales' mean scores were more than 2.50 which indicated the favourable setting. Workforce Adequacy was perceived as the least favourable which was concordance with two items with high percentage of minimum agreement, 69.7% and 61.4%, for "Enough nurses to provide quality patient" (mean score = 2.15), and "Enough staff to get the work done" (mean score = 2.16), respectively.

The skewness and kurtosis values of the overall PES-NWI and each subscale were within the normal distribution range which was -1.96 to +1.96. Thus, the data was distributed normally and appropriate for further inferential parametric statistics analysis.

Associations between nurses' socio-demographic and work-related characteristics on perception towards practice environment

Table III shows the summary scores of the subscales and overall PES-NWI by age, sex, marital status, education level, years of experience, and working patterns. Statistically significant differences were showed for overall PES-NWI scores between nurses with different sex, educational level, working patterns such as working in shift, working extended hours, doing double shifts and working during day off. Nurses aged 31-40 years, married, with 3-10 years working experience scored lower for overall PES-NWI; however, the differences were not significant compared to their counterparts. There were no statistically significant differences in scores of all subscales with respect to their age groups and marital status. Between male and female

Table IV: Associated factors for perception towards PES-NWI

Variables	Simple linear regression		Multiple linear regression		
	Unadjusted β (95% CI)	Sig.	Adjusted β (95% CI)	t	Sig.
Age: 31-40 years[a]	-0.620 (-2.727, 1.487)	0.563	-1.647 (-4.003, 0.709)	-1.37	0.170
Age: More than 40 years[a]	4.339 (0.387, 8.290)	0.031	1.191 (-3.903, 6.285)	0.46	0.646
Sex (ref: male)	5.834 (0.471, 11.197)	0.033	6.393 (1.234, 11.552)	2.44	0.015
Marital status	-0.347 (-2.588, 1.894)	0.761	-	-	-
Highest education level (ref: certificate)	-5.518 (-8.959, -2.078)	0.002	-4.763 (-8.142, -1.383)	-2.77	0.006
Working experience: Less than 3 years[b]	-3.273 (-5.894, -0.651)	0.015	3.835 (1.247, 6.424)	2.91	0.004
Working experience: 11-20 years[b]	-0.212 (-3.414, 2.990)	0.897	2.641 (-0.420, 5.701)	1.70	0.091
Working experience: More than 20 years[b]	5.953 (-1.514, 13.420)	0.118	6.632 (-1.880, 15.145)	1.53	0.126
Working normal shift (ref: yes)	4.358 (1.114, 7.601)	0.009	2.461 (-1.015, 5.937)	1.39	0.165
Working extended hours (ref: yes)	3.148 (1.113, 5.183)	0.003	1.986 (-0.077, 4.048)	1.89	0.059
Doing double shifts (ref: yes)	2.983 (1.000, 4.966)	0.003	1.399 (-0.750, 3.548)	1.28	0.201
Working during day off (ref: yes)	3.471 (1.436, 5.507)	0.001	2.702 (0.612, 4.793)	2.54	0.011

Models' parameter: R^2: 0.1396; Adjusted R^2: 0.1128; F (11: 354) = 5.22; p = <0.001.
[a] Reference category: Age less than 30 years.
[b] Reference category: Working experience of 3-10 years.

respondents, there were no significant differences for scores of all subscales, except for subscale Participation. Those working extended hours, doing double shifts and working during day off scored lower for all subscales. All differences were statistically significant except for subscale Foundation as well as for subscale Physician/Nurse Relations for working in shifts and extended hours.

The variables that remained significant in the multiple linear regression model (dependent variable: overall score in PES-NWI), adjusted by age, working normal shift, working extended hours, and doing double shifts, with $p<0.05$, were sex (coefficient $\beta = 6.393$, for female; category of reference: male), highest education level (coefficient $\beta = -4.763$, for diploma and higher; category of reference: certificate), working experience (coefficient $\beta = 3.835$, for less than 3 years; category of reference: 3-10 years), and working during day off (coefficient $\beta = 2.702$, for no; category of reference: yes) (Table IV). In the adjusted model, female nurses, nurses with certificate, less than three years of experience, and not working during day off were more likely to have more positive perception towards the practice environment.

DISCUSSION

Assessment of nurses' perception on their practice environment enables us to explore and comprehend areas that need changes to make better environment for nursing care to be delivered to the patients. To the best of our knowledge, this paper is the first study that analysed the perception of nurses towards their practice environment in MOH hospitals. Overall, our findings indicated that nursing practice environment was favourable. All subscales were rated as favourable except Workforce Adequacy. Our finding was similar to another study conducted among nurses at private hospitals in Malaysia, where overall, the nurses had high agreement for the availability of positive environment in their local setting.[17]

The most favourable aspect was subscale Foundation; the finding was similar to Malaysian and international studies.[21] Of the nine items in this subscale, active human resource management or continual learning plan for nurses scored highest reflecting the presence of continuing education opportunities for nurses. This positive finding could be due to both private and MOH hospitals provide strong foundation to the nurses that empower nurses to perform their responsibilities. This was also consistent with the MOH's policy to provide the MOH's staff at least seven days of in-service training annually.[22] In addition, renewal of Annual Practicing Certificate for nurses required a minimum number of Continuing Professional Development (CPD) points.[23]

In this study, the subscale Workforce Adequacy was scored relatively low compared to others. This finding was similar to previous published studies.[15,17,24] Respondents scored lowest for items "enough nurses to provide quality patient" and "enough staff to get the work done". This is corresponding with the findings that majority of the respondents had experienced working extended hours, more than half had experienced doing double shift and about one-third experienced working during day off. Adequate staff is one of the elements contributing to positive clinical work environment.[3] Several studies showed that sufficient staff were associated with the quality of nursing care, satisfaction

of patients, patient care outcomes, nurses' job satisfaction, and nurse retention.[16,24,25] In recent years, adequacy of nurse staffing in Malaysia and neighbouring country have been highlighted and debated.[26] In 2017, it was reported that the ratio of nurses per 1,000 population was 3.5,[27] far below the Organisation for Economic Cooperation and Development (OECD) member countries ratio of nurses per 1,000 population of 8.8.[28] Although the ratio has increased remarkably over years, from 1.7 nurses per 1000 population in 2000,[27] but it was still considered low.

Staffing and rostering are a complicated and critical area to dealt with. It involves effective planning and management of working schedule for staff to meet the demand for services without risking staff burnout. The present study showed lowest agreement level on statements for "enough nurses to provide quality patient" and "enough staff to get the work done". This warrant attention from the management of MOH hospitals since nursing care is crucial in ensuring patient safety and quality of care.[29]

The strength of the present study included the fact that we explored NPE among nurses in MOH hospitals, as published studies conducted locally found were only reported NPE in private and non-MOH hospitals. In addition, the present study also reported predictors for perception towards NPE. In the adjusted model, female nurses, nurses with certificate, less than three years of experience, and not working during day off were more likely to have more positive perception towards the practice environment.

LIMITATIONS

We acknowledge that this study has a few limitations. As this was a self-administered questionnaire survey, the accuracy of the results was heavily dependent upon information given by respondents and open to recall bias. Apart from this, selection bias may occur due to convenience sampling as we only distributed the paper-based questionnaire among nurses at two public hospitals. Another limitation is that the study was conducted at computerised and less crowded hospitals. Thus, the findings may not be appropriate to generalise to the whole of hospitals in Malaysia. In addition, our study did not measure outcomes related to nursing practice environment. The distribution of respondents between male and female nurses (13 versus 353) and educational level (33 versus 333) also were not balanced in this study. However, both characteristics were included in the model as it reflects the real scenario of population of nurses in Malaysia.

CONCLUSION

The findings showed that nurses from the two public hospitals studied here reported favourable practice environments, except for the staffing and resource adequacy. Unfavourable nursing staff adequacy was associated with working extended hours, doing double shift and working during day off; which indicates shortage of nurses. Optimal staffing and scheduling of nurses in hospital are essential to address the unfavourable perception of nurses on nursing staff adequacy. Policy makers, service providers, and hospital managers should perhaps explore further on human resource planning and management of nursing personnel to tackle long standing issue on nursing staff shortage. Further research is needed to study whether quality of nursing care and outcome of patients were affected by staffing and resource adequacy, and to explore the effects of other compounding variables (e.g., being nurse leader/manager or salary satisfaction), towards their perception on the practice environment.

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