ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Multimodal Nurse-Led Education After Critical Illness: A Descriptive and Data-Integrity Audit of 30 Questionnaire Submissions

Jenna Joy S. Bulante, RN, MAN[1,2]
[1]*School of Nursing, The Philippine Women's University, Manila, Philippines*
[2]*Southern Tagalog Regional Hospital, Bacoor City, Cavite, Philippines*
[*]*jennajoy.bulante@sscr.edu*

Date Submitted:
October 01, 2026

Date Accepted:
October 28, 2026

Date Published:
November 27, 2026

DOI:
10.5281/zenodo.24614897

ABSTRACT

Adults recovering from intensive care often require education about medications, symptom monitoring, and follow-up. A planned nurse-led multimodal education evaluation generated a Google Forms summary, but the interpretability of its records required examination before claims of effectiveness. To describe the 30 questionnaire submissions, quantify recorded understanding, readiness, and acceptability ratings, and evaluate the completeness and consistency of the data for pretest–posttest inference. A descriptive, aggregate-data audit was conducted on the researcher-supplied response summary. Item-frequency counts from an 18-indicator care-plan understanding assessment, a 20-item self-management readiness scale, and a 12-item education acceptability instrument were converted into weighted means. Consent, eligibility, study-group, time-point, and implementation fields were audited descriptively. The extract contained 30 submissions: 22 pretests, three immediate posttests, and five follow-ups; 23 were labeled intervention and seven comparison. Voluntary agreement was checked in 27 forms; two age entries were below 18 years. Recorded mean total scores were 34.23/36 for understanding, 75.57/80 for readiness, and 45.17/48 for acceptability. Repeated or inconsistent participant codes, possible test entries, and the absence of linked participant-level scores prevented valid analysis of change over time. Recorded ratings were predominantly favorable, but 30 submissions cannot be equated with 30 verified eligible participants or interpreted as an intervention effect. A reconciled, ethically documented longitudinal dataset is required before effectiveness can be evaluated.

Keywords: *Critical care nursing, discharge education, data integrity, health literacy, nurse-led education, self-management readiness, teach-back*

INTRODUCTION

The transition from critical illness to continued care is not simply a change in location. Survivors may face physical deconditioning, cognitive or emotional symptoms, unfamiliar medication regimens, and decisions about when to seek professional help. These concerns can disrupt continuity of care after intensive care unit (ICU) admission [1,2]. Nurse-led discharge education therefore addresses a clinically consequential problem: helping patients understand their individual recovery plan while determining whether they have the confidence and support needed to follow it.

Multimodal education combines complementary modes of communication, including brief verbal explanations, patient-specific printed instructions, accessible digital resources, and teach-back to confirm

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

comprehension. Published studies involving heart failure and hemodialysis populations have described benefits of structured teach-back or multimodal instruction for selected self-care and health-literacy outcomes [3–5]. These results support the plausibility of further study in post-ICU care, but differences in patient burden and clinical context preclude assuming comparable effects among ICU survivors. Philippine research has separately documented an association between discharge education and preparedness for self-management [6].

The theoretical rationale draws on Meleis' Transitions Theory, which positions preparation and nursing support as important during health–illness transitions [7], and Mayer's Cognitive Theory of Multimedia Learning, which emphasizes coordinated verbal and visual information without unnecessary cognitive load [8]. Importantly, demonstrated understanding and perceived readiness are separate constructs. A patient may accurately explain an emergency warning sign while remaining unable to act on the instruction because of fatigue, functional impairment, or limited caregiver support; discharge readiness is multidimensional [9].

The underlying doctoral protocol proposed a quasi-experimental evaluation of multimodal nurse-led education. However, before estimating within-person change, the submitted response records must represent a defined eligible cohort, use consistent instruments, and link observations across time. The present report therefore addresses a narrower, empirically answerable question: What do the available questionnaire summaries show, and do they support a valid intervention-effect analysis? The objective was to describe the pattern of submitted responses, assess basic data integrity, and identify necessary refinements to the planned study. No causal or pretest–posttest hypothesis test was conducted.

METHODS

Design and Source

A descriptive, secondary audit was undertaken using a text rendering of the Google Forms aggregate-results page supplied by the investigator. The document was labeled “30 responses” and contained frequencies for questionnaire options, a table of self-entered respondent characteristics, free-text assessor notes, and implementation-fidelity indicators. The source was not a de-identified row-level dataset and did not permit verification against hospital charts, consent files, actual administration dates, or individual pretest and posttest records. The unit of analysis was therefore a form submission or item response, not an independently verified unique patient.

Parent Study, Setting and Participant Criteria

The parent study concerns adults aged 18 years or older who survived an ICU admission and were clinically stable for discharge education at Southern Tagalog Regional Hospital, Bacoor City, Cavite, Philippines. The intended intervention comprises individualized nurse instruction, a printed care-plan guide, digital or QR-accessible reinforcement, and teach-back. The parent manuscript specified a single-group pretest–posttest design. By contrast, the uploaded form included both intervention and comparison labels and three assessment periods (pretest, immediate posttest and follow-up). These conflicting definitions were retained in the descriptive audit rather than retrospectively altered.

Instrument Composition

The analyzed Google Form reflects a longer instrument than the shortened questionnaire in the parent manuscript. Care-plan understanding included 18 interviewer-rated indicators across five domains, scored 0 (incorrect or unable), 1 (partly correct), or 2 (accurate), giving 0–36 possible points. Self-management readiness comprised 20 agreement statements across five domains, each scored 1–4 (total 20–80). Education acceptability comprised 12 agreement statements, each scored 1–4 (total 12–48). The source also included a 20-indicator educational fidelity checklist. These observed instruments were used for the descriptive analysis; the earlier 10/10/6-item scoring ranges were not imposed on the longer response form.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Data Extraction and Analysis

Counts for response categories were transcribed from the displayed aggregate tables. For a scale with k items, the mean total was calculated as the sum of all weighted item counts divided by 30 submitted forms. Specifically, each understanding item contributed (2 × count of score 2 + count of score 1); each readiness or acceptability item contributed (4 × strongly agree + 3 × agree + 2 × disagree + 1 × strongly disagree). Domain mean item scores were calculated by dividing the domain's weighted score by (30 × domain item count). Percentages were calculated with 30 as the denominator only where every form had the item. Age mean and sample standard deviation were reconstructed from its complete aggregate frequency distribution. We report arithmetic summaries, not individual-level scale variability.

No patient-level standard deviations, internal consistency coefficients, confidence intervals for paired differences, within-person changes, hypothesis tests, or intervention versus comparison contrasts were calculated. Such analyses require linked observations, verified eligibility, and a coherent exposure schedule. Open-ended comments were used solely to identify recurrent concerns without formal qualitative coding or unsupported claims about theme prevalence. No direct clinical quotation is published, protecting potentially identifying narrative details.

Research Governance

The available source includes a checkbox indicating voluntary participation but does not itself establish informed consent, capacity, or independent ethics-review approval. Its use for publication must be reconciled with the institution's approved protocol and privacy requirements. The ethical safeguards expected for research involving patients, including adults recovering from critical illness, are described in the ICMJE recommendations [10]. No research ethics approval identifier or hospital authorization was provided for independent verification; neither is assumed in this audit.

RESULTS

Record Classification and Screening Concerns

The aggregate output reported 30 form submissions. Assessment labels identified 22 pretests (73.3%), three immediate posttests (10.0%), and five follow-ups (16.7%). Group labels classified 23 as intervention (76.7%) and seven as comparison (23.3%). The voluntary-agreement item was selected in 27 forms (90.0%), while the age distribution included two entries below the intended minimum age of 18. Multiple participant codes differed only in spacing or capitalization, some codes appeared more than once, and some clinical fields contained apparent test or placeholder text. Because the summary contains no reliable row-level linkage, neither the number of unique individuals nor the overlap between the consent and age flags can be determined. The theoretical maximum number of forms with affirmative consent is 27; this must not be mistaken for a verified eligible analytic sample.

Table 1. *Audit of submitted form classification (N = 30)*

Field	Submitted entries
Assessment: pretest	22 (73.3%)
Assessment: immediate posttest	3 (10.0%)
Assessment: follow-up	5 (16.7%)
Group: intervention / comparison	23 (76.7%) / 7 (23.3%)
Voluntary-agreement checked	27 (90.0%)
Reported age <18 years	2 (6.7%)
Repeated / variant participant codes	Observed; uniqueness unverified
Test-like or nonstandard entries	Observed; not quantifiable

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Note. Percentages describe submissions. Consent status, age, and repeat identifiers cannot be cross-tabulated from aggregate results.

Submitted Demographic And Access Characteristics

The submitted ages ranged from 16 to 65 years (mean 33.43, standard deviation 14.37; median 29). Nineteen entries indicated female sex (63.3%), seven male sex (23.3%), and four preferred not to disclose (13.3%). Fifteen indicated Filipino as the preferred instruction language, two English, and thirteen both. A family caregiver after discharge was reported in 25 records (83.3%); household smartphone access appeared in all 30; 24 reported regular internet access and six occasional access. These values describe entered form responses and are not prevalence estimates for the hospital ICU-survivor population.

Table 2. *Selected respondent characteristics (30 submissions)*

Characteristic	Recorded n (%) or value
Age: mean ± SD; median	33.43 ± 14.37 years; 29
Female / male / undisclosed	19 (63.3) / 7 (23.3) / 4 (13.3)
College graduate / college level	13 (43.3) / 9 (30.0)
Filipino / English / both	15 / 2 / 13
Caregiver reported available	25 (83.3%)
Smartphone access	30 (100.0%)
Regular / occasional internet	24 (80.0%) / 6 (20.0%)
Mechanical ventilation: yes	13 (43.3%)

Note. No eligibility or clinical verification against hospital records was possible.

Care-Plan Understanding

Across 18 indicators and 30 submissions (540 item ratings), 487 scores were rated fully accurate (90.2%) and 53 partially accurate (9.8%); no score of zero appeared. The weighted score sum was 1,027 points, giving a mean total of 34.23/36 (95.1% of the maximum possible). At the domain level, follow-up and continuity obtained the highest mean item score (1.93/2); symptom monitoring and escalation had the lowest (1.88/2). These averages pool all assessment labels and are not measures of improvement after education.

Table 3. *Care-plan understanding by domain*

Domain	Indicato rs	Mean/item (0–2)
Health condition	3	1.89
Medications / treatment	4	1.89
Activity, nutrition, recovery	3	1.91
Warning signs / response	4	1.88
Follow-up / continuity	4	1.93
Total mean /36	18	34.23 / 36

Note. Weighted score = 2 × 487 + 1 × 53 = 1,027; pooled mean total = 1,027/30. Individual score distributions are unavailable.

Self-Management Readiness

Across 600 readiness-item responses, 468 (78.0%) were strongly agree, 131 (21.8%) agree, and one (0.2%) disagree. The weighted score sum was 2,267, equivalent to a pooled mean total of 75.57/80. Knowledge readiness had the highest domain mean item score (3.80/4), whereas self-care skills/confidence and support/follow-up each averaged 3.77/4. These ratings measure recorded agreement with readiness statements and cannot establish observed performance of medication management, rehabilitation, or help-seeking after hospital discharge.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Table 4. *Self-management readiness scores by domain*

Domain (4 items each)	Mean/item (1–4)
Knowledge readiness	3.80
Self-care skills / confidence	3.77
Decision-making / help-seeking	3.78
Coping / adjustment	3.78
Support / follow-up	3.77
Mean total /80	75.57 / 80

Note. Weighted score = (468 × 4) + (131 × 3) + (1 × 2) = 2,267; pooled mean total = 2,267/30.

Education Acceptability And Recorded Fidelity

The 12 acceptability items contained 276 strongly agree, 83 agree, and one disagree response, yielding a mean total of 45.17/48. The item on clarity of nurse explanation averaged 3.87/4, and the item indicating that teach-back helped identify information not fully understood averaged 3.70/4. Fidelity tallies indicated that the individualized printed guide was provided on 30 forms and teach-back was checked on 29; however, only 28 reported completion of the intervention before posttest administration, despite the extract containing only three entries categorized as immediate posttest. This mismatch suggests that fidelity entries and assessment labels need record-level reconciliation.

Table 5. *Selected acceptability and fidelity results*

Indicator	Submitted result
Clear nurse explanation	3.87/4 mean
Digital material easily accessed	3.77/4 mean
Teach-back identified knowledge gaps	3.70/4 mean
Would recommend intervention	3.83/4 mean
Mean acceptability total	45.17/48
Printed care guide provided	30/30 checked
Teach-back used	29/30 checked
Intervention completed before posttest	28/30 checked

Note. All ratings are pooled across assessment categories. Checklist values are self-entered, not externally verified observation.

DISCUSSION

Principal Interpretation

This audit found consistently high recorded understanding, readiness, and acceptability scores, alongside substantial limitations in data structure and source verification. The central interpretive distinction is between a high level recorded on a mixed set of forms and a demonstrated improvement in the same individual following a defined educational intervention. The available summary supplies the former but not the latter. Consequently, it cannot support the causal claim implied by the original "effect of" study title or the pretest–posttest hypotheses specified in the doctoral protocol.

The evidence also cannot establish that 30 unique adult ICU survivors were assessed. Two recorded ages fell below 18, three submissions lacked a checked voluntary-participation statement, and codes were repeated or entered inconsistently. Because item aggregates are unlinked, overlap among these discrepancies cannot be resolved. The appropriate response is not to remove entries by assumption or invent a corrected sample size. Instead, the coded response export, recruitment log, signed consent records, and clinical eligibility documentation should be reconciled against prespecified rules before any patient-level analysis is reported.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 11 (November 2026)

Measurement and Response-Pattern Considerations

Mean understanding scores approached the maximum across every domain; scores of zero were absent in all 540 item ratings. This pronounced upper-end clustering is a potential ceiling effect, leaving limited variation to detect change in subsequent assessments. It may also be influenced by assessor prompting, response style, or inclusion of post-education ratings in the pooled export. Because the care-plan tool relies on assessor judgment, standardized scoring anchors, training, inter-rater agreement, and documented instrument validation are essential. Similarly, a highly favorable self-report readiness score should not be conflated with the ability to carry out a plan during recovery. The literature on discharge readiness treats educational, psychological, physical, and support needs as distinct components [9].

The longer questionnaire captured by the actual form differs materially from the shorter instrument described in the parent draft. Altering denominator ranges after the data have been recorded would undermine validity and reproducibility. The complete 18/20/12-item version should be either formally retained, validated, and specified in the final protocol or superseded prospectively before collecting a new cohort. Scores from the long and short versions should not be pooled without a prespecified, justified linking method.

Clinical and Theoretical Relevance

Within the modest differences among high domain scores, warning-sign recognition and action had the lowest observed mean understanding rating. Open-text entries likewise raised difficulties distinguishing normal recovery symptoms from urgent deterioration and remembering complex medication schedules. Because these comments were not systematically coded at the individual level, they identify areas for protocol development rather than quantified patient needs. Clinically useful refinements could include a one-page symptom–action chart, an individualized medication schedule, and repeat teach-back focused on when to contact a clinician or seek emergency treatment. Education should be adjusted for fatigue, literacy, vision, language preference, and available caregiver assistance.

Meleis' Transitions Theory supports attention to patients' capacity and support systems during changing phases of illness [7], while multimedia learning principles favor complementary verbal and visual information delivered without overwhelming working memory [8]. Evidence from randomized teach-back studies in heart failure and hemodialysis populations offers contextual support for the proposed teaching strategy [3–5]. However, such studies do not establish effectiveness among ICU survivors in Cavite. The Philippine association between discharge instruction and self-management preparedness similarly reinforces the clinical question without substituting for prospective evaluation [6].

Implications For A Definitive Evaluation

A defensible next-stage study should specify a single intended design and observation schedule, remove obsolete comparison-group and follow-up fields if these are not part of the approved protocol, and freeze the validated instrument version before recruitment. Each consenting eligible adult should have one pseudonymous participant identifier used consistently at pretest and posttest, with a separately protected linkage log. The educational intervention should be time-stamped, its fidelity documented at the participant level, and any missed posttest or protocol deviation recorded. Once linked observations are obtained, differences can be summarized with appropriate confidence intervals and effect sizes; a paired t test or Wilcoxon signed-rank test can be selected based on the distribution of within-person differences. For a future nonrandomized evaluation, relevant elements of the TREND reporting checklist may aid transparent reporting [11].

Limitations

This work relied exclusively on an aggregate Google Forms summary supplied by the investigator. We could not verify source authenticity, recruitment site, unique participants, ethical approval, clinical eligibility, timing of exposure, or the accuracy of assessor scores. A small number of apparent test entries and nonstandard clinical fields remained in the aggregated values because their identities could not be

determined. Calculated means are exact arithmetic summaries of the displayed category counts, but they do not have participant-level variance estimates, psychometric precision, or inferential validity. The descriptive findings should not be generalized to ICU survivors or portrayed as evidence of short-term learning gains, actual self-care behavior, or reduced readmission.

CONCLUSION

The updated form summary contains 30 submissions with predominantly favorable ratings across care-plan understanding, self-management readiness, and education acceptability. Yet the data contain mixed assessment periods, inconsistent group labels, eligibility and consent concerns, and unlinked participant codes. The current evidence supports only a descriptive data-integrity audit. It does not demonstrate that multimodal nurse-led education improved outcomes among 30 eligible ICU survivors. Reconciliation of original records, ethics and institutional documentation, instrument validation, and properly matched assessments are prerequisites for a credible intervention-effect publication.

REFERENCES

Coyoca, G. S. E., Camama, F. A., Exshan, M. Q. A., Polaos, R. B. A., Poblete, M. L. O., Seno, R. T., & Ramel, R. C., Jr. (2024). The extent of nurses' discharge education to the patient's preparedness for self-management. *The Malaysian Journal of Nursing, 15*(3), 3–15. https://doi.org/10.31674/mjn.2024.v15i03.001

Des Jarlais, D. C., Lyles, C., & Crepaz, N. (2004). Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: The TREND statement. *American Journal of Public Health, 94*(3), 361–366. https://doi.org/10.2105/AJPH.94.3.361

Feldbusch, H., Schmidt, M., Steeb, E. M., Paschek, N., Nemesch, M., Sartory, Y., Brenner, R., & Nöst, S. (2024). Theoretical concepts and instruments for measuring hospital discharge readiness: A scoping review. *Heliyon, 10*(5), Article e26554. https://doi.org/10.1016/j.heliyon.2024.e26554

Gravante, F., Trotta, F., Latina, S., Simeone, S., Alvaro, R., Vellone, E., & Pucciarelli, G. (2024). Quality of life in ICU survivors and their relatives with post-intensive care syndrome: A systematic review. *Nursing in Critical Care, 29*(4), 807–823. https://doi.org/10.1111/nicc.13077

International Committee of Medical Journal Editors. (2026). *Recommendations for the conduct, reporting, editing, and publication of scholarly work in medical journals*. Retrieved November 24, 2026, from https://www.icmje.org/recommendations/

Liu, Y., Luo, X., Ru, X., Wen, C., Ding, N., & Zhang, J. (2024). Impact of a multimodal health education combined with teach-back method on self-management in hemodialysis patients: A randomized controlled trial. *Medicine, 103*(52), Article e39971. https://doi.org/10.1097/MD.0000000000039971

Marks, L., O'Sullivan, L., Pytel, K., & Parkosewich, J. A. (2022). Using a teach-back intervention significantly improves knowledge, perceptions, and satisfaction of patients with nurses' discharge medication education. *Worldviews on Evidence-Based Nursing, 19*(6), 458–466. https://doi.org/10.1111/wvn.12612

Mayer, R. E. (2021). *Multimedia learning* (3rd ed.). Cambridge University Press.

Meleis, A. I. (2010). *Transitions theory: Middle-range and situation-specific theories in nursing research and practice*. Springer Publishing Company.

Oh, E. G., Lee, J. Y., Lee, H. J., & Oh, S. (2023). Effects of discharge education using teach-back methods in patients with heart failure: A randomized controlled trial. *International Journal of Nursing Studies, 140*, Article 104453. https://doi.org/10.1016/j.ijnurstu.2023.104453

Wu, T., Yan, F., Zhang, G., Zhao, R., Peng, G., Sun, R., Ma, Y., Han, L., & Liu, J. (2025). Interventions for adult survivors discharged from the intensive care unit: A scoping review. *BMJ Open, 15*(8), Article e096634. https://doi.org/10.1136/bmjopen-2024-096634