

## ORIGINAL ARTICLE

# Burnout and Stressor Related Factors among Nurses Caring For Children in Hospital Universiti Sains Malaysia

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## ABSTRACT

**Introduction:** The aim of the study is to determine the prevalence of burnout and correlation between burnout score and stressor domain score and to determine the association between sociodemographic and occupational related factors with overall burnout among nurses caring for children in Hospital Universiti Sains Malaysia (Hospital USM).

**Methods:** This was a cross-sectional study using bilingual validated questionnaire; the General Stressor Questionnaire (GSQ) and Copenhagen Burnout Inventory (CBI) conducted among nurses providing medical service for children in Hospital USM particularly in wards and clinics. All 159 eligible nurses were recruited and 157 completed questionnaires were analysed. Pearson's correlation analysis was applied to study the correlation while simple logistic regression and multiple logistic regressions were applied to study the association. **Results:** The prevalence of burnout among nurses caring for children in Hospital USM was 28.7% (95% CI = 21.6, 35.7) with the majority of them experienced personal burnout (49.7%, 95% CI = 41.9, 57.5). There was a significant moderate positive correlation between different stressor domain score with overall burnout score with p-value < 0.05. Work placement and bureaucratic constraints were identified as the main contributory factor leading to overall burnout. **Conclusion:** Burnout among nurses providing medical services for children in Hospital USM is of concern especially involving personal burnout. The main stressor related factors of burnout were work placement and bureaucratic constraints. Therefore, burnout among nurses providing care for children must be addressed in order to enhance their psychological well-being.

**Keywords:** Burnout, Stressor, Nurses, Children, Pediatric

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## INTRODUCTION

Burnout is defined by the Merriam-Webster Dictionary as "exhaustion of physical or emotional strength or motivation as a result of prolonged stress or frustration" [1]. Burnout among health care providers has become one of the major issues nowadays. It is common but reversible and preventable.

Burnout and workplace pressure are the debated issues amongst health care professionals because the aforementioned issues often cause substantial risk to their health welfare [2] [3]. As medical care becomes more technical and patient care is getting more complex, the problem of burnout becomes increasingly more relevant to the physical and emotional well-being as well as the morale of the medical staff [4]. Paediatric health professionals imposes higher risk of experiencing

psychological distress due to the very nature of paediatric setting which involved emotional attachment as compared to other medical field [5].

Burnout can result in serious negative impact on a personal life, affecting both the quality of patient care and the health care organization. A systematic review and meta-analysis conducted in Iran by Rezaei et. al in 2018 showed that overall prevalence of burnout among Iranian nurses was 36% (95% CI = 20, 53) [6]. Locally, Huda B.Z. (2018) conducted a cross sectional study among 509 nurses working in Hospital Serdang showed that the proportion of burnout were 24% and 61.9% had personal burnout [7]. Another local data conducted in tertiary government hospital in Kelantan showed that burnout do exist among nurses but the level of burnout experience by the nurses are at low level [8].

Hospital USM is one of the main tertiary referring centres in the East Coast Malaysia, a teaching hospital with 747 beds and various specialities and subspecialties. Paediatric department provides multiple sub-specialty facilities with medical paediatric ward, surgical

paediatric ward, paediatric oncology ward, high dependency unit, neonatal intensive care unit, special care neonatal unit and outpatient clinics. Generally, each ward can accommodate 32 patients while neonatal unit are design to cater for 45 to 60 patients despite the gazetted bed of 35. The nurse to patient ratio for all wards are roughly 1 to 6 while ratio of 1 to 3 for intensive care unit. Although the quality of health service has been the foundation of ideal health framework, there are ample evidence to suggest that increasing quantity of care may exert a public health crisis.

There are limited local data on burnout among nurses specifically pediatrics nurses serving in Kelantan. Hence, the main objective of the study was to determine the prevalence of burnout and stressor related factors among nurses caring for children in Hospital USM. The specific objectives were to determine the correlation between burnout score and stressor domain score and to determine the association between sociodemographic and occupational related factors with overall burnout among nurses caring for children in Hospital USM.

Ultimately, the findings of this study would be a resourceful guide in the development of stress management intervention in improving the psychological wellbeing of nurses caring for children.

## **MATERIALS AND METHODS**

This was a cross-sectional study using validated questionnaires, the General Stressor Questionnaire (GSQ) and Copenhagen Burnout Inventory (CBI), conducted among nurses who provided medical service for children in Hospital USM particularly in several wards and clinic. All rank of nurses except matron working in pediatrics setting more than 6 months and consented to participate in the study were recruited. Meanwhile practical and nurses with psychiatric illness were excluded from the study. All 159 eligible nurses were recruited using universal sampling method to answer the questionnaires and 157 completed questionnaires were collected and analysed. Descriptive statistics were examined for all variables under this study. Spearman's correlation analysis was applied to study the correlation while simple logistic regression and multiple logistic regressions were applied to study the association.

After receiving institutional research ethics board approval, we performed a cross sectional study in Hospital USM, a tertiary care university hospital. Two sets of questionnaires were handed out to eligible nurses between July to August 2019. A total of 159 nurses had participated in the study and 157 had completed the questionnaires.

The sample size was calculated based on study conducted by Günüşen et al., 2018 with the prevalence of burnout among nurses were 40.6% [9]. With precision

of 9% and taking into account possibility of 10% drop out rate, the minimum sample size was 126.

Paper-based questionnaire were used in this study. The questionnaire composed of three components, which include sociodemographic proforma, open access Copenhagen Burnout Inventory (CBI) [10] and open access General Stressor Questionnaire (GSQ) [11].

Socio-demographic proforma consists of participant's information such as gender, age, marital status, number of children, partner status, education level, income level, religion, medical history, duration of services, duration of services in paediatric department, designation, place of service and job schedule.

Copenhagen Burnout Inventory (CBI) was used to quantify the burnout score. There were three main domains namely personal burnout, work-related burnout and client-related burnout with total of 19 questions. The questions were rated using 5-point-Likert scales range from zero (0) to four (4). There were 12 questions for section A and C and they were rated by the Likerts scale ranged from "Always (0)", "Often (1)", "Sometimes (2)", "Seldom (3)", "Never/Almost never (4)"; while there are 7 questions for section B and they were rated by the Likerts scale ranged from "To a very high degree (0)", "To a high degree (1)", "Somewhat (2)", "To a low degree (3)", "To a very low degree (4)". The Malay version of the questionnaire was validated by a study conducted by Chin et al. (2018) [12]. Reverse scoring was applied in positively worded item; four (4) for initial score zero (0), three (3) for initial score one (1), two (2) for initial score two (2), one (1) for initial score three (3) and zero (0) for initial score four (4). The higher the score was, indicated the higher the level of burnout and mean score of 2 and above represented significant burnout.

General Stressor Questionnaire (GSQ) was used to quantify the stressor score. There were seven domains, namely the family, poor relationship with superior, bureaucratic constraints, work-family conflicts, poor relationship with colleagues, performance pressure and poor job prospect, with a total of 28 questions. The questions were rated using 5-point-likert scales ranged from zero (0) to four (4). The Malay version of the questionnaire was validated by Yusoff & Esa (2011) [11]. High score indicated high level of stress, and can be categorized to four groups, which were none to mild stress (mean score of 0.00 to 1.00), mild to moderate stress (mean score of 1.01 to 2.00), moderate to high stress (mean score of 2.01 to 3.00) and high to severe stress (mean score of 3.01 to 4.00). The score of more than 2 is considered as significant stress.

## **Statistical Analysis**

Descriptive statistics were employed for sociodemographic variables in which the categorical

data were reported as frequencies and percentage while numerical data were reported as means and standard deviation. The data was analysed using the Statistical Package for the Social Science (SPSS) version 24 (SPSS, Inc, Chicago, IL).

Spearman's correlation analysis was applied to study the correlation between burnout score and stressor domain score. A p-value < 0.05 was considered statistically significant.

Simple logistic regression and multiple logistic regressions were applied to study the association between sociodemographic and occupational related factor with overall burnout. A level of significance of less than 0.05 (p-value < 0.05) was considered as statistically significant.

### Ethics

Ethical approval was obtained from the Human Research Ethics Committee (JEPeM-USM) Centre for Research Initiatives Clinical and Health, USM Health Campus, Kubang Kerian, 16150, Kota Bharu, Kelantan Darul Naim. Date of approval was on the 8th July 2019. Approval number was USM/JEPeM/19030214.

### RESULTS

There were 159 nurses who had received the questionnaire and only 157 (98.7%) of the participants had returned the questionnaire for data analysis; the other two participants had failed to complete their stressor questionnaire.

The participants were mainly aged 30 to 39 years old (47.1%) with mean age of 34.77 years old (SD = 7.46). Majority of the nurses were female (98.1%), married (85.4%), had 3 children (25.5%), lived together with partner (76.9%), had diploma (93.0%), had income between RM 3,001 and RM 5,000 (70.1%), Muslim (96.8%) and had no underlying disease (87.3%). Detail of sociodemographic of the nurses was as in Table I.

Majority of the participants had been in the service for more than 11 years (46.5%), had been in the paediatric department from 5 to 9 years (29.3%), were staff nurse (95.5%), working at NICU (36.9%) and work in shift (84.1%). Detail of services among the nurses was summarized in Table II.

The highest mean score of stressor among the nurses caring the children in Hospital USM was the performance pressure with a mean score of 2.24 (SD = 0.91), while the lowest mean score of stressor was due to poor job prospect with a mean score of 1.57 (SD = 0.97). Summary of stressor score among the nurses caring children in Hospital USM was as in Table II.

The prevalence of overall burnout was 28.7% (95% CI =

**Table I: Sociodemographic information of the participants (n = 157)**

Sociodemographic	n (%)	
Age	19 – 29 years old	47 (29.9)
	30 – 39 years old	74 (47.1)
	40 years old and above	36 (22.9)
Gender	Male	3 (1.9)
	Female	154 (98.1)
Marital Status	Single	20 (12.7)
	Married	134 (85.4)
	Divorce	2 (1.3)
	Deceased partner	1 (0.6)
No of Children	0 child	22 (16.1)
	1 child	24 (17.5)
	2 children	23 (16.8)
	3 children	35 (25.5)
	4 children	19 (13.9)
	5 children	9 (6.6)
	6 children	3 (2.2)
	7 children	1 (0.7)
	9 children	1 (0.7)
Stay with Partner	Living together	103 (76.9)
	Long distance relationship	31 (23.1)
Education Level	Diploma	146 (93.0)
	Degree	11 (7.0)
Household Income	RM 1,000 - RM 3,000	32 (20.4)
	RM 3,001 - RM 5,000	110 (70.1)
	RM 5,001 - RM 8,000	14 (8.9)
	> RM 8,000	1 (0.6)
Religion	Islam	152 (96.8)
	Buddhist	3 (1.9)
	Christian	2 (1.3)
Medical Illness	No known medical illness	137 (87.3)
	Present of underlying diseases	20 (12.7)

21.6, 35.7), in which the most common type of burnout among the participants was personal burnout (49.7%, 95% CI = 41.9, 57.5), followed by work-related burnout (36.3%, 95% CI = 28.8, 43.8) and client-related burnout (19.7%, 95% CI = 13.5, 26.0). The burnout prevalence was summarized in Table IV.

Burnout score for overall burnout had significant correlation with the stressor score for all stressor domains. However, they were either showed moderate positive correlation ( $0.3 < r < 0.5$ ) or weak positive correlation ( $r < 0.3$ ). The correlation between stressor score and burnout score was summarized in Table V.

Univariate analysis with simple logistic regression (LR) showed that place of services, family stressor, poor relationship with superior, bureaucratic constraint, work-family conflicts, poor relationship with colleague and performance pressure had significant association with overall burnout. The detail of univariable analysis of factors associated with overall burnout was summarized in Table VI.

Variables with p-value less than 0.25 were selected and tested to get the preliminary main effect model. Model selection was done by comparing both forward LR selection and backward LR selection. Variables that

**Table II: Services information of the participants (n = 157)**

Services	n (%)	Median(IQR)	Mean (SD)
Duration of Services (Year)	< 1 year	3 (1.9)	
	1 – 5 years	33 (21.0)	
	6 – 10 years	48 (30.6)	10.0 (10.0)
	11 years and above	73 (46.5)	
Duration in Paediatric Department (Years)	< 5 years	35 (22.3)	
	5 – 9 years	46 (29.3)	
	10 – 15 years	43 (27.4)	9.0 (8.5)
	> 15 years	33 (21.0)	
Position	Staff Nurse	150 (95.5)	
	Sister	7 (4.5)	
Placement	Medical Paediatric Ward	25 (15.9)	
	Surgical Paediatric Ward	21 (13.4)	
	Paediatric Oncology Ward	16 (10.2)	
	High Dependency Unit (HDU)	10 (6.4)	
	Neonatal Intensive Care Unit (NICU)	58 (36.9)	
	Clinic	8 (5.1)	
Work Schedule	Office Hour	25 (15.9)	
	Shift	132 (84.1)	

**Table III: The mean score of stressor in participants (n = 157)**

Stressor Domain	Mean (SD)
Family Stressor	1.64 (1.00)
Poor Relationship with Superior	1.86 (1.05)
Bureaucratic Constraints	1.68 (0.87)
Work-Family Conflicts	1.67 (0.98)
Poor Relationship with Colleagues	1.72 (0.94)
Performance Pressure	2.24 (0.91)
Poor Job Prospect	1.57 (0.97)

do not have significant p-value were removed, and remaining variables were tested for multicollinearity and interaction. There were no multicollinearity nor interaction found in the preliminary main effect model. Variables included in the final model were place of services, family stressor and bureaucratic constraints stressor. Multiple logistic regression analysis showed that when adjusted to place of service, family stressor and bureaucratic constraints stressor, only factor of place of services and bureaucratic constraints stressor were more significantly associated with overall burnout among nurses caring for children in Hospital USM as compared to family stressor as showed in Table VII. As compared to those working in Paediatric Oncology Ward, the odd ratio of overall burnout for those working in NICU was 13.28 times higher (95% CI = 1.56, 113.24,

**Table IV: Prevalence of burnout among participants (n = 157)**

Type of Burnout	Burnout Score, mean (SD)	Number of Participants with Burnout, n	Prevalence, % (95% CI)
Personal Burnout			
Yes <sup>a</sup>	2.58 (0.49)	78	49.7 (41.9, 57.5)
No <sup>b</sup>	1.31 (0.33)	79	50.3 (42.5, 58.1)
Work-related Burnout			
Yes <sup>a</sup>	2.54 (0.50)	57	36.3 (28.8, 43.8)
No <sup>b</sup>	1.18 (0.40)	100	63.7 (56.2, 71.2)
Client-related Burnout			
Yes <sup>a</sup>	2.44 (0.32)	31	19.7 (13.5, 26.0)
No <sup>b</sup>	0.99 (0.47)	126	80.3 (74.0, 86.5)
Overall Burnout			
Yes <sup>a</sup>	2.44 (0.36)	45	28.7 (21.6, 35.7)
No <sup>b</sup>	1.31 (0.37)	112	71.3 (64.3, 78.4)

<sup>a</sup>Yes: If mean score burnout ≥ 2.0

<sup>b</sup>No: If mean score burnout < 2.0

**Table V: Correlation between burnout score with stressor score (n = 157)**

Type of Burnout	Burnout Score, mean (SD)	Stressor Domain	Stressor Score, mean (SD)	r*	p-value
Overall Burnout	1.64 (0.63)	Family	1.64 (1.00)	0.289	< 0.001
		Poor Relationship with Superior	1.86 (1.05)	<b>0.365</b>	< 0.001
		Bureaucratic Constraints	1.68 (0.87)	<b>0.418</b>	< 0.001
		Work-Family Conflicts	1.67 (0.98)	<b>0.428</b>	< 0.001
		Poor Relationship with Colleagues	1.72 (0.94)	<b>0.328</b>	< 0.001
		Performance Pressure	2.24 (0.91)	<b>0.485</b>	< 0.001
		Poor Job Prospect	1.57 (0.97)	<b>0.375</b>	< 0.001

\*Pearson Correlation Coefficient

**Table VI: Factors associated with overall burnout (n = 157)**

Variable	n	Crude $\beta$	Crude OR (95% CI)	p-value		
Age	19 – 29 years old	47	0	1	0.175	
	30 – 39 years old	74	0.57	1.77 (0.78, 4.05)		
	40 years old and above	36	- 0.07	0.94 (0.33, 2.64)		0.899
Gender	Male	3	0	1	0.857	
	Female	154	- 0.22	0.80 (0.07, 9.05)		
Marital	Married	134	0	1	0.484	
	Other	23	0.34	1.40 (0.55, 3.57)		
No of Children	0 child	22	0	1	0.206	
	1 - 2 children	47	0.75	2.11 (0.66, 6.72)		
	3 - 4 children	54	0.17	1.19 (0.37, 3.83)		0.770
	5 children and more	34	0.05	1.05 (0.29, 3.74)		0.945
Stay with Partner	Living together	103	0	1	0.840	
	Long distant relationship	31	0.09	1.10 (0.45, 2.67)		
Education Level	Diploma	146	0	1	0.929	
	Degree	11	- 0.07	0.93 (0.24, 3.67)		
Income	RM 1,000 - RM 3,000	32	0	1	0.243	
	RM 3,001 - RM 5,000	110	0.55	1.74 (0.69, 4.40)		
	> RM 5,000	15	- 0.60	0.55 (0.10, 3.03)		0.492
Religion	Islam	152	0	1	0.142	
	Other	5	1.37	3.93 (0.63, 24.35)		
Medical Illness	No known medical illness	137	0	1	0.887	
	Present of underlying diseases	20	0.07	1.08 (0.39, 3.00)		
Duration of Services	< 5 years	36	0	1	0.410	
	6 – 10 years	48	0.41	1.50 (0.57, 3.93)		
	11 years and above	73	0.12	1.13 (0.45, 2.82)		0.790
Duration in Paediatric Department	5 – 9 years	46	- 0.22	0.80 (0.29, 2.25)	0.676	
	10 – 15 years	43	0.83	2.29 (0.87, 6.02)		
	> 15 years	33	- 0.25	0.78 (0.25, 2.40)		0.662
Position	Staff Nurse	150	0	1	0.996	
	Sister	7	- 0.01	0.99 (0.98, 5.33)		
Placement	Paediatric Oncology Ward	16	0	1	0.608	
	Clinic	8	0.76	2.14 (0.12, 39.47)		
	SCN	19	1.03	2.81 (0.26, 30.09)		0.393
	HDU	10	1.32	3.75 (0.29, 47.99)		0.310
	Medical Paediatric Ward	25	1.76	5.83 (0.64, 52.88)		0.117
	NICU	58	2.14	8.51 (1.05, 69.10)		<b>0.045</b>
Work Schedule	Office hour	25	0	1	0.301	
	Shift	132	0.55	1.74 (0.61, 4.96)		
Family Stressor	No significant stressor	90	0	1	<b>0.006</b>	
	Significant stressor	67	0.99	2.70 (1.33, 5.50)		
Poor Relationship with Superior	No significant stressor	73	0	1	<b>0.006</b>	
	Significant stressor	84	1.04	2.84 (1.35, 5.98)		
Bureaucratic Constraints	No significant stressor	78	0	1	<b>&lt; 0.001</b>	
	Significant stressor	79	1.37	3.95 (1.84, 8.44)		
Work-Family Conflicts	No significant stressor	83	0	1	<b>0.002</b>	
	Significant stressor	74	1.13	3.09 (1.50, 6.40)		
Poor Relationship with Colleagues	No significant stressor	77	0	1	<b>0.014</b>	
	Significant stressor	80	0.91	2.48 (1.20, 5.11)		
Performance Pressure	No significant stressor	46	0	1	0.048	
	Significant stressor	111	0.87	2.38 (1.01, 5.60)		
Poor Job Prospect	No significant stressor	89	0	1	0.213	
	Significant stressor	68	0.44	1.56 (0.78, 3.12)		

\* Simple logistic regression

p = 0.018) and Surgical Paediatric Ward was 22.18 times higher (95% CI: 2.28, 215.84, p = 0.008), when adjusted to family stressor and bureaucratic constraints stressor. As compared to those with no significant bureaucratic constraints stressor, the odd ratio of being overall burnout for those with significant bureaucratic constraints stressor was 3.13 times higher (95% CI: 1.29, 7.63, p = 0.012) when adjusted to place of services and

family stressor.

## DISCUSSION

We found out that the prevalence of burnout among nurses caring for children in Hospital USM was 28.7% (95% CI = 21.6, 35.7) with the majority of them experiencing personal burnout (49.7%, 95% CI = 41.9,

**Table VII: Factors associated with overall burnout among participants (n = 157)**

Variables	Simple Logistic Regression			Multiple Logistic Regression			
	Crude $\beta$	Crude OR (95% CI)	p-value	Adj. $\beta$	Adj. OR (95% CI)	p-value	
Placement	Pediatric Oncology Ward	0	1	0	1		
	Clinic	0.76	2.14 (0.12, 39.47)	0.608	0.88	2.41 (0.12, 47.70)	0.563
	SCN	1.03	2.81 (0.26, 30.09)	0.393	1.39	4.02 (0.36, 45.41)	0.261
	HDU	1.32	3.75 (0.29, 47.99)	0.310	1.55	4.71 (0.34, 64.55)	0.246
	Medical Paediatric Ward	1.76	5.83 (0.64, 52.88)	0.117	2.21	9.08 (0.94, 87.34)	0.056
	NICU	2.14	8.51 (1.05, 69.10)	<b>0.045</b>	2.59	13.28 (1.56, 113.24)	<b>0.018</b>
	Surgical Paediatric Ward	2.61	13.64 (1.51, 122.81)	<b>0.020</b>	3.10	22.18 (2.28, 215.84)	<b>0.008</b>
Family Stressor	No significant stressor	0	1	0	1		
	Significant stressor	0.94	2.56 (1.26, 5.21)	<b>0.009</b>	0.79	2.21 (0.92, 5.33)	0.077
Bureaucratic constraints	No significant stressor	0	1	0	1		
	Significant stressor	1.36	3.89 (1.82, 8.32)	<b>&lt; 0.001</b>	1.14	3.13 (1.29, 7.63)	<b>0.012</b>

\* Multiple logistic regression  
 Constant = - 4.13  
 No Multicollinearity, No Interaction  
 Cox & Snell R<sup>2</sup> = 0.183, Nagelkerke R<sup>2</sup> = 0.262  
 Hosmer Lemeshow Test, p = 0.867  
 Overall Percentage 75.2% correctly classify  
 Area under ROC = 76.8% (95% CI = 69.0%, 84.6%)

57.5), followed by work-related burnout (36.3%, 95% CI = 28.8, 43.8) and client-related burnout (19.7%, 95% CI = 13.5, 26.0). There were significant differences between the stressor domain score and overall burnout score with p-value <0.05. Work placement and bureaucratic constraints were identified as the main contributory factor leading to overall burnout.

The prevalence of burnout in our study was similar to a study conducted among 239 registered paediatric nurses in Louisville, United State of America in 2014 which reported that 29% had high burnout and 27% had high secondary traumatic stress [13]. However, the prevalence was relatively higher compared to a study conducted locally by Huda (2018), whereby the proportion of nurses with burnout was 24% [7]. The possible reason for the differences in prevalence could be due to the larger sample size in her study and the study was conducted in a tertiary hospital involving various departments with different job scope as compared to this study which concentrated on a single centre and specific category of patients.

On the other hand, this study revealed that the prevalence of burnout was relatively low compared to Iranian nurses which was 36% [6]. The differences probably contributed by different population and working environment as the socio-cultural background of Malaysian healthcare workers varies widely from the other country.

Among all the three subdomains of burnout, personal burnout was found to be the highest rank with a score of 49.7%. The result was in congruence with the study conducted by Bagaajav et al (2011) (2). They reported that 45.39% of Mongolian doctors and nurses experienced personal burnout. In contrast to our study, a study conducted among female nurses working in government hospitals in India found that 27.2% of them suffered from personal burnout [14]. The differences

in sample size might contribute to the relatively higher prevalence of personal burnout in our study. In addition, personal burnout also depends on other personal related issues particularly experienced at home such as marital conflicts, loved ones health issue as well as financial difficulties [15].

Work-related burnout was found to be in the second rank with a score of 36.3% and client-related burnout was the lowest rank with a score of 19.7%. The client-related burnout was the lowest likely due to the fact that working with children, although difficult and required more patients and social skills [16], it was rewarding to see them growing up healthy after treatment. In addition, parents were around to assist in caring for children during hospital stay except for intensive care unit, hence indirectly reducing the stress related to client handling. Apart from that, most of the tasks carried out by the nurses were as per order by the doctor in charge rather than need their own judgement, therefore ease their work in handling patient care.

The overall burnout among nurses caring for children in Hospital USM was significantly correlated to all stressor domain with p value <0.05. The highest mean score of stressor among the nurses caring children in Hospital USM was performance pressure, while the lowest mean score of stressor was poor job prospect. After further analysis using multiple logistic regression, only bureaucratic constraints were identified to be the main contributory factor leading to burnout. This could be explained by the fact that nurses were mainly operating at the middle management rank. They had limited authority and responsibility in patient care and treatment management. Occasionally, they had restricted capacity and power in the decision making. Some of the nurses had to undergo rotation and work in different department due to lack of staff as well as following hospital policy. In addition, their schedules or roster was quite rigid where taking medical leave or annual leave might be difficult

due to lack of staff. Despite acquiring skills in a certain area, they were unable to optimally apply their skills and potential. Hence, from this study we could propose potential programs to encourage nurses to understand wider spectrum of their roles and responsibilities in administrative work as well, besides their clinical tasks [8]. They would have the opportunity to actively engage themselves with patients, higher authority and other colleagues at their work place and subsequently boosted their interest and confidence level while caring for their patients (16). The hospital should look at this matter seriously and necessary measures should be constructed toward enhancing the well-being of their staff.

In this study, it was found that burnout had no significant association with sociodemographic characteristics as compared to previous studies that linked age, gender, marital status and nursing experience with burnout [17] [18]. However, this study revealed that occupational related factor particularly work placement was significantly associated with overall burnout, whereby nurses working in the paediatric surgical ward and NICU were experiencing higher burnout level. This finding was consistent with studies conducted in Jordan which showed that work place has a pertinent influence on the level of burnout experienced. This study using Maslach Burnout Inventory questionnaire reported that intensive care unit nurses and medical/surgical nurses exhibited a significantly high level of both emotional exhaustion and depersonalization. Such a situation might be associated with a high workload, continual interactions with patients who were suffering from more debilitating illness, and the need to cope with advanced technology [17]. The results were also similar to a study conducted locally in Hospital Serdang. They reported that there was a statistically significant association between working area and burnout whereby nurses working in surgical based area showed higher prevalence of burnout [7]. The NICU staff, apart from a high number of medical patients load by managing premature and term babies, they also need to cater for other various discipline mainly general surgery, cardiac and neurosurgery pre and post-operative care. In addition, they also involved in many procedures like wound dressing, suctioning, feeding and setting up ventilators. Similarly, surgical nurses also involved in many procedural work like wound care, handling pre and post operation care and many more. They were also required to assist in specific subspecialty bedside procedures like cerebral spinal fluid sampling, incision and drainage under local analgesia and manual reduction of fracture.

Burnout nurses would not be able to provide the best care for patients and thus affect the productivity and quality of their work. If this situation was left unmanaged, the negative effects of burnout would spill over into every area of life and eventually, burnout might result in depression, anxiety, and physical problems among them.

This study had several limitations. Firstly, it was a cross sectional study performed at a single centre, thus limiting the establishment of causality of stressors with the outcome of burnout. Secondly, the nurses could have randomly answered to the questionnaires or misunderstood questions asked in the self-report measures used in this study.

This study proposed that intervention programs should be introduced to tackle potential conflicts and addressed the unrecognized threats that arose due to the various stressful factors leading to burnout. By recognizing the significance of burnout among nurses, the findings would be a resourceful guide in the development of stress management intervention. Nurses need to regain their balance, feel positive and hopeful again. Improving the wellbeing of nurses would improve the quality of medical services and therefore, benefiting the patients and community indirectly.

## CONCLUSION

This study has successfully identified the burnout and stressor related factors among nurses caring for children in Hospital USM. Burnout among nurses providing medical services for children in Hospital USM are of concern especially involving personal burnout. The main stressor related factors of burnout identified from the study were work placement and bureaucratic constraints.

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