

Health Condition of Patients with Subarachnoid Hemorrhage (Aneurysmal) After Quality Nursing Care

Marubelle A. Rosales-Napa, RN ¹

1 – Universidad de Sta. Isabel de Naga, Inc.

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Abstract

The study conducted in this research focuses on assessing the health condition of patients with aneurysmal subarachnoid hemorrhage after receiving quality care in the intensive care units of selected government and non-government hospitals in Naga City.

A descriptive-evaluative method of research was employed using questionnaires & neuro-prognostication tools. Quantitative data gathered and tabulated were analyzed and interpreted through frequency, percentages, mean, and one-way Anova, which differentiates among aspects of competencies between groups of hospitals. Findings were organized into categories during the discussion phase.

Findings demonstrates that the skill level of intensive care unit staff nurses has significantly impact on the quality of care management provided to patients with subarachnoid hemorrhage during their hospital stay. The level of competencies of ICU nurses was gauged according to a) Implementation of Nursing

Intervention, b) Initialization of Collaboration, c) Exercising precise decision making, and d) Facilitating Principles of Nursing Care. The competencies of the groups of nurses from various hospitals do not differ significantly from one another.

An Intensive Care Unit (ICU) neuro-prognostication program health intervention plan was developed and implemented in response to the findings. After patient care in the ICU, the competencies of ICU staff nurses were assessed to ensure the highest level of objectivity following care standards and evidence-based practice. Healthcare organizations can strengthen and foster a collaborative, communicative environment that enhances the skills and efficiency of ICU nurses, thereby improving the quality of care provided to SAH patients and promoting a culture of excellence that is globally competent.

Keywords: *Nurse Competency, Subarachnoid hemorrhage (aneurysmal), intensive care unit, caring*

INTRODUCTION

Subarachnoid Hemorrhage (SAH), particularly aneurysmal in origin, represents a critical neurological emergency characterized by bleeding into the subarachnoid space. A severe “thunderclap” headache, which patients describe as the worst headache of their lives, is frequently the condition’s sudden presenting symptom. Clinical manifestations beyond headache can include coma, seizures, or altered mental status, all of which call for prompt diagnosis and treatment. Globally, SAH affects over 6.1 individuals per 100,000 annually with an estimated 8.09 million cases worldwide, disproportionately impacting regions like Oceania, Latin America, and Central Asia. Despite a relatively younger demographic profile in

countries such as the Philippines, where only 5.7% of the population is over 65, SAH remains a significant cause of mortality, increasingly affecting adults as young as 30 to 58 years.

In neuro-critical care, managing aneurysmal subarachnoid hemorrhage requires prompt diagnosis and treatment, including securing ruptured aneurysms by endovascular coiling or microvascular clipping—procedures that have markedly lowered mortality rates. To guide treatment and prognosis, clinical guidelines such as those published by the American Heart Association place a strong emphasis on early neurological monitoring using standardized instruments like the Hunt & Heiss scale and the Glasgow Coma Scale. Nurses in intensive care units play a pivotal role, combining advanced critical thinking to detect subtle complications like delayed cerebral ischemia and increased intracranial pressure. Given the complexity and psychological toll of aSAH on patients and families, maintaining and advancing ICU nursing competencies through ongoing education is essential. This study focuses on enhancing these competencies among ICU nurses in Naga City, Bicol Region, aiming to close knowledge gaps and elevate neuro-critical care standards for aneurysmal SAH patients.

Review of Related Literature

Health Condition of Patients Being Given with Quality Care

The literature on the condition of patients with subarachnoid hemorrhage (SAH) receiving quality care highlights the critical influence of comprehensive, evidence-based, and patient-centered approaches in the Intensive Care Unit (ICU). According to the World Health Organization (WHO, 2024), quality care is defined by its effectiveness, safety, and people-centered nature—factors essential for promoting healthy outcomes and achieving universal health coverage (Patil, S. Ambukar, R., & Prerabkar, K., 2023). This perspective underscores the importance of providing evidence-based interventions, safeguarding patient safety, and respecting individual preferences and needs. Nurses' abilities, values & clinically relevant knowledge to the field (Shelly, Roth, Ramesh, 2020) Projecting the future scenario through prediction of patient status (Ghaderi, R., & Esmaelli, R. 2022). Health condition of patient impacted one or more condition which directly affects the health outcome (Zhang, X., Krabbe, P. 2023).

The literature also demonstrates that in resource-constrained environments, including Philippine government hospitals, barrier like cost-related ICU refusal and limited access to universal health care can adversely impact timely admissions and the provision of standardized, high-quality care (Amit, Pepito, & Dayrit, 2022). Despite reforms such as the Universal Health Care Law and new benefit packages the “Konsultang Sulit at Tama” in 2020, financial and structural challenges persist, which can influence case fatality rates and quality of life after SAH. Synchronous treatment pattern to prevent complication is the key for timely intervention (Brekke, et al, 2019).

Tools such as the Hunt and Hess scale and Glasgow Coma Scale (GCS) remain instrumental in gauging patient severity and guiding care plans, while CT imaging is highlighted as an essential diagnostic step in the acute phase (Gershon, 2021; Joint Commission on National Quality Measures, 2024). Predictive performance to achieve a higher accuracy for outcome prediction (Dengler, Zihni, et al., 2021). Updated guidelines for SAH management further stress the need for prompt diagnosis, triage, continuous assessment, and holistic rehabilitation (Hoh, et al, 2023; De Arruda, G., 2019; Nazon, et al, 2023). Resource allocation are vital in sustaining positive outcomes. The length of stay of patient at the ICU ranges from 6 to 19 days (Albano, E., & Villamor, R, 2024; Benthovin & Theilla, 2024). In this period, approximately 12 hours, time required to prevent, managed subsequent complications (Okazaki, 2018). By providing clinical management & Nursing care plan, it helps neurocritical patients to avoid further complications (Curan, A., 2022; Reezae, N., Salazar, A. 2020).

Competence of Nurses

Recent studies emphasize that high-quality ICU care is paramount for SAH patients, as these individuals are particularly vulnerable to complications such as delayed cerebral ischemia, vasospasm, seizures and re-bleeding, which require timely intervention and vigilant monitoring (Ziu & Mesfin, 2021). Nursing competence—predictor of their health outcomes especially during the stay at the ICU (CDC, 2023); comprising clinical expertise (Ervin, Khan, 2019), multidisciplinary collaboration (Padilla, et al, 2022), and rapid response capabilities—is repeatedly identified as key determinant of patient outcomes in these settings (Ghaderi, et al., 2022; Padilla, et al, 2022). Complex decisions during episodes where effective decision making is required by the condition (Perveen, K., 2022; Millela, Minelli, et al, 2021). Satisfaction and patient's safety affect the clinical competency (Buyabaniki, 2020). During the process, coping of an individual (Gasolvi & Solvoll, 2020) together with compassion and humanity which is vital in performing complex task (Ajibade, 2021). ICU nurses characteristics must be holistic (Perveen, 2022).

In sum, the review makes clear that quality nursing care—anchored in clinical competence, prompt intervention, regular monitoring, and collaborative practice—greatly improves the prognosis of SAH patients. Continued education, structured evaluation frameworks, and focused resource allocation are vital in sustaining positive outcomes and meeting the complex and evolving needs of this neurocritical population.

Statement of The Problem

The study determined the condition of patients with aneurysmal subarachnoid hemorrhage before, during, and after giving nursing care, and whether there is a significant relationship between the patients' condition and the level of competencies of ICU nurses in selected hospitals. Specifically, it answered the following questions

1. What is the level of condition of the patients with subarachnoid hemorrhage before, during, and after giving quality nursing care based on the following neuro prognostication tool:
 - a. grading of the Subarachnoid hemorrhage
 - b. level of patient's consciousness
2. What is the level of competency of ICU nurses in handling patients with Subarachnoid hemorrhage along the following aspects:
 - a. Implementation of Nursing Intervention
 - b. Initialization of collaboration
 - c. Exercising precise decision-making
 - d. Facilitating principles of Nursing Care
3. Are there significant differences in the Level of ICU nurses' competency between groups and aspects?
4. What health intervention plan may be proposed based on the result of the study?

Objectives and/or Research Hypotheses

There are significant differences among the aspects of the health condition of patients before, during, and after nursing intervention and the competency level of Intensive Care Unit nurses.

METHODOLOGY

Research Design

The study utilized a descriptive-evaluative method of research in determining the patients with Subarachnoid Hemorrhage (aneurysmal) health condition after receiving care at the Intensive Care Unit and gauging the competence of Intensive Care Unit (ICU) Nurses. A survey research through a quantitative method to gather respondents' data, including the respondents' profiles. This is implemented to provide an in-depth analysis of the data gathered. The 24-item questionnaire was designed to assess Intensive Care Unit nurses' proficiency & nursing competence in providing safe patient-centered care at the Intensive Care Unit. The design identified additional variables affecting service quality in the management of patients in the ICU; thus, a healthcare intervention program was developed.

Participants

The study involved two groups of participants: SAH patients and ICU staff nurses from secondary and tertiary hospitals in Naga City. Thirteen patients with moderate to severe aneurysmal subarachnoid hemorrhage, identified through neuro-prognostication tools, were included. Their Glasgow Coma Scales (GCS) scores ranged from 3-15 during their ICU stay. Additionally, fifty-seven ICU nurses who directly cared for these patients participated in the study. The hospitals who categorized into private institutions like Universidad de Sta. Isabel de Naga-Mother Seton Hospital, and a government facility, such as Bicol Medical Center. A non-probability purposive sampling method was used to select.

Instruments

This study utilized a modified research instrument adapted from three standard questionnaires, selecting parameters appropriate to the study's scope and setting. The instrument comprised three main sections.

Section one gathered intensive care unit (ICU) nurses' demographic data, including name, age, sex, duration of experience caring dot aneurysmal subarachnoid hemorrhage patients, and relevant trainings undertaken. This information provided context for understanding respondents' backgrounds and expertise. Section two assessed ICU nurse's competency across multiple domains—decision making, collaboration, nursing interventions and principles of nursing care—using a 24-items adapted from a patient safety questionnaire. Nurse competencies were rated on a 4-point Likert scale (1=very low to 4-Very High), reflecting frequency and proficiency in critical care delivery.

Section three focuses on aSAH patient care, utilizing the Hunt and Hess scale and Glasgow Coma Scale (GCS) to evaluate patient's neurological status and consciousness levels. ICU nurses monitored symptom frequency on a scale of 1 to 4, indicating observation consistency. Patient demographics and clinical data were also recorded. Nurse competency assessments were conducted in the presence of charge nurses to reduce bias. Patient condition was evaluated initially by the researcher and then monitored by nurses during specified ICU stays (day 0, first 72 hours, and day 3, post-admission). Reliability and validity of the instruments were ensured by expert consultations, aligning with the WHO and patient safety and care standards.

Procedure

The data gathering procedure commenced with the presentation of the questionnaires to the research panel, followed by approval from the Dean for distribution. Ethical clearance was obtained from the Ethical Committee overseeing the involved government and non-government hospitals. The study was conducted in two phases. First, a validated paper questionnaire assessed ICU nurses' demographics and skills using a four-point Likert scale to measure competency levels. In the second phase, direct observations

of patient care in selected secondary and tertiary hospital ICUs evaluated the nursing care standards. Patient-centered data collection adhered to confidentiality protocols. Neuro-prognostication tools, including the Hunt & Heiss Score and the Glasgow Coma Scale, were applied following 2023 AHA/ASA guidelines, ensuring clinical relevance.

Data Analysis

- All data were gathered and tabulated for analysis and interpretation. After the collection of instruments, responses were tallied.
- Frequency & percentage were used to determine the average responses of the respondents to personal & professional characteristics that was used to gather the findings to get the mean.
- The Mean are used to analyze the data as rates by the respondents in connection with the patient's health condition with subarachnoid hemorrhage
- The difference among aspects of competencies between groups of hospitals was determined through the collection of data using one-way ANOVA
- Findings were organized into categories during the discussion phase

RESULTS

Table 1
Level of Condition of Patient's

Hunt and Heiss Grading (HH)					
<i>BEFORE NSG. CARE</i>	<i>NO. OF PATIENTS</i>	<i>DURING NSG. CARE</i>	<i>NO. OF PATIENTS</i>	<i>IMPLICATION Level of Condition</i>	<i>NO. OF PATIENTS</i>
Intact Aneurysm	5	Mild Headache	1	Improved	9
Moderate to Severe Headache	0	Moderate to Severe Headache	11	Not Improved	3
Stupor/Early decerebration	7	Stupor/Early decerebration	0	Mildly Improved	1
Fixed Neuro deficit without mental or Brain Reaction	1	Fixed Neuro deficit without mental or Brain Reaction	1		

Legends* - HUNT and HEISS (HH) 0 -Intact Aneurysm (once noticed), 1 – Mild Headache (mostly noticed), 2- Fixed Neuro deficit without mental or Brain Reaction (mostly noticed), 3 – Moderate to Severe Headache (once noticed), 4 – moderate to severe headache (seldom noticed), 5 – moderate to severe headache (mostly noticed), 6 – Stupor/Early decerebration (once noticed).

Table 1, Based on the Hunt & Heiss grading for subarachnoid hemorrhage, four grades topped the patients chart including a) Intact Aneurysm mostly noticed, b) Moderate to severe headache that was noticed once, c) Stupor/Early decerebration and d) fixed neuro deficit without mental or Brain reaction which mostly noticed upon admission at the ICU.

Before nursing care five (5) patients diagnosed with having an Intact Aneurysm; seven (7) patients experienced Stupor/ Early decerebration and one (1) patient with fixed neuro deficit without mental or brain reaction. During the span of 72-hours patients Hunt & Heiss scores showed improvement of conditions. Patients suffering from (7) Stupor/early decerebration to eleven patients (11) improved to moderate to severe headache where the patients seldom noticed. Patient's scoring 0-3 with their Hunt & Heiss, after conducting surgical intervention, their Hunt & Heiss score changes once they have sent back into the ICU. Nine (9) patients showed improvement with their Hunt & heiss Score implicating an Improved Level of Condition during their stay at the ICU. Three (3) patients showed "No Improvement" with their level of condition for the reason that they refused any surgical treatment and chose to stay and had their condition monitored at the ICU. Financial constraints are one of the factors which hinders the patient to decide to undergo any surgical procedure. During the patient's stay at the ICU, staff nurses follows the standard of monitoring patients with aSAH to prevent mortality from trauma (Kurniawan, Suhandi, et al., 2019).

Table 2
Level of Conditions of Patient's

GLASGOW COMA SCALE (GCS)							
PATIENT'S CODE	GCS SCORE	BEFORE NSG. CARE	GCS SCORE	DURING NSG. CARE	GCS SCORE	AFTER NSG. CARE	IMPLICATIONS
1	15	Normal GCS	11	Moderate TBI	11	Moderate TBI	Moderately Improved Condition
2	15	Normal GCS	13	Mild TBI	13	Mild TBI	Mildly Improved Condition
3	15	Normal GCS	13	Mild TBI	13	Mild TBI	Mildly Improved Condition
4	15	Normal GCS	12	Moderate TBI	12	Moderate TBI	Moderately Improved Condition
5	15	Normal GCS	11	Moderate TBI	10	Moderate TBI	Moderately Improved Condition
6	14	Mild Brain Injury	12	Moderate TBI	10	Moderate TBI	Moderately Improved Condition
7	15	Normal GCS	13	Mild TBI	13	Mild TBI	Mildly Improved Condition
8	15	Normal GCS	13	Mild TBI	11	Moderate TBI	Moderately Improved Condition
9	15	Normal GCS	14	Mild TBI	13	Mild TBI	Mildly Improved Condition
10	14	Mild Brain Injury	12	Moderate TBI	12	Moderate TBI	Moderately Improved Condition
11	15	Normal GCS	14	Mild TBI	12	Moderate TBI	Moderately Improved Condition
12	15	Normal GCS	14	Mild TBI	11	Moderate TBI	Moderately Improved Condition
13	15	Normal GCS	12	Moderate TBI	11	Moderate TBI	Moderately Improved Condition

Legends* - GLASGOW COMA SCALE (GCS) 13-15 score – mild TBI Traumatic Brain Injury (mostly noticed), 9-12 score – moderate Traumatic Brain Injury (mostly noticed), 3-8 score – severe TBI Traumatic Brain Injury (mostly noticed).

Level of Condition of Patient's

Table 2, shows the patients level of consciousness using Glasgow Coma Scale. Before the patient's admission at the Intensive Care Unit most of the patients scored 13-15 in their GCS indicating they experienced Mild traumatic Brain Injury. During the patients stay at the ICU three (3) patients showed slight decrease in their GCS-14, five (5) patients scored 13 with their GCS indicating a mild brain injury. Among the 13 patients five (5) patients scored GCS-11 which shows signs of deterioration. Some of the patient underwent a surgical procedure and a decrease in GCS score is expected and shows some changes. After nursing care, patient's level of condition improved. Four (4) patients scored GCS -13; three (3) patients scored -12; four (4) patients GCS decrease to 11 and only two decrease to GCS -10. Critical patients suffering from acute pain and trauma is expected to have changes in their GCS.

TABLE 3

Summary of the Patient's Health Condition before, during & after giving Quality Nursing Care based on Glasgow Coma Scale (GCS)

Patient's Level of Condition	<i>Before Nsg. Care Frequency</i>	<i>During Nsg. Care Frequency</i>	<i>Percentage %</i>	<i>After Nsg. Care Frequency</i>	<i>Percentage %</i>
MILDLY IMPROVED CONDITION	13	7	53.84%	4	30.77%
MODERATELY IMPROVED CONDITION	0	6	46.16%	9	69.23%
TOTAL	13	13	100%	13	100%

In summary, table 3 shows that mostly of the patients upon their admission categorized as having mildly improved condition. Timing is very important with SAH due to mortality and functional outcome that is determined by performance in the "ultra-early" surgery which lowers the bleeding risks (Hostettler, I, et al, 2022). From 53.84% down to 30.27% which corresponds to 7 patients with mild improved condition, after nursing care was provided the number of patients went down to 4 meaning moderate nursing care was provided with effectively and efficiently. Six patients with moderately improved condition which accounts for 46.16% of the total number of patients, after nursing intervention it went up to 69.23% or a total number of 9 patients shows moderately improved condition means that they received a Very High quality nursing care. Regardless of whether they have been cared in a government or non-government institution, this improvement indicates that patients received the needed care at the ICU. Quality nursing care was provided to the patients which includes close monitoring, detect and deal with subsequent complications was taken cared of ICU nurses.

Table 4
Summary of Nursing Competency

Competencies	Hospitals				Mean	Interpretation
	A	Interpretation	B	Interpretation		
1. Implementation of Nursing Intervention	3.69	Very High	3.62	Very High	3.65	Very High
2. Initialization of Collaboration	3.71	Very High	3.77	Very High	3.74	Very High
3. Exercising Precise Decision-Making	3.73	Very High	3.66	Very High	3.70	Very High
4. Facilitating Principles of Nursing Care	3.80	Very High	3.64	Very High	3.71	Very High
Mean					3.70	Very High

Legends*1-1.75 (1) Very Low; 1.76-2.50 (2) Low; 2.51 – 3.25 (3) High; 3.26 – 4.0 (4) Very High.

Table 4 shows the over-all the competency level of ICU nurses rated mean of 3.79, with a verbal interpretation of “Very High”. Implementation of Nursing Interventions result 3.86, mean score with a verbal interpretation of “Very High”. It includes “Assesses the patients using neuro-prognostication tool” that is performed within a specific time-frame to manage fatal or substantial disability (Robles, 2023). Initialization of Collaboration, results indicate 3.87 mean with a verbal interpretation of “Very High”. It only attests that ICU nurses are very skilled in collaboration. It includes the aspect of collaboration with the team members toward wellness of the patient’s current situation and other treatment needs. Next is, exercising precision Decision-Making with a mean of 4.40, indicating that ICU nurses have “Very High” level of competency. ICU staff nurses can communicate frequently with other team members in taking patients care towards achieving the goal of treatment. Facilitating Principles of Nursing Care is the fourth aspect with a mean of 3.71, ICU staff nurses shows their competency through care provided equally to all patients regardless of their status and condition. Nurses, through individual and collective effort maintains and improves ethical environment of the work setting that are conducive to safe, and quality healthcare (Haadad, L., Geiger, R., 2023).

Table 5
Test of Difference (ANOVA) Among Aspect of Competencies
between Groups

SOURCES OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SQUARE	F. VALUE	INTERPRETATION
GROUPS	1	0.1431	0.1431	3.9302	NOT SIGNIFICANT
Aspects of Competencies	3	0.4995	0.1665	3.7755	NOT SIGNIFICANT
Error	3	0.1228	0.041		
Total	7	0.7654			

Since $3.9302 < 10.31$ = Not Significant among groups

Since $3.7755 < 10.31$ = Not Significant among Aspects of Competencies

F .01 (1,3) = 34.2

F .05 (1,3) = 10.13

Table 5 shows An ANOVA or one-way analysis was conducted. Groups used a degree of freedom of 1, 0.01 level of significance with the F. value resulted of 3.9302 which is lesser than the degree of freedom 3.42. There is no significant difference between the groups of hospitals and the aspects of competency. In terms of aspects of competency, the degree of freedom is 3 and 0.05. The F value resulted of 3.7755 which is less than the degree of freedom 10.31. Based on the findings, there is no significant differences among the aspects of competency of ICU staff nurses. Results shows that aspects of care being provided to the patients with aSAH. The aspects of competency have no significant difference may it be practiced in Hospital A, or Hospital B groups since there is a standard of procedures that both the government and non-government institutions have been following. They maintain an ISO-standard quality care was provided to patients with SAH.

DISCUSSION

The study assessed the health conditions of patient's with aneurysmal subarachnoid hemorrhage after quality care was given at the Intensive Care Unit (ICU).

Interpretation of Findings

Data gathered from the research participants through a quantitative method. An in-depth analysis of the data gathered were utilized. Neuro-prognostication tools assessment after quality care was given. The 24-item questionnaire was designed to assess Intensive Care Unit nurses' proficiency in providing safe patient-centered care at the Intensive Care Unit serves as a guide in discussing the Levels of Competencies

including Implementation of Nursing Intervention, Initialization of Collaboration Exercising Precise Decision Making and Facilitating Principles of Nursing Care. The discussions were shown below the tables.

Study Limitations

The study has several limitations that must be considered. First, the study were limited to 57 regular staff nurses who were assigned at the designated hospitals, secondary and tertiary in Naga City. Second, patients who are considered to be severe during the process of data gathering was not included considering patient's privacy. Third, the study focuses on a span of 0 -5 days, beyond that period, patients were not considered to be part of the study.

CONCLUSION

The study concludes that nurses are remarkably proficient in applying the standards when caring for patients with aSAH. ICU staff nurses in secondary and tertiary hospital from both the government and non-government institutions in Naga City, have a "Very High" level of competency in the four aspects including Implementation of Nursing Interventions, Initialization of Collaboration, exercising precise decision making and in facilitating principles of Nursing Care. ICU nurses are meticulous in neurological monitoring using the neuro-prognostication tools to assess patients' risk for complication and in maintaining the patient's provision of care. Healthcare institutions ensure that ICU nurses adhere to international & national standards.

Based on these outcomes, future research is recommended to:

- o Enhancing current practices in continuous monitoring of patient's level of satisfaction through the use of standardized tools
- o Regular evaluation and feedback to promote a system that could evaluate the nurse's competencies. Positive feedback to identify the need for improvement
- o Research and innovation through research that could identify the best practices including the findings to enhance patient care management.
- o Promotion of collaboration among healthcare team members to achieve the goal of treatment
- o Innovations with the strategies used to provide a much effective care to the patient.
- o Continued trainings and personal development to ensure the quality and sustainability of care provided to SAH patients.

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