

ORIGINAL ARTICLE

## A CROSS SECTIONAL STUDY ON FACTORS ASSOCIATED WITH JOB PERFORMANCE AMONG NURSES IN A TERTIARY HOSPITAL

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### ABSTRACT

Nurses' job performance is defined as the effectiveness of a person in carrying out his or her duties related to patient care. Aim of this study is to measure job performance among nurses in a tertiary hospital and its associated factors. A cross-sectional study was conducted among nurses selected from four departments, which were Obstetrics & Gynecology (O&G), medical, surgical and Cardiac Care Unit (CCU)/High Dependency Unit (HDU). A Malay validated Six-Dimension Scale of Nursing Performance (6-DSNP) questionnaire was used to measure job performance. Nurses who have one child more compared to other nurses had significantly lower total mean score of job performance by -0.06 (95% CI 0.11, 0.01). Nurses working in medical department [adj.B=0.16 (95% CI 0.01, 0.30)] and CCU/HDU [adj.B= 0.33(95% CI: 0.17, 0.50)] had significantly higher total mean scores of jobs performance compared to O&G department. Effective strategies and re-examining work conditions are imperative for better job performance.

**Keyword:** job performance, associated factors, nurses, tertiary hospital

### INTRODUCTION

Patient care is very much dependent on healthcare organizations with highly trained and experienced nursing staffs that are committed to provide high quality job performance. The performance of a healthcare organization is strongly affected by nursing turnover.<sup>1,2,3</sup> This turnover leads to shortage of staff which increase work demand and loads to the remaining nurses. Unfortunately, this will reduce their level of job performance and eventually quit the job.<sup>3</sup> In Canada, concerns about the shortage of nurses and its impact on patient care, necessitate studies on the performance of nurses.<sup>4</sup> Meanwhile in African countries, improving the performance of healthcare workers and overall productivity is a major challenge.<sup>5</sup> According to World Health Organization (WHO), shortage of healthcare personnel such as nurses, especially on quantity and level of performance, are regarded as a major limitation in achieving the Millennium Development Goals (MDGs) in term of combating poverty and diseases in many African countries.<sup>5</sup>

Currently in Malaysia, the turnover rate of nurses is alarmingly increasing. Malaysia also faces the migration of thousands nurses to work in other

countries such as in the Middle East.<sup>3</sup> Therefore, Malaysia is still facing a deficit of 7,000 nurses per year and it is estimated that a total of 70,000 nurses will be required by the year 2020 to achieve the ratio of 1 nurse to 200 populations required by the World Health Organization (WHO).<sup>3</sup> Indeed, this scenario gives big impact to the nurses' performance and subsequently reducing quality of healthcare organizations and patients care.<sup>3,6-10.</sup>

Job performance is defined as how well the work is done by any members of an organization in accordance to the established standard criterions.<sup>11-</sup>

<sup>13</sup> Meanwhile, nurses' job performance is defined as the effectiveness of a person in carrying out his or her duties related to patient care.<sup>8</sup> Every employee needs to be assessed, usually every year through a process called performance appraisal in order to evaluate their job performance. Job performance assessment is very important to provide information to the higher authority about the performance of the nurses when doing the job.<sup>14</sup> In addition, this assessment act as a feedback loops to the workers so that they will know in which level they were while performing the job.<sup>15</sup> In future, the nurses will be able to boost up their performance and enhance quality of work when knowing the previous rating scale.

There are myriad types of factors that able to influence nurses' job performance, either positively or negatively. Some of positive factors include young age, recognition, work satisfaction, education level, years of experience, post basic and others.<sup>8,14-17</sup> Whereas, negative job performance influencing factors consists of long working shifts, heavy workload, job stress, presence of medical morbidities and many more.<sup>8, 14, 18-21</sup>

The aim of this study is to measure job performance and its associated factors among nurses in Universiti Kebangsaan Malaysia Medical Centre (UKMMC). This study was focusing on the several associated factors, such as socio-demographic, socio-economic, job characteristics and medical morbidities.

## MATERIAL AND METHOD

### Study design and sampling

A cross-sectional study was conducted for three months between of 1<sup>st</sup> October 2012 to 31<sup>st</sup> January 2014 among the nurses in Department of Medical, Department of Surgical, Department of Obstetrics & Gynecology (O&G) and Cardiac Care Unit/ High Dependency Unit (CCU/HDU) of UKM Medical Centre (UKMMC). They were selected by simple random sampling, based on nurses' name list. Sample size needed in this study was 298 after being calculated in reference to a study done by Rose in 2011 assessing the stress, job satisfaction and job performance among nurses in Uganda.<sup>15</sup> The inclusion criteria were (1) Nurses with at least six months working experiences; (2) Malaysian nationality; (3) Registered with Malaysian Nursing Board; (4) Agree to participate in the study. Those who did not agree to give consent were excluded. This study was approved and granted by Universiti Kebangsaan Malaysia (UKM) Medical Research Ethical Committee (UKMREC) (FF-240-2013), UKMMC Director, head of four respective departments and head of nursing management. In addition, written consent was also obtained from the respondents.

### Study tools

Self-administered questionnaire was used as a study tool. This questionnaire consists of four parts. Part A consist of the socio-demographic and socio-economic factors, such as age, gender, marital status, number of children, education level and monthly salary. Part B contains details on job characteristics factors comprise of types of department, years of working experience, presence of post basic, and working shift or office hour. In Part C, medicalco-morbidities were assessed which include overweight, obesity and stress. Obesity was identified by using body mass

index (BMI) calculation. BMI was calculated based on self-report of height and weight measurement. Then, overweight and obese nurses were identified according to BMI classification by World Health Organization (WHO).<sup>22</sup>

In order to assess for stress, questionnaire of General Health Questionnaire (GHQ) 12 was used. GHQ12 is reliable and well-validated to be used in Malaysian setting.<sup>23; 24</sup> The response of each item was coded as 0, 1, 2, and 3. The items of the GHQ12 were rated according to four categories of responses such as "not at all, no more than usual, more than usual and much more than usual" for questions number 1, 2, 7, 10, 11 and 12 in the questionnaire. The rest of the items, the responses were "more than usual, no more than usual, less than usual and much less than usual". The scoring method is binary scoring method, where the two least symptomatic answers scoring 0 and the two most symptomatic answers scoring 1 (0-0-1-1).<sup>23</sup> The higher score indicates the respondent is having more symptoms of psychological stress. GHQ12 scores of 4 and above are classified as having stress and scores of 3 and below are classified as having no stress.<sup>23,25</sup>

In Part D, We assessed the job performance using The Six Dimension Scale of Nursing Performance. This questionnaire is reliable and well-validated to be used in Malay language.<sup>26</sup> The instrument was self-administered consisting of six sub-scales. The six sub-scales were leadership, critical care, teaching/ collaboration, planning/ evaluation, interpersonal relations/communication and professional development. There were two columns, which were column A and column B. Column A consists of 42 items and this column was to assess the frequency of job performance. Meanwhile for column B consists of 52 items which being used to assess the quality of job performance. The frequency of job performance was rated as "1= not expected in this job, 2 = never or seldom, 3 = occasionally and 4 = frequently". Meanwhile the quality of performing the nursing activities was rated as "1 = not very well, 2 = satisfactory, 3 = well and 4 = very well". However, the items in Professional development were assessed for quality only. The six sub scales had different total number of items respectively, ranging from 5 to 12. The number of items of each sub scales were as follows: leadership = 5, critical care = 7, teaching/ collaboration = 11, planning/ evaluation = 7, interpersonal relationship/ communication = 12 and professional development = 10. The total scores were calculated according to the average of the items per sub-scale. The higher mean scores indicate better performance.<sup>27-29</sup> The next step was to get the overall mean score of the six sub scales of job performance. The value

obtained was then compared with the scale of “1 = not very well, 2 = satisfactory, 3 = well and 4 = very well” to get the rating overall performance.<sup>13</sup>

#### Data analysis

All data were analyzed using SPSS version 20.0. Mean and standard deviation ( $\pm$ sd) were used to describe the characteristics of the study population for continuous data. Frequency and percentage were used for categorical data. Simple linear regression analysis was used to determine the association between independent and dependent variables, which was the total job performance score. Multiple linear regression (MLR) analysis was applied to control any potential confounders. Marital status was re-categorized to ease the MLR analysis (Married vs Single). Department of O&G was selected as reference due to the difference in clinical setting and workloads as compared to Medical, Surgical and ICU/CCU The level of significant was set at  $p$  value < 0.05

## RESULTS

#### Characteristics of the respondents

A total of 298 questionnaires were distributed among nurses in UKMMC in four departments, which were O&G, Medical, Surgical and CCU/HDU. However, only 256 completed questionnaires were returned, making up 86% response rate. Table 1 shows the characteristics of the respondents in terms of socio-demographic, socio-economic, job characteristics and medical co-morbidities. The mean age was 29.38 (5.21) years (min: 22 and max: 44 years). Majority of respondents were female (93%), married (62.9%) and had diploma (93%). The mean number of children and income was 1.16 (1.36) and MYR 2578.67 (614.15) respectively. For job characteristics, there was almost equal distribution of the respondents working in the Medical (30.1%) and Surgical (34.8%), followed by O&G (22.2%) and CCU/HDU (12.9%) departments. The mean years of experience was 6.89 (4.76) years. Majority of them were without post-basic training (62.1%) and working in shift hours (90.6%). For medical co-morbidities, most of the respondents were not overweight/obese and not having stress.

#### Six Dimension Scale of Nursing Performance (6-DSNP)

The mean scores for performance quality showed the highest mean of 3.32 (0.44) for professional development. Then it was followed by critical care with mean of 3.23 (0.47) and interpersonal

relationship/communication which had mean of 3.23 (0.42). Teaching/collaboration scale had the lowest mean score of 3.12 (0.44). The overall mean score for performance quality was 3.20 (Table 2).

#### Factors associated with mean scores of job performance

Table 3 shows the relationship among all factors with mean score of job performance. Multiple linear regression revealed there was a significant linear relationship between number of children and mean score of job performance ( $p=0.033$ ). Those having less one child had higher mean score of job performance by 0.06 (95% CI: 0.11, 0.01). Furthermore, medical department has significantly higher mean scores of job performance as compared to O&G department ( $p = 0.031$ ). This indicated nurses who were working in medical department had higher mean score of job performance than O&G department by 0.16 (95% CI: 0.01, 0.30). There was also a significant difference between CCU/HDU and O&G department with mean score of job performance ( $p<0.001$ ), where CCU/HDU had 0.33 higher mean score of job performance as compared to O&G department (95% CI: 0.17, 0.50). With the above three significant variables, the model explains 11.5% of variation of the mean score of job performance in the study sample ( $R^2=0.115$ ).

## DISCUSSION

The main findings in our study that, professional development had the highest mean score, which indicated nurses in UKMMC, performed better in professional development activities as compared to the others. Second highest sub scale was critical care, followed by interpersonal relationship/communication, leadership, planning/evaluation and the lowest sub scale was teaching/collaboration.

With regards to the professional development sub scale, previous study conducted by Reid showed similar outcome where the scale reported the highest mean score as compared to the other sub scales.<sup>28</sup> Professional development refers to the high performance, achievement and behavior that is accountable for professional growth, updating knowledge and skills in nursing activities.<sup>25</sup> Therefore, nurses in UKMMC demonstrated the same behavior as mentioned to promote their professional growth since this scale had the highest mean score.

**Table 1: Characteristics of the respondents: Socio-demographic, socio-economic, job characteristics and medical morbidities (n = 256)**

Variables	mean (±sd)	n (%)	Variables	mean(±sd)	n (%)
<u>Socio-demographic</u>			<u>Job characteristics</u>		
Age (year)	29.38 (±5.21)	-	Department		
Gender			O&G		57 (22.2)
Male		18 (7)	Medical		77 (30.1)
Female		238 (93)	Surgical		89 (34.8)
Marital status			CCU/HDU		33 (12.9)
Married		161 (62.9)	Years of experience (year)	6.89 (±4.76)	-
Never married		94 (36.7)	Post basic		
Widowed		0 (0)	Yes		97 (37.9)
Divorced		1 (0.4)	No		159 (62.1)
No. of Children	1.16 (±1.36)	-	Nature of work		
Education level			Shift		232 (90.6)
Diploma		238 (93)	Office hour		24 (9.4)
Bachelor degree		18 (7)	<u>Medical co-morbidities</u>		
<u>Socio-economic</u>			Overweight & Obese (BMI≥25)*		
Income (MYR)	2578.67(±614.15)	-	Yes		94 (36.7)
			No		162 (63.3)
			Stress**		
			Yes		40 (15.6)
			No		216 (84.4)

\* According to WHO BMI classification, \*\* Assessed with GHQ12

**Table 2: Six Dimension Scale of Nursing Performance**

Activity	Performance Frequency	Performance Quality
	mean (±sd)	mean (±sd)
Leadership	3.50 (±0.44)	3.26 (±0.47)
Critical care	3.53 (±0.40)	3.23 (±0.47)
Teaching/ collaboration	3.42 (±0.39)	3.12 (±0.44)
Planning/ evaluation	3.56 (±0.37)	3.16 (±0.42)
Interpersonal relationship/ Communication	3.56 (±0.38)	3.23 (±0.42)
Professional development*	-	3.32 (±0.44)
Total	3.51 (±0.34)	3.20 (±0.39)**

\*Professional Development scale is not measured for performance frequency

\*\* Overall mean for six-subcales of the 6-DSNP used for association

Teaching/collaboration sub scale was reported the lowest mean score. This indicated that nurses in UKMMC were implemented the least activities of teaching/ collaboration. Teaching/collaboration refers to behaviors in which nurses gave instructions to patients and family members, and other health care providers who contribute to the patient’s well-being.<sup>16</sup> It was clearly noted that nurses in UKMMC were giving less instructions towards the patients and family members, together with other healthcare providers. Previous study in United States has indicated the same

results where teaching/collaboration had the lowest mean score among the nurses being studied.<sup>28,29</sup> In a recent study, it is reported that nurses in UKMMC were having higher mean score in Critical care but lower in teaching/collaboration. It is expected that nurses in UKMMC has performed more critical care skills and fewer Teaching/Collaboration as more patients were critically ill and need more attention. However, at the same time, it is very important for the nurses to get involved with the patients and their family, regardless how busy the nurses were.<sup>13</sup>

Table 3 Factors associated with mean score of job performance

Variables	SLR <sup>a</sup>				MLR <sup>b</sup>			
	B <sup>c</sup>	95% CI	t-stat	p value	Adj. B <sup>d</sup>	95% CI	t-stat	p value
Age (years)	-0.00	-0.01, 0.01	-0.17	0.865	-	-	-	-
No. of children	-0.02	-0.06, 0.02	-1.16	0.249	-0.06	-0.11, -0.01	-2.15	0.033
Gender (ref: male)								
Female	-0.00	-0.19, 0.19	-0.01	0.991	-	-	-	-
Marital status(ref: single)								
Married	0.02	-0.08, 0.12	-0.67	0.671	-	-	-	-
Education level (ref: bachelor degree)								
Diploma	-0.14	-0.33, 0.05	-1.47	0.144	-	-	-	-
Income	0.00	0.00, 0.00	-0.11	0.911	-	-	-	-
Department (ref: O&G)								
Medical	0.05	-0.06, 0.15	0.88	0.378	0.16	0.01, 0.30	2.17	0.031
Surgical	-0.05	-0.15, 0.05	-0.98	0.327	-	-	-	-
CCU/HDU	0.26	0.12, 0.40	3.63	<0.001	0.33	0.17, 0.50	3.92	<0.001
Years of experience (ref: no)								
Yes	0.07	-0.03, 0.17	-1.32	0.188	-	-	-	-
Nature of work(ref: shift)								
Office hour	0.09	-0.07, 0.26	-1.12	0.262	-	-	-	-
Overweight & Obese (ref: yes)								
No	0.01	-0.09, 0.11	0.28	0.782	-	-	-	-
Stress (ref: yes)								
No	0.06	-0.08, 0.19	0.84	0.403	-	-	-	-

<sup>a</sup>Simple linear regression

<sup>b</sup>Multiple linear regression ( $R^2 = 0.115$ ; The model reasonably fits well: Model assumptions are met: There is no interaction between independents variables and no multi-collinearity problem)

<sup>c</sup>Crude regression coefficient; <sup>d</sup>Adjusted regression coefficient; Ref: reference

In general, nurses in UKMMC were performing well in their work since overall mean score was 3.20 (0.39). This finding is almost the same with previous study done in United States, where the mean score of nursing performance was 3.14, indicating they performing well in their job.<sup>30</sup> Other similar finding demonstrated that nurses in Jordan also performed well in implementing nursing activities.<sup>13</sup> Even though Malaysia has a major issue of nurses' turnover and migration, staff in UKMMC still able to perform well in giving holistic care to the patients.

In this study, the result demonstrated that there was a significant association between number of children and mean score of job performance. This result had similar finding with a study in Saudi Arabia where number of children had the most significant association towards job performance.<sup>16</sup> Moreover, previous study conducted in Uganda showed number of children had a statistically significant association with job performance.<sup>15</sup> Having lesser children is associated with higher mean score of job performance. Number of children was used as an indicator for family responsibilities and higher number of children demonstrated higher family responsibilities

resulting in lower performance quality.<sup>16</sup> The majority of the study samples were women. Thus, it is clearly noted that women continue to manage multiple roles, including roles at home and family, for which the women may have sole responsibilities. Conversely, according to a study done among Australian nurses, nurses were unlikely to bring personal stress including family matters to work.<sup>31</sup> Therefore; anything occurring at home was not influencing nurses' performance at clinical setting. Equally, based on a study done previously, there were no differences between nurses' performance and work interfering with family or family interfering with work.<sup>32</sup>

There was a significant association between types of department and mean score of job performance. In current study, CCU/HDU and medical department were associated with higher mean score of job performance as compared to O&G department. Prior study showed similar findings where types of department, especially CCU which had an association with job performance.<sup>15, 33</sup> This probably due to CCU/HDU nurses enjoy better autonomy and challenges at work that will enhance overall mean score of job performance.<sup>33</sup> Although they have enormous

responsibilities and burden in dealing with critically ill patients, these factors will polish and build up their skills and thus promote better performance in CCU/HDU nurses. A Study conducted in Singapore supported the evidence which claimed that nurses in ICU tend to be more cohesive due to their smaller setting.<sup>17</sup> The cohesiveness is thought to promote the performance and productivity, as well as ICU nurses in Singapore which tend to have a better chance to get promoted, which contributed to higher performance.<sup>17</sup> In contrary, a study conducted in South Africa showed nurses who worked in ICU/CCU had lower job performance due to stress, burnout and heavy workloads.<sup>34</sup> In ICU/CCU, the patient is unconscious and totally dependent on the nurse physically and psychologically over a long period of time. This condition accompanied by elevated death rates due to critically ill patients severely give distressed towards this nurses.<sup>34</sup>

Working in medical departments resulted in better performance in clinical setting. Medical wards involve diversity of care, duties and expectations more frequently as compared to the other wards like Surgical and Oncology & Gynecology.<sup>34</sup> This circumstance prepares nurses to be competent and productive. With increasing level of procedures, nurses in medical department more frequently utilized problem solving and decision making that increase in mean score of job performance.<sup>34</sup> Conversely, a previous study among medical house officers in Pakistan revealed that working in medical ward was more stressful thus reduced their job performance due to lack of resources and extra workloads.<sup>35</sup> Since medical house officers are working hand in hand with nurses in the ward, therefore their condition is representable towards nurses' population.

This study has several limitations. It includes the study design itself, which is a cross sectional study. This design cannot determine causal effects, but only able to identify the association. Another limitation includes information bias. In six dimension scales of nursing performance, since the nurses rated their selves based on self-report, there might be desirability effect and nurses might not be sincere in answering the questionnaire. In order to clarify their performance, another rating scale by their supervisors can be included to strengthen the score achieved. A self-reported noted nurses' height and weight measurement. This may also lead to recall bias. Stress was also being measured based on self-report rather than through biochemical analysis of blood or by physical and mental health status assessment.

Selection bias was also included in study limitation. This study only concentrated in one hospital, which is UKMMC that may not represent the whole nurses' population. Therefore, in the future, a researcher can compare with other hospitals including private hospitals to determine which hospital has the highest overall mean score of job performance. .

There were several suggestions which can be implemented in the future study to gain better outcome and reduce some bias. The study assessed job performance based on self-reports by the respondents, therefore other methods of assessment should be included such as using nurse supervisor rating scale and observation. In future study, height and weight measurement need to be measured by the researcher itself rather than self-report to prevent bias. Besides, more studies should be conducted on a larger scale to include larger population of nurses.

Managerial interventions from upper authority are needed to enhance nurses' job performance. In order to enhance their leadership, nurses must be given praise and acknowledgment for their accomplishment. Besides, to improve their critical care skills, nurses should be provided with work environment that help them function calmly and competently in emergency situations. Also, to deepen their teaching / collaboration, nurses must be provided with teaching aids and resource materials to teach patients and their families. In order to enhance their planning / evaluation, nurses should initiate planning and evaluation of care with others. In addition, to enhance their interpersonal relationship / communication skills, nurses should promote the inclusion of patient's decision and desires concerning their care. Finally, nurses should be provided with learning opportunities to keep their professional growth which will increase overall nurses' job performance.

## CONCLUSION

In conclusion, based on the six dimensions scale of nursing performance, nurses are performing better in professional development skills as compared to the others. Only number of children and nurses working in CCU/HDU and medical department showed significant association with overall mean score of job performance.

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