

Intensive Care Unit Nurses' Perceptions of the Necessity for ICU Outreach Services in Malaysia

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ABSTRACT

Objective: International studies show that ICU outreach services help to improve patients' condition and reduce both the length of hospital stays and mortality rates. However, Malaysian nurses' perceptions of ICU outreach services and their implementation have previously remained uninvestigated. This study thus aims to uncover Malaysian nurses' perceptions of implementing Intensive Care Unit (ICU) outreach services. **Method:** An exploratory mixed method was used, focusing on 47 Malaysian hospital ICU nurses, using surveys and interviews over a 2-month period in 2015. All those who met the inclusion criteria were purposively recruited into the study. **Results:** A total of 47 respondents completed the questionnaires. The mean years of employment was 9.72 and mean age was 33.6 years. Only seven respondents had undertaken an intensive care course and had knowledge of ICU outreach services. Years of employment and highest education level were not significantly related to awareness of ICU outreach services. Major themes emerging from the interviews included ICU outreach service benefits, ICU readmission events, and nurses' readiness for ICU outreach services. Interview data supported the survey results consistently. **Conclusion:** Nurses are aware of the advantages of ICU outreach services for both nurses and patients, despite the fact that there is no official implementation of such services in Malaysia. Their appreciation of the importance of ICU outreach services, and enthusiasm to participate in a new program to improve ICU survivors' condition and care in general wards, indicates the potential for better care in the future.

INTRODUCTION

Over the last seven years, Malaysia's Ministry of Health (MOH) hospitals' ICU admission and readmission rate has increased by 81%, a commonly-used care indicator that may reflect premature ICU discharge or substandard ward care (1). A study of Malaysian ICU nurses' views of ICU survivors' transition experiences found that high acuity patients often deteriorated due to lack of observation and general ward nurses' inadequate knowledge and skills, resulting in death or readmission to the ICU (2). Similarly, Chapman and Blackman (3) found that lack of skills on general wards for working with ICU survivors could further exacerbate patients' conditions. Intensive care expertise involving nurses outside the ICU can help compensate for this skill deficit, however, and studies have shown that such services help improve patient outcomes and reduce mortality rates (4, 5).

ICU outreach services were first started in Australia, using the medical emergency team (MET) model; this was followed by their adoption in England (6-8). Nurses in these services became leaders with a variety of roles, with the overall aim being to help identify and prevent physiological deterioration; evidence shows that patients in these programmes progress to discharge from hospital more effectively (9-11).

The ICU outreach service is a multidisciplinary approach to the identification and management of seriously ill patients on hospital wards outside of critical care areas (10). One study recommended that, while ICU outreach teams should be created in all critical care units, successful implementation would only be achieved by adopting "a hospital-wide approach with services which extend beyond the physical boundaries of the intensive care units" (12).

More effective discharge planning can be provided through utilising experienced outreach nurses to prevent premature hospital discharge, decreasing the length of stay in hospital, and reducing the incidence of readmission to both hospital and the ICU (13, 14). The service also supports nurses in general wards, as the service provides additional resources (15). Despite evidence in the literature, however, very little information has been found on ICU outreach services or on nurses' perceptions in the Malaysian context. The current study thus aimed to explore ICU nurses' perceptions of ICU outreach services in a Malaysian setting.

MATERIALS AND METHODS

An exploratory mixed method study approach was used. The study population consisted of ICU RNs in the general ICU of a tertiary hospital. The respondents were recruited using purposive sampling after meeting the inclusion criteria (RN with not less than 6 months working experience, working on a full-time basis, and not on long leave). A self-administered questionnaire consisting of two parts was used: Part 1 ascertained respondents' demographic profiles, and Part 2 consisted of 13 items on ICU outreach service perceptions (5-level Likert-scale questions ranging from 1 (strongly disagree) to 5 (strongly agree)).

The questionnaire was sent for content validity testing, followed by pre-testing on 10 nurses with ICU experience. Reliability testing was done and produced a Cronbach's alpha of 0.974. Qualitative data was collected via interviews that were guided

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by a list of semi-structured questions. Data collection was conducted over a two-month period in the ICU of the selected hospital, following approval from the University and Malaysian Ministry of Health Medical Ethics Committee. Participation was voluntary, and participant confidentiality was assured to ensure that the study adhered to the International Compilation of Human Behavioural Research Standards. Quantitative data was analysed using IBM SPSS Version 18.0 and qualitative data was analysed using thematic analysis based on Braun and Clarke's strategy (16).

RESULTS

Respondents' Demographic Profiles

A total of 47 nurses participated in the survey, four of whom also volunteered to be interviewed. Respondents' mean age was 33.6 years (SD=5.2). The mean for years of nursing employment was 9.72 (SD=4.8). Levels of nursing education qualifications varied from diplomas to bachelor degrees. Out of the 47 nurses, the highest level of education for most was diplomas (N=37, 78.7%), while about a fifth have Bachelor Degrees (N=10, 21.3%). Only minimal number of them had undergone a Post Basic Intensive Care Nursing course (N=7, 14.9%). The majority (n=40, 85.1%) had not been taught about ICU outreach services during their college or university education. However, those with post-basic education had been taught about ICU outreach services (Table 1).

Nurses' Perceptions of ICU Outreach Services

Table 2 details nurses' perceptions of ICU outreach services, clearly showing some commonality in relation to the services' main roles. Two-thirds of respondents (66%) agreed that ICU outreach services are responsible for attending to medical emergency calls for care of patients discharged from the ICU (Table 2, item 1). When asked about the importance of the service in providing guidance to personnel in general wards, 76.6% agreed it was important, and 12.8% strongly agreed, whilst 6.4% were uncertain (Table 2, item 4). More than 80% agreed or strongly agreed that the services have a level of autonomy that allows for professional discretion, and that they improve the quality of care after patient discharge from the ICU (Table 2, items 5 & 7). More than 70% were uncertain and only one respondent strongly agreed that ICU outreach services are involved in assisting with the transfer of patients between the ICU and general wards.

Although 72.3% of respondents agreed with ICU outreach services providing follow up procedures in general wards after patients have been discharged from the ICU, 10.7% disagreed or strongly disagreed with this role (Table 2, item 8). Most respondents agreed (70.2%) or strongly agreed (4.3%) that ICU outreach services provide clinical support to nurses in general wards (Table 2). More than 80% agreed or strongly agreed that such services would improve communication between staff in the ICU and the wards (Table 2, item 9). There was more uncertainty (27.7%) with regard to ICU outreach services reducing workload and supporting nurses in both wards and ICUs, though 59.6% agreed with this statement. Respondents generally agreed (76.6%) or strongly agreed (8.5%) when asked whether ICU outreach services would be another resource for graduates if sufficient senior ward staff were not available. Nearly 64% agreed and 12.8% strongly agreed that ICU outreach services should be considered for implementation in Malaysia. Only

6.4% strongly disagreed (Table 2). The mean score for respondents was 48.2 (SD 8.5).

Relationship between Years of Employment and Perceptions of ICU Outreach Services in Malaysia

The findings showed that there was a relationship between years of employment and perceptions about ICU outreach services in Malaysia. A bivariate correlation test applied between years of employment and nurses' perceptions of ICU outreach services in Malaysia showed a relationship with a weak negative magnitude between the two, but it was not statistically significant ($\rho = -.145$, $p > 0.05$) (Table 3).

Relationship between Nurses' Highest Education Level and their Perceptions of ICU Outreach Services in Malaysia

Mann-Whitney U testing revealed no significant differences between respondents' highest education level and their perceptions of ICU outreach services in Malaysia (Table 4).

Concepts emerging from Interview Analysis

Four respondents were interviewed, and three main themes, each with several sub-themes, emerged from an analysis of the interview data. These were Benefits of ICU outreach services; Readmission event - general ward to ICU; and Provision of ICU outreach services.

Benefits of ICU outreach services

ICU outreach services were perceived as having a wide range of benefits for critically ill patients and staff nurses, with a key perception being that ICU outreach services improve the quality of patient care and skills of nursing staff.

Educating and providing guidance on skills to ward staff

Participants stated that the main benefit of ICU outreach services was providing support and education to general ward staff in the skills necessary to care for critically ill patients: "When ICU nurses help to educate general ward staff, it will help to improve ward staff knowledge regarding critical care ICU." (Participant 1)

"The ICU nurses can monitor the patients and at the same time teach the staff nurse in charge on how to care for patients with ETT and ventilator." (Participant 2)

Preparing family members for discharge

Families were considered to be anyone close to the hospitalised patient who would assist in their care at home. ICU nurses considered family education an important role for ICU outreach services: "Family member do not understand and some cases family members afraid to do suctioning. ... When we have this team, family members more confidence on what we did." (Participant 4)

Patient outcomes

Skilled ICU nurses closely monitor patients in the ICU before transferring them to general wards, but some patients with a poor prognosis are nevertheless transferred to general wards, which concerned the interviewees: "Even though patient have poor prognosis, he [sic] has right for good treatment and good nursing

Table 1: Respondents' demographic profiles (N=47)

Demographic profiles	Frequency (%)	Mean (+/- SD)
Age	-	33.6 (5.2)
Years of Employment	-	9.72 (4.8)
Highest nursing education level		
Certificate	0 (0)	
Diploma	37 (78.7)	
Degree	10 (21.3)	
Post Basic- Intensive Care Nursing	7 (14.9)	
ICU outreach service taught in formal nursing education		
Yes (Post Basic Course-ICU)	7 (14.9)	
No	40 (85.1)	

Table 2: Nurses' Perception Scores for ICU Outreach Services (N=47)

No	Items	SD (n (%))	D (n (%))	U (n (%))	A (n (%))	S (n (%))
1	ICU Outreach Service is responsible for medical emergency calls of patient discharged from ICU.	2 (4.3)	4 (8.5)	10 (21.3)	31 (66.0)	0 (0)
2	ICU Outreach Service provides clinical support to nurses in general wards.	2 (4.3)	3(6.4)	7 (14.9)	33(70.2)	2 (4.3)
3	ICU Outreach Service is also involved in assisting with the transfers of patients between ICUs to general wards.	2 (4.3)	11 (23.4)	33(70.2)	0 (0)	1 (2.1)
4	ICU Outreach Service provides guidance to staff and personnel in general wards	1 (2.1)	1 (2.1)	3 (6.4)	36 (76.6)	6 (12.8)
5	ICU Outreach Service should have a certain level of autonomy that allows for professional discretion.	1 (2.1)	1 (2.1)	7 (14.9)	36 (76.6)	2 (4.3)
6	The presence of ICU Outreach Service will decrease patient mortality and morbidity.	2 (4.3)	2 (4.3)	12 (25.5)	31 (66.0)	0 (0)
7	ICU Outreach Service will improve the quality of care after patient discharged from the ICUs to the general wards.	2 (4.3)	0 (0)	3 (6.4)	36 (76.6)	6 (12.8)
8	ICU Outreach Service will do follow up procedures for patients	3 (6.4)	2 (4.3)	6(12.8)	34 (72.3)	2 (4.3)
9	ICU Outreach Service will improve communication between ICU and ward staff.	3 (6.4)	2 (4.3)	4 (8.5)	35 (74.5)	3 (6.4)
10	ICU Outreach Service reduces workload and support nurses in the wards and ICUs.	3 (6.4)	1 (2.1)	13 (27.7)	28 (59.6)	2(4.3)
11	ICU Outreach Service will be another resource person for graduates if there is not enough senior staff around.	3 (6.4)	0 (0)	4 (8.5)	36 (76.6)	4 (8.5)
12	The main aim of ICU Outreach Service is to improve patients' quality of care after discharge from ICU.	3 (6.4)	1 (2.1)	5 (10.6)	34 (72.3)	4 (8.5)
13	ICU Outreach Service should be considered to be implemented in this hospital.	3 (6.4)	1 (2.1)	7 (14.9)	30 (63.8)	6 (12.8)

Legend*****Strongly disagree (1), Disagree (D), Uncertain (U), Agree (A), Strongly Agree (SA)

Table 3: Relationship between Years of Employment and Nurses' Perceptions about ICU Outreach Services in Malaysia

		Nurses' Perception on ICU outreach	Employment (Years)
Spearman's rho	Nurses' Perception on ICU outreach	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
		N	47
	Employment (Years)	Correlation Coefficient	-.145
		Sig. (2-tailed)	.332
		N	47

Table 4: Distribution of Nurses' Highest Education Level and Nurses' Perceptions About ICU Outreach Services in Malaysia

	Highest Education Level	N	Median (IQR)	Z Statistic	P Value
Nurses' Perceptions of ICU outreach	Diploma	37	51.00 (4.00)	-0.118	0.906
	Degree	10	50.00(3.50)		

care.” (Participant 1)

Readmission events: General wards to ICU

Readmission of patients from general wards back to the ICU occurs for various reasons. Participants articulated their experiences that it is common to have readmissions to the ICU from general wards:

“It is common case, especially Chronic Kidney disease (CKD). Patient’s behaviour not controls fluid intake and readmission again after 2 days at ward with intubation in ICU.” (Participant 1)

“A lot too. Average one patient readmits for 3 months due to recurrent diseases.” (Participant 2)

Heavy workload

Interviewees expressed the opinion that workload burden affects ward nurses’ patient care performance:

“In ICU, nurse observes one patient (more time) compare ward 1 nurse with 10 patients and perhaps miss looking and no experience to do suction.” (Participant 2)

“Workload in ward, more in physical burden which is one nurse to care two cubicles. (Participant 4)

Lack of knowledge and skills in acute care

The interviewees stressed that knowledge and experience go together to enhance nurses’ competency and skills and improve the quality of patient care:

“... and perhaps miss looked and no experience to do certain ICU procedure like ETT suction. (Participant 2)

Inadequate equipment

Access to necessary equipment is essential when treating critically ill patients but the interviewees explained that often it is not permissible to have such equipment in general wards:

“But mostly in ward, equipment is inadequate. If suctioning procedure ... quite difficult compare in ICU. So, I felt that patients did not get fully observation.” (Participant 1)

“Equipment is complete in ICU as compared ward need modify equipment and limited space.” (Participant 4)

Provision of ICU Outreach Services

Knowledge about ICU outreach services

Knowledge about, or exposure to, ICU outreach services was rare among interviewees, as demonstrated by the following comments:

“Never heard about outreach service” (Participant 1)

“Never. But we do have stoma nurse. After patient discharged home, some staff nurse may visit patients that uses CBD or Ryle’s tube.” (Participant 2)

“Never. But I had experienced for blood donation program.” (Participant 3)

“So far, no. Even during my studies in USM or now.” (Participant 4)

Optimistic to implement the service

The researcher found that interviewees were mostly

“very optimistic” to have ICU outreach services implemented in Malaysia, although there were some reservations:

“I agree because to share the knowledge and the ward’s nurses become more understanding.” (Participant 3)

“If this service is available and need me to become the volunteer, I will. This is good approach to know other’s environment and learn new things. I am strongly agreed with that.” (Participant 4)

In summary, the analysis of both quantitative and qualitative data shows that nurses support the idea of Critical Care outreach services being implemented.

DISCUSSION

The quantitative data showed no differences between diploma or degree level-educated ICU nurses’ perceptions about ICU outreach services, and the qualitative data indicated that both have good and bad perceptions of it. However, nurses with 3 years or so of nursing experience were more knowledgeable about the services than nurses with 10 years of nursing experience. This may be because some older ICU nurses have not had exposure to ICU outreach services in either Malaysia or Western countries. Nevertheless, they realise the importance of these services and are generally willing to be involved in them for the purpose of improving patient care after discharge from the ICU to general wards.

Attempts to compare the results of this study with previous studies were difficult because of the limited number of studies exploring ICU nurses’ perceptions of ICU outreach services, especially those using mixed methods research in Malaysia. However, a few tangentially related studies have produced results similar to this study’s participants’ views about the role of ICU outreach services in assisting in the transfer of patients and guidance to staff in general wards: Green and Edmond (17), for example, observed that the role of the ICU liaison nurse was designed to facilitate the transition from the ICU to general wards for patients and their families, and to act as a resource for junior medical staff and ward-based nurses while they provided care for patients who continued to have complex needs.

This emphasis on the benefits of ICU outreach services in terms of support for general ward staff and better patient outcomes is in line with earlier research by Linton et al (18) who argued that greater support for ward nurses can reduce rates of readmission to the ICU, and that length of stay is associated with readmission and underlying illness. Therefore, it is not surprising that those who require longer stays in the ICU are at greatest risk of readmission. The findings are also consistent with the Operational Standards and Competencies for Critical Care Outreach Services (7) finding that stresses one of the great successes of the Critical Care Outreach Teams (CCOT) in the United Kingdom being their benefits in terms of providing effective leadership and support for critical care teams. Nonetheless, the clinical effectiveness of a Critical Care Nursing Outreach service can be inconsistent. Despite the fact that other studies have shown beneficial outcomes in Australia and the United Kingdom, William et al (19) found no improvement in length of stay after admission to the intensive care unit, readmission rate, or hospital mortality before and after a critical care nursing outreach service was implemented.

The ICU nurses in this study agreed that skill and experience are needed to prioritise clinical care in order to provide quality care to patients, but that these qualities were often lacking among nurses from general wards. This corresponds with Elliot and colleagues (20), who concluded that nurses from general wards did not have the knowledge or skills required to care for acutely ill patients. In the current Malaysian study, this was perceived to be a particular problem among new graduate nurses.

The finding that 30 of the 47 participating ICU nurses highlights the importance of the idea of implementing ICU outreach services in Malaysia. The argument for implementation is strengthened by the lack of any significant correlation between the participants' perceptions and highest education level or years of nursing employment, indicating that, regardless of these variables, ICU nurses perceive a definite need for services to assist in the successful transition of patients from the ICU to general wards, incorporating more support for general ward nurses and ICU nurses alike.

CONCLUSION

In Malaysia, the ICU outreach service is a new programme that has not been officially implemented. However, ICU nurses participating in this study favour its implementation. Analysis of the quantitative data found no statistically significant relationship between years of nursing employment or highest education level and perceptions of ICU Outreach Service.

Implementing this new programme will present institution-specific challenges such as inadequate workforces and financial and time management issues. It is recommended that ICU outreach services organise specific training sessions for general ward nurses or ICU nurses to reflect on their role in improving the quality of patient care after discharge from the ICU to general wards, and to improve their skills in educating patients' family members. Nursing students should also be taught about ICU outreach services as part of their nursing curriculum. Further research is recommended into the specific needs of Indonesian ICU outreach services.

LIMITATIONS

The restriction of the study to a single setting and the small number of participants preclude generalisation of these results. Despite pre-testing for validity and reliability prior to data collection to avoid bias, the absence of a previously validated tool necessitated use of a modified and adapted questionnaire. Interview sessions were also carried out after participants had endured long, busy shifts, which may have influenced their responses.

ACKNOWLEDGEMENTS

The author thanks all participants for their contributions to this study. Also like to thanks IIUM, and most importantly the Minister of Education, for the flood management grant (FRGS 2015: ID 15-170-0411) that enabled the conduction of this projects.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare with regard to this work.

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