Evaluation of the Stroke Training Program for Indonesian Nursing Students

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Abstract

Globally, including the Philippines and Indonesia, stroke is one of the leading causes of death and disability. With its profound impact on individuals, families, and healthcare systems, stroke presents an urgent need for a comprehensive training program for nursing students which must focus on the acquisition of knowledge, skills and attitude essential in providing safe and quality nursing management of clients with stroke in various clinical settings. In view of the above, the stroke training program was developed and implemented 9 years ago with the strong collaboration between Centro Escolar University- School of Nursing, Manila, Philippines and Budi Luhur Institute for Health Sciences, Cimahi, Indonesia. This training program focuses on the underlying causes, dissects the modifiable and non-modifiable risk factors, and critically evaluates the evolving nursing management of clients with stroke. Moreover, this stroke training offers invaluable benefits such as enhancing the clinical skills of the students and improving patient outcomes through timely and accurate interventions. In addition, it aims to increase stroke awareness, empower patients and families through education, and ultimately contribute to public health initiatives aimed at reducing the burden of stroke in the communities. This research paper seeks to evaluate the effectiveness of the stroke training program with the aim of improving the program. The improved training aspires to contribute to a deeper understanding of this complex condition and become an avenue for prevention, early intervention, and improved patient outcomes with the ultimate goal of reducing the burden of stroke on individuals and society.

Keywords: *Stroke Training Program, Evaluation, Stroke*

INTRODUCTION

Globally, stroke remained the second-leading cause of death and the third-leading cause of death and disability combined in 2019. There were 12·2 million incident cases of stroke, 101 million prevalent cases of stroke, 143 million disability-adjusted life years (DALYs) due to stroke, and 6·55 million deaths from stroke. (Lancet Neurol, 2021). In addition, based on the American Heart Association updates on Heart and Stroke statistics (2023), an analysis of data from the Global Burden of Disease 2019 study found that from 1990 to 2019, the absolute number of incident strokes increased by 70.0, whereas the age-standardized incidence rate for total stroke decreased by 17.0%.

According to the Stroke Society of the Philippines (2020), stroke in the Philippines' is the second leading cause of death and first cause of morbidity. It has a prevalence of 0·9%; ischemic stroke comprises 70% while hemorrhagic stroke comprises 30%. According to the latest WHO data published in 2017 Stroke Deaths in the Philippines reached 87,402 or 14.12% of total deaths. The age adjusted Death Rate is 134.74 per 100,000 of population ranks Philippines number 29 in the world. Findings showed that the national stroke incidence rate ranged from 3.95% to 5.61%, while the national stroke prevalence rate ranged from 0.486% to 6.0%. Hypertension remains the commonly reported risk factor of stroke alongside diabetes, smoking, and high cholesterol level (Collantes et al, 2022).

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Similarly, in Indonesia, stroke is a major cause of death and disability compared to other countries in SouthEast Asia, Indonesia has the highest age and sex-standardized mortality (193.3/100,000) and disability-adjusted life years lost (3,382.2/100,000). Stroke prevalence is 0.0017% in rural Indonesia and 0.022% in urban Indonesia. The same is true in the study of Venketasubramanian et al (2022), stroke is a major cause of death and disability in Indonesia. Compared to other countries in SouthEast Asia, Indonesia has the highest age and sex-standardized mortality (193.3/100,000) and disability-adjusted life years lost (3,382.2/100,000), stroke prevalence is 0.0017% in rural Indonesia and 0.022% in urban Indonesia.

Owolabi et.al. (2022) highlighted that prevalence of stroke incidence is rising quickly in low- and middle-income nations, many of which are ill-equipped to handle the difficulties it presents. In the study of Widjaja et al (2020) findings showed that stroke knowledge was low among Indonesian stroke survivors and independently related to medication adherence. The same report was made by Collantes et al (2021), that there is low stroke awareness across several regions in the country. This was also supported in the study of Venketasubramanian et al (2022) and recommended to increase public awareness and participation in avoiding stroke through mass media and social associations to prevent an increase in the incidence of stroke.

In the article of Sese et al (2023), a two-pronged approach will be needed to address the challenges of stroke care, that is by combining community-based prevention and targeted public awareness campaigns. As cited in the Stroke Society of the Philippines (SSP) Guidelines for the Prevention, Treatment, and Rehabilitation of Stroke, a community survey reported that only 34.4% were knowledgeable on stroke, and respondents even misconstrued the disease as a heart attack (Collantes et al., 2021) Community education through a range of health promotion strategies on primary and secondary stroke prevention are crucial in ensuring the prevention and management of stroke. In addition, knowledge of the signs and symptoms and potential initial response can be life-saving to patients. These initiatives can decrease the time gap before taking action and result in the timely patient presentation to the available healthcare facilities for treatment or management.

The role of education is critical to lower the incidence of stroke patients. Hence health care professionals need to be trained early specifically Nursing students. However, assessment of knowledge and skills of Nursing students must be addressed to become competent in managing stroke patients. In the study of Islam et al(2017), findings showed that nursing students had a moderate awareness level of stroke risk factors (M = 74.24, SD = 12.30) and a very low awareness of stroke warning signs (M = 55, SD = 10.72). In addition, all of the students had a low to very low level of behaviors of special stroke patient management (M = 62.11, SD = 9.75) and a very low level of behaviors of first responses to strokes (M = 0.24, SD = 0.43).

Hence, the need of Stroke Training Program must be instituted to reduce stroke incidence and improve outcomes of stroke patients (Mead et.al. 2023). This was supported in the study of that Nasser et al (2022) revealed that the level of nurses' knowledge at pre-test period were moderately adequate at mean scores (x=63.5 and SD= 27.5), while at posttest (x= 87.5, SD=16.5).Based on the findings of the study the level of nurses' knowledge for caring of post-stroke patients have significantly improved statistically after implementing the educational program as compared with pretest period. The improvement in nurses' knowledge may reveal the effectiveness of post-stroke rehabilitation programs on the level of nurses' knowledge.

Looking at evaluation, Wang et.al. (2023) related that participants who underwent a stroke training program showed improvements over areas such as self- efficacy, social participation, and stroke knowledge. In addition, the self-efficacy of the participants was linked to social participation and to the knowledge of the stroke risk factors. Therefore it was highlighted that changes in social participation, self- efficacy, and understanding of stroke risk factors may be impacted by the stroke training program.

Cognizant of the importance of an effective training program for stroke management, the following are considered to be essential components: (1) Imparting knowledge to health care professionals or trainees through education, training, and enlightening; (2) Teaching health care professionals or trainees through the provision of explanations, examples, and opportunities for practice with feedback; (3) Assessment of the expertise and knowledge of the health care professionals or trainees; (4) Offering emotional assistance to

avoid fatigue; (5) Understanding sources for social, medical, and rehabilitation services; (6) Managing expectations; and (7) Setting boundaries for responsibilities. (Scheffler & Mash, 2023).

In addition, among the learning needs for the trainees that should be considered are: (1)Awareness of stroke particularly on risk factors, causes, prevention, and interventions; (2) Knowledge of stroke management; (3) The roles and responsibilities of health care providers; (4) Competence in the provision of emotional support; (5) Reduction and monitoring of strain to the health care provider; (6) Knowledge and skills for assisting stroke survivors particularly on the activities of daily living, transferring, mobility, and positioning; (7) Utilization of assistive products, alternatives, and technologies; (8) Prevention of falls and the development of secondary complications; (9) Awareness of problem solving focusing on environmental barriers; and (10) Teaching basic rehabilitation exercises (Scheffler & Mash, 2023).

Hence, addressing gaps in stroke care becomes a priority by bridging what is known and what is done. As one of the countries in the Southeast Asian region belonging to the lower-middle-income countries, the Philippines and Indonesia are no exception. Educational institutions such Centro Escolar University (CEU) and Stikes Budi Luhur can serve as partners along with other universities that can contribute to the awareness campaign, with students becoming ambassadors of stroke prevention in various clinical settings but most especially in the community.

In view of this pressing need, the short-term stroke training program for graduates of Bachelor in Nursing was started in 2014 and offered to Stikes Budi Luhur of Cimahi, Indonesia and its other partner schools of Budi Luhur Institute Network for Education (BIN for Edu) . The program was offered by the CEU- School of Nursing (SoN) through the CEU Professional and Continuing Education (CEU-PACE).

To ensure the quality of the stroke training program, this research study aims to evaluate the existing program. The outcome of the evaluation will be used to ensure its continued relevance, effectiveness, and ability to meet the evolving needs of learners and the industry it serves.

METHODOLOGY

The research project is a collaborative effort between Centro Escolar University, Mania, Philippines and Stikes Budi Luhur in Cimahi, Bandung, Indonesia. The study utilized a quantitative descriptive study design with the aim of evaluating the stroke training program conducted for Indonesian nursing students who were enrolled in Internship Profession of Stikes Budi Luhur and other member schools of BIN for Edu.

The Kirkpatrick Evaluation Model (Figure 1) was used in the study for the evaluation of the effectiveness of the training program, especially in healthcare settings where the application of knowledge and skills is critical for patient care. This model categorizes the evaluation of training into four levels, each representing a different aspect of the learning experiences. These levels are sequential and hierarchical, building on each other. The model is commonly used in the field of education, training and development. Level 1 is called reaction which measures the participants' immediate reactions and feelings about the training program. It focuses on the satisfaction and engagement during the training . The second level is learning which evaluates the extent to which participants acquired the intended knowledge, skills, and attitudes during the training. It measures the actual learning outcomes. Third level is behavior, which assesses the degree to which participants apply the acquired knowledge and skills in their work or real-life situations. Lastly, and the fourth level is result, which evaluates the broader impact of the training on organizational or patient outcomes. It looks at the overall results and benefits that can be attributed to the training program (The University of San Diego, n.d.).

The use of Kirkpatrick Evaluation Model offers a structured and systematic approach to evaluating the training program allowing the researchers to assess the different facts of the learning experience. In addition, by addressing each level, the researchers can gain actionable insights for program improvement and make informed decisions about the training effectiveness. The same four-level evaluation approach for the assessment of trainees who underwent simulation training program for acute stroke care was used in the study conducted by Casolla et.al. (2020).
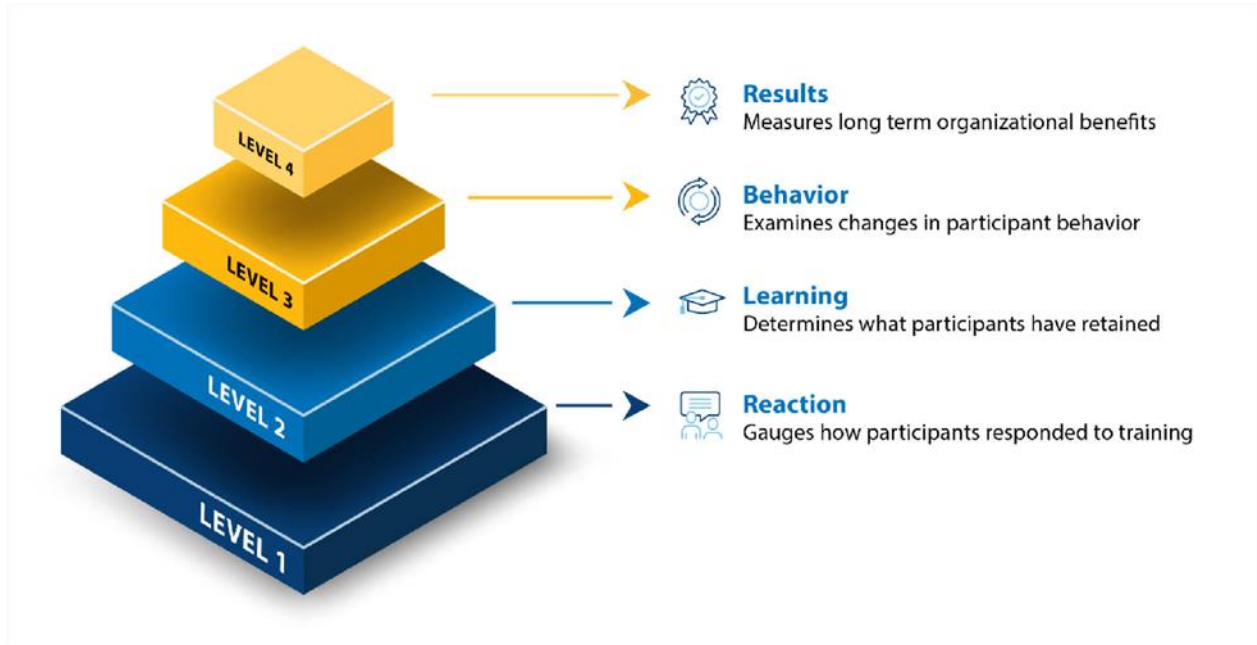
Figure 1. Four levels of the Kirkpatrick Evaluation Model

The 115 participants have completed the 4-day stroke training program consisting of three-day didactic and one-day practicum from the year 2021- 2023. The participants were 92 nursing students and 23 faculty. The nursing students were graduates of Bachelor of Nursing and enrolled in Internship profession. Originally, the training program was intended only for nursing students, however, when the program was offered through online learning last July and November 2021, faculty were allowed to participate to provide them updates on the management of clients with stroke.

The training program was conducted at Centro Escolar University, a private educational institution based in the Philippines. Founded in 1907 and has a rich history and strong commitment to providing quality education. The university offers a wide range of academic programs, including undergraduate and graduate degrees in various fields such as business, health sciences, and liberal arts. Furthermore, the training was in collaboration with PACE. It is a center that addresses lifelong learning needs of individuals or organizations through the design and delivery of continuing professional education and training programs for individuals, organizations and communities.

Review of records was used as a research methodology. It involves the systematic examination and analysis of existing documents, records, or data sets relevant to the research problem. This method is used in various fields, including academic research , historical studies, legal research, and social sciences. The term records encompass a wide range of materials, such as official documents, archival records, organizational reports, databases, and more (Think Design, 2023).

The following were the steps followed by the researcher when doing the review of records: First, identifying relevant records. The researchers began by identifying and defining records that are relevant to the research. These records include the proposal of the training program which includes the program, the modules and lessons of the training, and the evaluation of the program that comes in two forms, the daily feedback and the overall evaluation of the program both conducted by PACE through the google survey forms. Second, accessing the records.The records are kept by the School of Nursing (SoN) and Professional and Continuing Education (PACE). Most of the records are filed as hard copies but the participants demographic profile, the daily feedback and overall evaluation are found in the google drive. While the modules used for the training are found in the existing learning management system used by the University, which is called CEU LEAPS (CEU Learning Engagement and Proficiency System). As to any other review of records, one of the

limitations encountered was the availability of the result of the pre-test and post-test exams. The google drive which stores the results of the exams were deleted when CEU had to manage the storage of the google email accounts of all employees. Third, data collection. The researchers obtain permission to access the identified records from the PACE especially for the evaluations of the program, since it is the responsibility of the department to continuously evaluate the program. The google drives used for the records were shared to the researchers after getting approval from the Head of the PACE. Fourth, data analysis. The analysis involves quantitative methods only. The researchers analyze the collected data to extract the demographic profile of the participants, meaningful insights, patterns or trends particularly of the evaluations answered by the participants. Fifth, synthesis and interpretation. The findings from the review of records were synthesized and interpreted in the context of the research questions. Researchers draw conclusions based on the analysis and discuss the implications of the findings. Lastly, ethical considerations. The researchers considered the ethical guidelines when dealing with sensitive or confidential information. The privacy and the confidentiality of the participants were ensured.

RESULTS

The Training Design

Stroke training is critically important for nursing students aspiring to become competent healthcare professionals in the future. The nursing students must be capable of providing safe and effective care to clients with stroke. Since stroke is a prevalent non-communicable disease with significant implications for patient care, adequate knowledge on the complexities of stroke, including its etiology, signs and symptoms, and potential complications, is essential for nurses to deliver timely and appropriate interventions. The training equips nursing students with the necessary knowledge and skills needed to recognize the signs and symptoms of stroke, implement immediate care and collaborate with the healthcare team to ensure a holistic and patient-centered approach.

The Canadian Best Stroke Practices (2022) classified stroke as a medical emergency, and strongly recommended that everyone in the public and healthcare industry should be made aware of this. In addition, they underscored that information about stroke should be included in both public and private healthcare provider education programs as   stroke can affect people of any age, including adults, children, and newborns. Similarly, the advantages of early emergency treatment should be emphasized in public and healthcare professional education in order to effectively manage morbidity and mortality.

In addition, stroke training is integral to developing the necessary clinical skills for nursing students. Learning how to perform history taking and assess neurological status are important components of stroke care. Practical training in these areas enhance a nurse's ability to provide individualized care plans that address the priority and unique needs of patients with stroke . Furthermore, exposure to simulated or real-life clinical scenarios during the training fosters critical thinking and decision-making skills, preparing nursing students for the dynamic challenges they may encounter in stroke care settings. Lastly, stroke training contributes to the development of the right attitude essential for nursing professionals. Caring for a client who has experienced a stroke often involves addressing not only physical impairments but also emotional and psychological aspects. Through training, nursing students gain insights into the psychosocial impact of stroke on patients and their families., fostering a patient-centered approach to care.

Table 1 shows the instructional design of the stroke training program. This 4-day short-term course deals with the concepts, principles and theories of human behavior and care of sick adult clients experiencing Cerebrovascular Disorders. The course is to be offered to the nursing students enrolled in the Internship Profession of Stikes Budi Luhur and other members of the Budi Luhur International Network for Education (BinforEdu) to provide them with the necessary competencies in providing safe and quality nursing care to clients with stroke. The course will include three days of theory and one day clinical exposure to tertiary hospitals. However, in 2023, the clinical exposure was conducted at the community setting with the intention of increasing the knowledge and skills of the nursing students in the prevention of stroke at the community level through the conduct of health education programs.

The learning outcomes of the training includes, performing assessment skillfully through interview, neurological assessment and interpretation of laboratory findings; differentiating the two major classification of stroke as to its etiology, clinical manifestations, pathophysiology, medical and nursing management; utilizing the nursing process in the care of individual clients with stroke; applying evidence-based practices and best nursing practices in the care of clients with stroke; and demonstrating a caring behavior in the management of clients with stroke.

Various teaching methodologies were used in the training ranging from lecture, demonstration and return demonstration, case scenarios and concept mapping to ensure that the required competencies were achieved. The one-day clinical exposure was critical to the attainment of the training objectives. The participants are exposed to the clinical setting of either hospital or community to handle actual clients in the area. They are given the opportunity to apply what they learned from the three day discussion. The students can perform brief history taking, focused physical assessment and neurological assessment and render nursing care appropriate for clients with stroke.

From the beginning of the training, it was conducted face to face, but, last 2021 due to the pandemic, the training was delivered through online learning using the CEU's learning management system called CEU-LEAPS (CEU Learning Engagement and Proficiency System). Modules were developed by the faculty of the SoN to provide the needed knowledge and skills of the training. Classes were delivered online using Google Meet. The teaching of skills was conducted online as well. Clinical exposure was replaced by hospital webinar conducted by the

CEU affiliating agencies like St. Luke's Medical Center and Cardinal Santos Medical Center.

Performance-based assessment was used in the training. It is an approach to evaluate the skills, knowledge and abilities of the participants by directly observing and measuring the performance in real-world tasks or activities . Practical application and demonstration of skills were used in the training. This method aims to assess how well individuals can apply what they have learned in authentic situations. In addition, the test was used as a method of assessing the knowledge, skills or competencies that participants have acquired during the training program. Tests are valuable tools to gauge the effectiveness of the training, identify areas where participants may need additional support, and ensure that learning objectives are met.

Table 1: The Instructional Design of the Stroke Training Program

LEARNING OUTCOMES	CONTENT	TEACHING AND LEARNING ACTIVITIES	TIME ALLOT-MENT	ASSESSMENT
Orient the students with the training program, its objectives, structure, and what they canexpect duringthe training sessions.	Orientation Overview of theprogram Expectation Setting Pre-test	Presentation of the program, schedule of activities and guidelines thruonline meeting Use of Google Survey Form	2 hours	Multiple choicequestions
Determine the student's proficiency level on strokeand serve as abaseline in measuring progress after the training.				

Perform assessment skillfully through interview (history taking),neurological assessment and interpretation of significant laboratory findings	**Module 1** Overview of Neurologic Examination Lesson 1: HealthHistory Lesson 2: Physical Examination Lesson 3: Common Diagnostic Tests/Procedures Lesson 4 NIHSS **Module 2** Specific neurologic examinations Lesson 5 Neurologic examination Assessing cerebral function,cranial nerves, motor system andreflexes	Interactive Discussion with theuse of powerpointslides Use of Videos onneurologic examination (developed by the faculty) Demonstration of NIHSS and the neurologic examination Guided practice session of NIHSS and neurologic examination (by Learning Teams) Guided practice of selected nursing procedures/skills in the Nursing Arts Laboratory (by Learning Teams)	16 hours	Demonstration of nursing assessment specifically NIHSS and cranial nerve assessment using procedure checklist Demonstration of selected nursing procedures/skills
Differentiate the two majorclassification of stroke as to itsetiology, clinical manifestations, pathophysiolog y, medical andnursing management	**Module 3** ISCHEMICAND HEMORRHAGI C STROKE Lesson 6 Ischemic Stroke Definition, riskfactors and etiology Clinical Manifestations Pathophysiology Lesson 7: Hemorrhagic Stroke Definition, riskfactors and etiology Clinical Manifestations Pathophysiology	Interactive Discussion with theuse of powerpointslides Use of Case study Concept mapping Critical thinking exercises Webinar provided by tertiary hospitals (focusing on latest management ofstroke)	4 hours	Answering of case studies by learning teams Presentation of concept map output showingthe pathophysiologyof stroke
Apply evidence-based practices and best medical and nursing practices in the care of clients with stroke	**MODULE 4** Medical Management	Interactive Discussion with theuse of powerpointslides Use of video Use of Case study	2 hours	Answering of case studies by learning teams Presentation of concept map output showing the medical management of stroke

Utilize the nursing process in the care of individual clients with stroke	**Module 5** Nursing Management	Interactive Discussion with the use of powerpoint slides Use of Case study to develop nursing care plan (by Learning Teams)	2 hours	Answering of case studies by learning teams Presentation of Nursing Care plan by learning teams
Demonstrate safe and effective nursing interventions and caring behavior in the management of actual clients with stroke in various clinical settings.	Clinical Exposure (either in the tertiary hospital or community)	Courtesy Call Brief Orientation to the area Patient Engagement (History Taking, Focused Physical Assessment /Neuro Assessment) Actual Nursing Care Provision of Health Teachings	8 hours	Observation of nursing skills Giving of positive feedback t the students
Evaluation the effectiveness of the training program Evaluate the knowledge or skills gained by participants after completing a training program	Evaluation of the training Post-test	Use of google survey form (use of standard form) Use of google survey form	2 hours	Use of standard forms Multiple choice questions

Demographic Profile of the Participants

There were two sets of participants who attended the 3 years schedule of the stroke training program from 2021 to 2023. The nursing students were enrolled in Internship Profession Stikes Budi Luhur from Cimahi, Indonesia and Faculty from the same school and other member schools form BIN for Edu. .

Table 2: Demographic profile of the student participants (N=92)

Profile	2021		2022		2023		TOTAL	
	F	%	F	%	F	%	F	%
Age								
21 y/o	0	0	1	5.88	1	2.56	2	2.17
22 y/o	0	0	3	17.64	5	12.82	8	8.69
23 y/o	23	63.88	9	52.94	19	4.87	51	55.43
24 y/o	7	19.44	4	23.52	11	28.20	22	23.91
25 y/o	2	5.55	0	0	2	5.12	4	4.34
26 y/o	1	2.77	0	0	1	2.56	2	2.17
27 y/o	3	8.33	0	0	0	0	3	3.26
Sex								
Male	12	33.33	3	17.64	11	28.20	26	28.26
Female	24	66.66	14	82.35	28	71.79	66	71.73
TOTAL	**36**	**100**	**17**	**100**	**39**	**100**	**92**	**100**

Table 2 presents the profile of the students participants in terms of age and sex. In 2021 there were 36 students enrolled in the online stroke training course (N=36, 100%), while only 17 students enrolled in the 2022 face to face stroke training program and 39 for the 2023 face to face stroke training course from the total of 92 participants. Almost half of the participants are 23 years old (n=51, 55.43%) While the majority of the participants are female in all training schedules (n=66, 71.73%).

The age and sex distribution appears consistent across different training schedules. There's a noticeable difference in enrollment between the online course in 2021 and the face-to-face courses in 2022 and 2023. This age is very particular for Indonesians who are taking the Internship Profession after completing their Bachelor's degree. As part of their internship program, the students need to complete the Stroke training Program which is part of their two week international training in the Philippines.

Implementation of an internship program for final-year nursing students in Stikes Budi Luhur is commendable. The internship plays a role in preparing them for better professional performance, enhancing clinical skills, increasing self-confidence and independence, inspiring the nursing profession, strengthening professional commitment, and improving the chances of employment after graduation (Shahzeydi, et al, 2022).

Table 3: Demographic profile of the Faculty participants (N=23)

Profile	2021	
	F	%
Age		
35-40	4	17.39
41-45	1	4.34
46-50	3	13.04
51-55	2	8.69
56-60	13	56.52
Sex		
Male	9	39.13
Female	14	60.86
TOTAL	23	100

Table 3 presents the profile of the faculty participants in age and sex. The majority of the participants are 56-60 years of age (n=13, 56.52%) and are female (n=14, 60.86%) from a total of 23 (100%). These age ranges for faculty belong to the senior level of higher faculty position in an educational institution. The priority for training from this institution lies on the prioritization according to age , rank and position of the faculty. While, female is always more common in the nursing profession even in the academe.

Evaluation of the Training Program

Evaluating training programs for nursing students is crucial to ensuring that future healthcare professionals are adequately prepared to provide safe and effective care. The evaluation process should encompass various aspects of the training program. Including its objectives, content, methods, and overall impact.

First, the evaluation process should begin by clearly defining the program's objectives. The objectives should align with the specific knowledge and skills required for nursing students to handle patients with stroke effectively.

Secondly the content of the training program should be thoroughly reviewed and evaluated. This involves assessing the relevance and accuracy of the information provided. Nursing students would receive up-to-date and evidence-based content on stroke care, including pathophysiology, risk factors, and latest advancements in treatment and rehabilitation.

The third aspect of evaluation involves assessing the methods used in the training program. This includes both instructional methods and practical hands-on experiences. Effective stroke training incorporates a variety of teaching techniques, such as lectures, case studies, simulations, and clinical exposure. The hands-on experiences should provide nursing students with opportunities to apply theoretical knowledge in real-world scenarios, emphasizing skills like history taking, neurological assessment, providing safe and effective nursing care and health teachings.

Collecting their input on the training program's strengths and weaknesses can provide valuable insights into the student experience. Answering the daily feedback questionnaire was used to gather feedback on the choice of content, knowledge of the lecturers, the effectiveness of teaching methods, attainment of the learning objectives and the perceived relevance of the training to their future roles as nurses caring for clients with stroke.

In addition, Catanqui and Clark (2012) shared that it is important for the training team to convene to assess the implementation of the program through the feedback forms and to make the necessary course modifications. They added that in the conduct of the evaluation, the participants should be able to provide feedback for the program which may include a session rating of outstanding, good, fair, or poor using an evaluation instrument. Lastly, it is important to note that to provide exceptional stroke care, interdisciplinary collaboration is crucial.

Table 4: Daily Feedback of Students in an Online Stroke Training Course (N=186)

Criteria	July 2021			October 2021		
	Mean	SD	Verbal Interpretation	Mean	SD	Verbal Interpretation
1. Choice of topic	3.80	0.40	Excellent	3.37	0.75	Very Good
2. Knowledge of the speakers/ facilitators	3.84	0.37	Excellent	3.52	0.64	Very Good
3. Method of presentation of the speakers/ facilitators	3.79	0.43	Excellent	3.41	0.73	Very Good
4. Time allotment	3.69	0.54	Excellent	3.15	0.79	Very Good
5. Attainment of Objectives	3.69	0.50	Excellent	3.27	0.76	Very Good
6. The learning experience obtained from attending the program	3.71	0.49	Excellent	3.30	0.74	Very Good
Average Mean	3.75	0.45	Excellent	3.33	0.73	Very Good

Table 4 presents the daily feedback of students during the online stroke training course. The students rated the online stroke training for July 2021 as excellent (M=3.75, SD= 0.45) and October 2021 as Very Good (M=3.33, SD=0.73). The "knowledge of the speakers/facilitators" criterion received the highest ratings in both training schedules, indicating that students consistently rated the instructors' expertise as high. "Time allotment" received the lowest ratings in both training sessions, with a mean rating of 3.69 with a standard

deviation of 0.54 in July 2021 and with a mean rating of 3.15 with a larger standard deviation of 0.79 in October 2021. This suggests that students were generally dissatisfied with the amount of time allocated for the training sessions, and that there was greater variation in the evaluations of this criterion, particularly in October 2021.

The speakers and facilitators for the stroke training programs were selected carefully based on their teaching experience and field of specializations. Most of them are faculty in the SoN who are teaching critical care and medical-surgical nursing. In addition, most of them have experienced critical care and medical-surgical nurses who are exposed to handling clients with stroke. This is supported by the study conducted by Appiah (2020), stating that teaching experience of the faculty showed a significant relationship with the quality of nursing education programs.

The change in the overall rating from "Excellent" to "Very Good" in July and October of 2021 could indicate a decrease in students' satisfaction. It will take further research to determine the causes of this change. It might be the result of modifications to the teaching strategies, course material, or other elements.

Furthermore, according to the study of El-Sayed, et al (2023), the provision of a conducive training environment that fulfills the basic needs of the students to maintain passion for learning will improve the satisfaction level and quality of education, training, and practice. Although, during the online delivery of the training, the provision of a conducive learning environment that is engaging and motivating is a limitation.

A possible area for improvement is highlighted by the consistently lower ratings for time allotment in both training plans. Identifying the reasons behind students' dissatisfaction with the time allotted and implementing necessary modifications could improve overall satisfaction.

Greater heterogeneity in student judgments is indicated by the increased standard deviation in the October 2021 evaluations, especially for the overall rating and time allotment. To find out if there are any particular problems or worries that led to the increased unpredictability, it could be worthwhile to investigate this.

Even though the evaluations are generally positive, there is room for improvement in the online stroke training course. This is indicated by the consistently lower ratings for time allotment and the decline in satisfaction from July to October 2021.

There are a number of obstacles to overcome when putting an online stroke training program into action. These difficulties could change based on the training's particular objectives, subject matter, and target audience. Training for stroke courses frequently entails practical skills like symptom assessment exercise practice. It can be difficult to translate these manual talents into an online platform. It is essential to make sure that participants can effectively practice these abilities online and receive feedback on them. It might be difficult to keep participants engaged in an online environment. In the absence of in-person connection, creative strategies like interactive modules, simulations, or virtual reality applications may be needed to keep participants engaged and motivated to finish the training. Participants' familiarity with technology and availability of dependable internet connections and gadgets may differ.

To avoid problems with participation, the online training platform must be easy to use and adaptable to various technological configurations. Technical difficulties, such as platform malfunctions, audio/video issues, or compatibility concerns, can cause disruptions in the training process. To resolve these problems as soon as possible, adequate technical support and backup plans are crucial.

Finally to overcome these obstacles, meticulous planning, working with online education specialists, and dedication to ongoing development are necessary. An online stroke training program can be successful by including participant feedback and keeping up with developments in online learning technologies.

Table 5: Daily Feedback of Students in a Face to Face Stroke Training Course (N=73)

Criteria	July 2022			August 2023		
	Mean	SD	Verbal Interpretation	Mean	SD	Verbal Interpretation
1. Choice of topic	3.24	0.83	Very Good	3.57	0.66	Excellent
2. Knowledge of thespeakers/ facilitators	3.29	0.77	Very Good	3.64	0.55	Excellent
3. Method of presentation of the speakers/ facilitators	3.05	0.89	Very Good	3.73	0.52	Excellent
4. Time allotment	2.94	0.90	Very Good	3.71	0.53	Excellent
5. Attainment ofObjectives	3.23	0.75	Very Good	3.64	0.59	Excellent
6. The learning experience obtained from attending the program	3.18	0.81	Very Good	3.68	0.59	Excellent
Average Mean	**3.16**	**0.83**	Very Good	**3.66**	**0.58**	**Excellent**

The students rated the face to face stroke training as Very Good in July 2022 (M= 3.16; SD=0.83) while Excellent in August 2023 training schedule (M= 3.66, SD=0.58). The highest rated in face to face training was the knowledge of the speakers/ facilitators in both training sessions. While the lowest rated was time allotment. The ratings in the face to face stroke training improved significantly from very good to excellent from 2022-2023.

This improvement points to beneficial adjustments or improvements made to the in-person training program during this time. The face-to-face training's highest-rated component in both sessions was the "knowledge of the speakers/facilitators." This consistency indicates that the instructors' experience and knowledge were valued aspects of the instruction in both sessions. This is supported by the study conducted by Astrid et al., 2021 which states that the educators' knowledge and pedagogical skills used in a flexible way, tailored and sensible to students and the learning context, enhance student experiences.

The element that received the lowest rating in both training sessions was "time allotment." This suggests that, despite an improvement in overall ratings, there is still a persistent issue with the amount of time allotted for training sessions. To fully grasp particular time management issues and potential solutions, more research may be required.

The standard deviations (SD) for the two years should be noted. The standard deviation was 0.83 in July 2022 and 0.58 in August 2023. A lower standard deviation implies that students' judgments in August 2023 were more uniform, pointing to a higher degree of agreement in their evaluations than in July 2022.

There has been an overall improvement, modifications to the training framework, instructional design revisions, and teaching approaches are all contributing factors. However, the major contributing factor here was the clinical exposure done in the community setting. Students were exposed to Mandaluyong City for one day where they were given clients with strokes. Home visits were done where the students performed brief history taking and focused physical assessment and neurological assessment. The home visit provided the students an opportunity to impart 15 to 30 minutes of health teachings to the clients with stroke and to the significant others as well. The health teaching focused on preventing further complications and recurrence of another stroke attack. Tomas (2022) emphasized in her study that the role of the nursing students in the

community is merely to facilitate, guide and help the people. The nursing students should assume supportive roles in inspiring, motivating and guiding the people to achieve their health goals.

Time allocation may need extra attention because it was repeatedly identified as one of the areas with lowest mean scores. . In order to determine whether the training's length is thought to be insufficient for covering the required material or if there are other factors impacting this evaluation, participant feedback may be very helpful. It is essential to comprehend the rationale behind the time allotment ratings in order to guarantee that participants feel sufficiently prepared without feeling hurried.

In summary, from 2022 to 2023, the face-to-face stroke training program showed a notable improvement in daily feedback of participants. A positive is the consistently high rating for speaker/facilitator knowledge; however, the constraint with time allocation points to a need for more research and possible changes to the training program. A lower standard deviation means that students" assessments are more in agreement with one another.

Continuous Improvement of the Training Program

The continuous review and update of program content is essential to the improvement of the program. Given the changing landscape of healthcare, particularly in stroke care, the training program continuously incorporates the latest evidence-based practices, advancements in treatment modalities, and emerging research findings. Regular updating of content ensures that nursing students receive accurate and relevant information, aligning the training with current best practices in stroke management. The SoN, particularly the team of selected faculty members handling the stroke training regularly conducts meetings to update the content and strategies of the training based on the result of the evaluation. In addition, recent guidelines on the management of stroke are included in the content of the training.

Improving a training program for nursing students based on the results of the evaluation of programs is crucial for ensuring the future health care professionals are well equipped to address the complexities of stroke care. This section outlines the overall evaluation of the participants to the training program to further enhance the effectiveness of this stroke training program. The evaluation form is developed by PACE and   is administered before the end of every training. The questionnaire focuses on the competencies of the lecturers and facilitators and the overall management of the training. The lecturers and facilitators are evaluated through their ability to present the concept and theory, knowleslede about the topic, ability to answer the questions, and display of enthusiasm in handling the content. On the other hand, the management of training considers two aspects of the training, the allocation of time and technical preparation.

Table 6: Overall Evaluation of Students and Faculty Participants in the Online Stroke Training Program (N= 59)

Criteria	July 2021 (N=36)			October 2021(N=23)		
	Mean	SD	Verbal Interpretation	Mean	SD	Verbal Interpretation
Lecturers/ Facilitator1. The lecturer/facilitator presented the concepts and theories well	4.50	0.56	Very Good	4.91	0.28	Excellent
2. The lecturer/facilitator was knowledgeableabout the topic	4.53	0.51	Excellent	4.82	0.39	Excellent
3. The lecturer/facilita tor answered the questions clearly and effectively	4.42	0.60	Very Good	4.83	0.39	Excellent
4. The lecturer/facilita tor projected an enthusiastic and	4.50	0.56	Very Good	4.83	0.39	Excellent

positive image to the participants						
Average Mean Lecturer/ Facilitator	4.49	0.46	Very Good	4.84	0.36	Excellent
Platform Used 1. Accessibility of CEU Leaps	4.58	0.50	Excellent	4.87	0.34	Excellent
2. Directions on how to use the CEU LEAPS	4.58	0.50	Excellent	4.83	0.39	Excellent
3. Audio-Visual Display/Presen tation	4.56	0.50	Excellent	4.83	0.39	Excellent
4. Learning activities are organized and engaging in the CEU-LEAPS	4.56	0.50	Excellent	4.87	0.34	Excellent
Average Mean Platform	4.57	0.50	Excellent	4.71	0.36	Excellent
Program Management 1. Time allocation for the activities	4.42	0.60	Very Good	4.83	0.39	Excellent
2. Technical preparedness	4.42	0.60	Very Good	4.78	0.42	Excellent
Average Mean Program Management	4.42	0.60	Very Good	4.80	0.40	Excellent
Overall Mean	4.51	0.54	Excellent	4.78	0.37	Excellent

The overall evaluation of the stroke online training program is evaluated by students and faculty participants in three domains: 1. Quality of lecturer/ Facilitator, 2) Platform used, and 3) Program Management. Both participants rated the online stroke training excellent. Likewise, the three domains were also evaluated as excellent. This positive overall evaluation is a strong indicator of satisfaction of participants and effectiveness of the program.

The facilitator or lecturer was rated as having outstanding quality by the participants. This suggests that the participants are highly satisfied with the way the teaching is delivered and the knowledge of the trainers. An excellent rating was given to the online training platform. This implies that the training's technology infrastructure (CEU LEAPS) and resources were efficient, easy to use, and enhanced the learning process. Additionally, the program's overall management received a high rating. This could refer to a number of things, such as time allocation and technical preparedness and it implies that participants were happy with the administrative handling of the training program.

The integration of technology can enhance the training experiences for nursing students. To continue the training, the SoN utilizes online learning through the use of CEU LEAPS during the pandemic. Content of the training was developed into modules and various teaching strategies were put into various online learning activities that promote active engagement and reinforce key concepts related to stroke assessment, medical and nursing management . Aside from this technology-assisted learning tools were used to provide students with realistic scenarios that mirror the challenges they may encounter in a clinical setting. Affiliating agencies like tertiary hospitals were invited to conduct webinars that will highlight the latest management of clients with stroke in an in-patient setting.

The online stroke training program has been deemed comprehensively successful based on the positive evaluations received in each of the three domains. It implies that in addition to the well-received material and delivery (Quality of Lecturer/Facilitator), the general administration (Program Management) and technology components (Platform Used) were also successful and positively impacted the experience.

The outcomes show that the online stroke training program was highly positively evaluated, with success being noted in the area of instruction quality, platform selection, and overall program administration. More thorough input gathering can aid in program improvement and help ensure that it is improved continuously.

Even though the outcomes are encouraging, it could be beneficial to get additional precise input in order to pinpoint each domain's unique advantages and potential growth areas. This could guide the training program's upcoming revisions and continuous improvement.

Table 7: Overall Evaluation of Students Participants in the Face-to-Face Stroke Training Program (N= 55)

Criteria	July 2022 (N=17)			August 2023 (N=38)		
	Mean	SD	Verbal Interpretation	Mean	SD	Verbal Interpretation
Lecturer/ Facilitator 1. The Lecturerpresented theconcept and theories well	4.39	0.62	Very Good	4.69	0.53	Excellent
2. The Lecturer was knowledgeableabout the Topic	4.29	0.58	Very Good	4.67	0.52	Excellent
3. The lecturer answered thequestions clearly and effectively	4.42	0.58	Very Good	4.66	0.56	Excellent
4. The lecturer projected an enthusiastic andpositive image to the participants	4.39	0.60	Very Good	4.65	0.57	Excellent
Average Mean Lecturer/ Facilitator	**4.37**	**0.60**	Very Good	**4.66**	**0.54**	Excellent
Program Management 1. Time Allocation	4.47	0.62	Very Good	4.71	0.52	Excellent
2. Technical Preparedness	4.47	0.62	Very Good	4.68	0.53	Excellent
Average Mean Program Management	4.47	0.62	Very Good	4.69	0.52	Excellent
Overall Mean	4.42	0.61	Very Good	4.67	0.53	Excellent

The students who took the face-to-face stroke training program rated the program as very good in the 2022 training schedule and excellent in the 2023 training schedule. All the three domains were rated the same respectively in each year of the program implementation. The difference in the online and onsite stroke program is the use of the CEU LEAPS platform. Since the training was given onsite, materials in the CEU LEAPS were also used as resources for the training. However, the platform was not utilized as a means of training delivery. Thus, this is not anymore included in the evaluation process.

The yearly constancy in the scores over the three areas points to a consistent and dependable degree of participant satisfaction. The program's increase from a "very good" rating in 2022 to a "excellent" rating in 2023 can be a sign of well-received improvements or modifications.

Despite the shift in the function of the CEU LEAPS platform, the participants were clearly satisfied with the in-person stroke training session based on the consistent and positive reviews. The program's content, delivery, or other elements that enhanced the participant experience may have contributed to the rating's improvement from very good to excellent.The rating's increase from very good to excellent could be attributed to the program's updated content, improved delivery, or other component that improved the participant's experience.

The knowledge gained from the program, implications for care delivery, design and development of the training program, impact on stroke care, and delivery method of the program are some of the areas to be evaluated. Similarly, the conduct of experiential learning is essential. In addition, to facilitate effective training,

a systems approach and strong leadership are needed to make competent health care providers (Scheffler & Mash, 2023).

CONCLUSION

In conclusion, the stroke training program has been evaluated very good to excellent by the participants. The training program ensures acquisition of the knowledge, skills and attitude necessary to become competent and effective nurses in the future in the prevention of stroke and providing care to clients with stroke. The knowledge of the lectures/facilitators were rated excellent by the participants and contributed to the effectiveness of the training program. The immediate transition to online learning and the use of CEU LEAPS made the training accessible to the participants even during the pandemic.

Evaluating a training program for nursing students requires a multifaceted approach. By clearly defining the objectives, reviewing content, assessing teaching methods, and incorporating student feedback, educators can ensure that the training program is comprehensive, relevant, and ultimately equips nursing students with the necessary knowledge and skills to provide high-quality care to clients with stroke.

The robust evaluation process contributes to the ongoing improvement of stroke training programs and, by extension, the competence of future nursing professionals in stroke care. Soliciting and incorporating feedback from the participants is integral to the improvement process. Regular assessment can provide valuable insights into the effectiveness of the training program. The feedback can identify areas that need improvement and also ensures that the program remains responsive to the evolving needs of the participants and the healthcare industry.

Lastly, improving the training program requires a holistic and dynamic approach. By constantly updating the content, integrating technology, diversifying teaching methods, strengthening the practical components and incorporating feedback can create more comprehensive and responsible training programs. Ultimately, these enhancements contribute to producing competent and effective nursing professionals capable of delivering high-quality care to clients with stroke.

While there are benefits to both online and in-person training programs, improving overall satisfaction and effectiveness requires addressing the unique issues surrounding time allocation in both contexts. To address these areas for improvement, more study and even changes to the training programs may be required. Although the training program has clinical exposures, strengthening the practical component is paramount by increasing the number of clinical hours. This exposure allows nursing students to develop necessary skills in assessing and caring for stroke clients.

Moreover, expanding exposure to different healthcare settings like the community setting significantly contributed to the enhanced participants' clinical competencies. The community exposure should not only aim on the prevention of stroke but also to prevent further complications and another attack of stroke. The focus of care at the community setting is aligned in the Indonesian priority program which strengthens the competency of nurses in delivering safe and effective nursing care at the primary health care setting.

Lastly, the review of records as the main research methodology of the study limits the researchers in evaluating the improvement of knowledge before and after the stroke training program. It is also recommended that future research must focus on the third and fourth level of Kirkpatrick Evaluation Model which evaluates the degree to which participants apply the acquired knowledge and skills in their work or real-life situations and the broader impact of the training on organizational or patient outcomes.

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