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Scientia Lucet Super Omnia

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Upholding Healthcare Excellence Across Generations



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UPINHF is a chapter of UPAA and recognized as a U.P. alumni organization by the U.P. Board of Regents. The Organization as an entity is committed to, and its members are dedicated to support their beloved alma mater, UPCN and PGH.

Greetings!

The International Forum for Nursing and Healthcare (IFNAH), official journal for nursing and healthcare practices, education and research of the University of the Philippines International Nursing and Healthcare Forum (UPINHF, Inc.), hereby announces the designation and recognition of :

**ERWIN WILLIAM LEYVA,
BSN, MPH, PhD, RN**



As the 2024 IFNAH Nurse Scientist awardee, and

**LORRAINE S. EVANGELISTA,
BSN, MN, PhD, RN, FAHA, FAAN**



As recipient of the 2024 Mentorship Award.

Congratulations and best wishes!!

**--- THE IFNAH JOURNAL
*Editorial Board***

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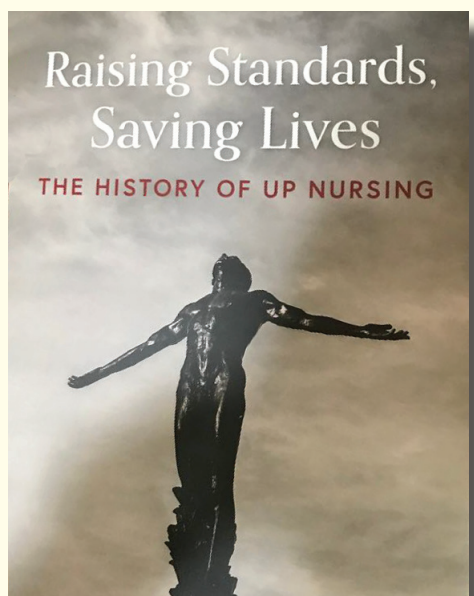
OUR COVER

By Nelson C. Borrero, UP Law '73
Editorial Consultant

The cover of this year's IFNAH Journal and Yearbook depict the UPINHF theme: "Upholding Healthcare Excellence Across Generations."

The theme is not a mere statement but a mission, and for that matter, a challenge to this organization's healthcare professionals to bridge age and generational disparities with a palpable pattern of excellent healthcare---something that addresses multigenerational issues like diverse lifestyle, differences of age, and marked changes of cultural routines along generational boundaries.

The panel of experts at the CEU Seminar and Forum will bring difficult issues to the fore and will offer fitting and acceptable manner of ushering excellent healthcare application across all generations. (ncb)



“Raising Standards, Saving Lives: THE HISTORY OF UP NURSING,”

a unique book with compelling story of the origins of UP Nursing was recently launched by UPCN and is now available to UP nurses and the public.

Styled as a coffee table book, the narratives and photos are captivating and engaging especially if you are a UP nursing alumni---the book brings back poignant memories of the school and college, perhaps a nostalgia of the wild youthful adventures and/or the arduous journey towards satisfactory academic objectives --- totally fascinating and inspiring.

For all the research, the anxious hours and years of hard work, the book is reasonably priced at \$75 a copy --- it is magnificently rich in content ---- a treasure to possess indeed.

Own a piece of history, a legacy of an institution close and dear to you and certainly of being a part of such legacy. (ncb)

The book is now available at UPINHF. Place your orders.



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EDITORIAL

An Editorial by: *Josephine F. Villanueva*

In 2017, the International Forum for Nursing and Healthcare (IFNAH), the official journal for the University of the Philippines International Nursing and Healthcare Forum (UPINHF), Inc. changed the existing publishing mode and converted to the current modern on-line publication. Originally launched with the cover theme "Turning a New Leaf to a Dawn of a New Beginning," the IFNAH editorial board was convinced that structural and strategic changes will improve its competitiveness and global scope of the journal to a brighter future.

In 2018, the IFNAH improved the solicitation of global scholarly relevant articles and manuscripts which increased the healthcare community's perception of IFNAH as an international forum for nursing and healthcare practices, education and research. During the same year, the Nurse Scientist fellowship award was bestowed to Sarla Duller, PhD, ANP-BC, RN for the publication of her research work in the maiden issue of the digital journal. IFNAH also granted the 2018 Mentor of the Year award to Dr. Lourdes Tejero for mentoring Sarla Duller, who has then completed the requirements of her doctoral degree.

During the COVID years, the Nurse Scientist and Mentorship awards were deferred until 2023 when IFNAH reinstated the citations and its encouragement of UP nurses to engage in research. 2024 is IFNAH's six years of digital publication after "Turning a New Leaf" with an avowed mission to continue encouraging our alumni to pursue research and publish their scholarly works.

The peer-reviewed IFNAH journal is registered with the ISSN at the Library of Congress (International Standard Series Number ---ISSN 2637-4161) which uniquely identifies a title regardless of language or country of publication without the burden of bibliographic description. The journal is also granted a copyright protection by the U.S. Copyright Office and is a member of the Library of Congress.

Josephine F. Villanueva

Josephine F. Villanueva
BSN, MA, RN-BC, NE-BC
Chairman, Editorial Board



EDITORIAL

Intergenerational Interplay in the Nursing Workforce

An Editorial by *Dr. Minerva S. Guttman, EdD, RN, APN*

The current nursing workforce comprises four generations of nurses working alongside each other. Generational diversity is valuable in healthcare because it is consistent with that of the clients they serve. It also brings potential pitfalls as shown by studies on the issue. These issues must be recognized by both the frontline nurses and their administrators in order to provide effective care to all patients.

The four generations of nurses working in healthcare institutions today are the Baby Boomers, Generations X, Y and Z. The Baby Boomers are defined as those who were born from 1946 -1964; Generation X or Thirteeners were born from 1965-1979; Generation Y or Millennials were born from 1980-2000 and Generation Z or the new Silent Generation were born from 2000 to the present (Howe and Strauss, 1991).

Tan and Chin (2023, in their study entitled, “Generational Effect on Nurses’ Work Values, Engagement and Satisfaction in an Acute Hospital,” found that there are significant differences in work attitudes and values among frontline nurses. Generation X are less likely to challenge the conventional norms and their supervisors. Generation Y and Z are referred to as “digital natives” because they are the most “tech savvy” and adaptable to new technologies. The younger generations value work-life balance more than the older generations. Generations Y and Z nurses perceive the younger nurses do not get due respect and recognition from their older colleagues (Tan and Chin, 2023). Considering that most of the supervisory and management positions are held by Baby Boomers and Generation X cohort with substantial working experience in

the unit or specialty, it is difficult for them to understand the work values and attitudes of the younger generation of nurses who value their personal and work-life balance.

The multigenerational differences in work attitudes and values among the nurses who are directly involved in patient care are significant. Administrators and leaders of healthcare institutions must recognize these differences to foster a harmonious intergenerational work environment. In addition, intergenerational collaboration and team building, shared responsibilities and mentoring are necessary to increase productivity and morale in the workplace.

Recognizing these generational differences, nursing administrators must implement transformational leadership that fosters a supportive, empowering, and flexible healthcare environment. Transformational leaders are resilient, able to motivate teams to work together in an inclusive environment to deliver exceptional patient care and outcomes. They encourage intergenerational nurses to communicate, share knowledge, skills, technologies and work together to tackle new challenges. Each generation of nurses brings to the workplace their unique contributions from their educational, cultural, and experiential backgrounds to their work to deliver positive patient outcomes. These contributions must be acknowledged and rewarded with respect in many forms.

With the proper attitude and inclusive approach, intergenerational differences are not problematic but a cause for celebration and a harbinger of greater successes. Viva le difference!



Minerva Salinas Guttman
EdD, APN, RN
Editor-In-Chief, Editorial Board



Baby boomers



Generation X



Millenials



Gen Z

Nurses' Challenges, Competency, and Adaptation Towards Digitization in Selected Rehabilitation Hospitals in Abu Dhabi, UAE

Ben Joseph Sabilala, RN, MN, MBA
benjosabilala@gmail.com

Dr. Leslie Lazaro

Abstract

Gaps in current technology, nursing practices, and healthcare environments hinder nurses from acquiring necessary competencies, embracing digital tools, and effectively adapting to healthcare digitization. While digitization in healthcare has been studied globally, little is known about nurses' experiences in UAE rehabilitation hospitals. This study aimed to assess the challenges, competencies, and adaptation of nurses to digitization in selected rehabilitation hospitals in Abu Dhabi, UAE. Using a descriptive correlational design, the study surveyed 204 registered nurses from three rehabilitation hospitals. Data was collected via a self-made questionnaire. The study found that existing protocols mitigate some digitization challenges, but nurses reported decreased competence in online communication, necessitating ongoing education in digital etiquette and ethics. Improvements in data entry practices and governance are needed, and competency gaps in digital documentation and coding systems require targeted training. Significant relationships were identified between nurses' awareness of digitization challenges, competencies, and adaptation, with perceived challenges predicting higher adaptation levels. However, self-assessed competency was not a significant predictor. The study recommends training nurses in digital skills, data handling, and communication, emphasizing ethics, data security, and documentation. Hospital administrators should invest in user-friendly technologies and IT support, while nursing training departments should collaborate with IT and educators for simulation-based training. The study introduces a "D.I.G.I.T.A.L. Adaptation Framework in Rehabilitation Hospitals" to guide the integration of digital technologies, assess existing initiatives, and identify areas for improvement. This framework emphasizes Digitization Adaptation

and Assessment, Involvement of Key Stakeholders, Generation of Workflow Redesign and Optimization, Innovation and Continuous Improvement, Training and Capability Building, Assurance of Quality and Evaluation, and Leveraging Sustainability and Scalability Strategies.

Keywords: nurses, challenges, competency, digitization, level of adaptation, rehabilitation hospitals.

1. INTRODUCTION

In an era where digitalization permeates every facet of life, the nursing profession stands at a pivotal crossroads, needing to adapt and harness technology to enhance patient care delivery. Nurses, as integral members of the healthcare team, must develop new skills and competencies to navigate the evolving digital landscape. This dissertation aims to investigate the challenges nurses face in adapting to digitization, evaluate their competencies in leveraging digital tools, and propose a framework to facilitate a seamless transition into the digital age of healthcare.

Digitization has revolutionized healthcare, enhanced patient care delivery and making digital technologies crucial for healthcare systems (Litchfield et al., 2021). Nurses use digital tools to improve the efficacy, accuracy, and accessibility of patient information, enhancing communication, streamlining workflows, reducing errors, and enabling swift access to patient data (Joseph et al., 2021). Additionally, digitization supports large-scale data collection, storage, and analysis, aiding evidence-based decision-making, and personalized treatment plans (Al Kez et al., 2022; Thomason, 2021).

However, integrating digital technologies poses challenges such as technology literacy gaps, resistance to change, and privacy concerns (Pepito & Locsin, 2019). Competency requirements include skills in telemedicine, EHR

systems, and privacy regulations (Booth et al., 2021). The growing demand for digital tools among patients necessitates that nurses develop digital competencies, yet many healthcare professionals lack these skills (Burgos et al., 2022). This underscores the need for education and training in fundamental digital competencies (Terry et al., 2019; Konttila et al., 2019).

Current technology, nursing practices, and healthcare environments reveal gaps that hinder nurses from acquiring necessary competencies and adapting to digitization. A gap in digital healthcare adoption persists due to patient resistance, insufficient digital health literacy, and health inequality. Taylor et al. (2022) highlighted communication barriers and the need to understand technology from patients' perspectives. Campanozzi et al. (2023) emphasized the impact of digital health literacy discrepancies on patients' access to technologies. Shrestha et al. (2022) noted that nurses often struggle with new software and technical challenges, while Abdolkhani et al. (2022) found that inadequate training complicates EHR implementation.

In Abu Dhabi, significant healthcare system changes aim to meet evolving needs by leveraging digital technologies in rehabilitation services. This integration requires a skilled workforce, with nurses playing a pivotal role (Kim & Hyun, 2022). Abu Dhabi's healthcare system prioritizes enhancing care quality and efficiency, particularly in rehabilitation facilities (Alzaabi & Hasan, 2022). Compliance with digitization is mandatory, as encouraged by the Department of Health (2020), which sparked the researcher's interest in exploring the challenges, competencies, and adaptation to digitization within the healthcare sector.

The researcher observed the growing adoption of digital technologies in Abu Dhabi's rehabilitation facilities

and is particularly interested in nurses' experiences with digitization. Hence, this study aims to assess nurses' challenges, competency, and adaptation towards digitization in selected rehabilitation hospitals in Abu Dhabi, UAE. It also seeks to determine the relationships between adaptation to digitization and assessments of challenges and competencies, and to develop an adaptation framework tailored to rehabilitation settings. This framework will guide nurses in effectively utilizing digital technologies to improve patient care outcomes.

Adaptation in this study refers to nurses' ability to effectively integrate and utilize digital technologies in their daily practice. The study's theoretical framework is based on Locsin and Purnell's "Theory of Technological Competency as Caring in Nursing," which posits that technology enhances the humanistic nature of care by understanding patients as whole individuals with unique needs (Krel et al., 2021). This perspective provided a foundation for understanding nurses' perceptions and navigation of digitization challenges in rehabilitation hospitals. The theory's focus on technological competence highlighted the complexity of incorporating digital technologies into nursing practice and the need for a holistic understanding of factors influencing nurses' adaptation.

The researcher hypothesizes that nurses' perceived challenges and competencies will significantly influence their adaptation to digitization in rehabilitation hospital settings. This hypothesis provides a structured approach to understanding the factors influencing nurses' adaptation to digitization.

2. METHODOLOGY

2.1. Research Design and Locale

The study used a descriptive correlational design with a quantitative approach to comprehensively assess nurses' experiences with digitization in rehabilitation settings (Sharma, 2019). This combined approach provided a detailed picture of current challenges, competency, and adaptation (Fischer et al., 2015) while exploring relationships between these factors. An online survey ensured objective measurement through numerical data and efficient collection from a large sample of rehab nurses (Rillo & Alieto, 2018). This design provided

a strong foundation for developing a digitization adaptation framework. Conducted in Abu Dhabi, UAE, the study focused on three rehabilitation hospitals. All hospitals, accredited by JCI and CARF, employ skilled professionals and utilize digitized processes like EHR, telehealth, remote monitoring, and mobile health applications, making them suitable for exploring nurses' challenges and adaptation to digitization.

2.3. Population, Sample Size, and Sampling

Purposive sampling ensured representativeness, allowing the selection of a sample that aligned with the study's characteristics (Dovetail Editorial Team, 2023). Participants meeting the inclusion criteria were chosen.

2.3.1. Inclusion and Exclusion Criteria

Inclusion criteria:

- a) Registered nurses aged 18 to 59 years, representing various career stages.
- b) Employed at the selected hospitals, ensuring relevance to digitization processes.
- c) Licensed by the Department of Health (DOH).
- d) Active users of EHR, telehealth, remote monitoring, medication administration systems, and mobile health applications.

- e) Direct patient care involvement.
- f) Provided informed consent.

Exclusion criteria:

- a) Staff in administrative roles without direct patient care involvement.
- b) Part-time or temporary staff members.
- c) Respondents from the reliability test of the questionnaire.

2.3.2. Sample Size

Using GPower software, the sample size was determined, resulting in an estimated 188 participants with an alpha level of 0.01 and a power level of 99%. The effect size was calculated based on anticipated differences in key outcomes among the study groups, considering prior literature in similar settings. An effect size of 0.3 was chosen, which strikes a balance between statistical sensitivity and practical significance, ensuring the detection of meaningful differences. The researcher employed 204 respondents: 63 from Hospital A, 71 from Hospital B, and 70 from Hospital

C. This included 54 English-speaking and 9 Arabic-speaking respondents from Hospital A, 60 English-speaking and 11 Arabic-speaking respondents from Hospital B, and 58 English-speaking and 12 Arabic-speaking respondents from Hospital C.

2.4. Research Instrument

2.4.1. Data Collection Instrument

The development of the self-made questionnaire began with an extensive literature review to grasp nurses' challenges, competencies, and adaptation to digitization in healthcare, identifying essential themes and constructs for the research (Babu, 2023; Wolf, 2021). Organized into three sections—nurses' assessment of digitization challenges, their competency in digitization, and adaptation level to digitization—the questionnaire covered technological, patient, nursing, and environment components (Alzu'bi et al., 2021; Booth et al., 2021; Issa et al., 2020; Veikkolainen et al., 2023). Competency items were informed by frameworks like the National Nursing and Midwifery Digital Health Capability Framework, while adaptation items focused on EHR, telehealth, and mobile health applications (Hospital Management Asia, 2023; Kouroubali et al., 2022; Wilson et al., 2022). The researcher's experiences and ongoing literature analysis, coupled with expert feedback, ensured the questionnaire was comprehensive, relevant, and aligned with the study's theoretical framework.

2.4.2. Questionnaire Design

The questionnaire was meticulously designed and are comprised of closed-ended questions. Major components included:

Part I: Nurses' assessment of digitization adaptation challenges, with sub-variables (technological, patient, nursing, and environment components), each containing five items. Below are the sample statements of the survey questionnaire:

a. Technological Component: I struggle to navigate complex digital healthcare systems due to their complexity.

b. Patient Component: Some patients struggle with navigating mobile apps, patient portals, or telehealth platforms, affecting communication.

c. Nursing Component: Inadequate

digital competencies cause inefficiencies and frustration when I use electronic healthcare systems.

d. Environment Component: Insufficient staff and budget can hinder acquiring digital systems and training of support staff, affecting successful digital technology applications.

Part II: Nurses' assessment of their competency in digitization adaptation, featuring sub-variables (digital professionalism, leadership and advocacy, data and information quality, information-enabled care domain, and technology), each with five items. Below are the sample statements of the survey questionnaire:

a. Digital Professionalism: I can follow and understand the ethical standards in the use of digital platforms.

b. Leadership and Advocacy: I understand and adhere to ethical standards when using digital platforms.

c. Data and Information Quality: I ensure the reliability, accuracy, and meaningfulness of information and data for patient safety, clinical decision-making, and digital healthcare initiatives' success.

d. Information-enabled Care Domain: I understand the principles of health information management, enabling me to securely collect, organize, and store patient data in digital systems.

e. Technology: I effectively use and navigate various digital tools, technologies, and systems essential for modern healthcare delivery.

Part III: Nurses' adaptation level to digitization in hospitals, with sub-variables (electronic health records, telehealth and remote monitoring, medication administration systems, and mobile health applications), each containing five items. Below are the sample statements of the survey questionnaire:

a. Electronic Health Records: I undergo training to develop proficiency in using electronic health record (EHR) systems, adapting to digitization, and learning to navigate the interface and features.

b. Telehealth & Remote Monitoring: I conduct virtual consultations with patients using telehealth platforms, assessing symptoms, answering questions.

c. Medication Administration Systems: I verify medication accuracy using a medication administration system (MAS) by scanning barcodes to confirm they match the prescribed medication.

d. Mobile Health Applications: I use mobile health apps as clinical references to quickly access recent patient care information.

Designed to take approximately 9 to 12 minutes to complete, the concise questionnaire minimized fatigue, maintaining response rates, reliability, and data quality (Sharma, 2022). Although English is the official language, the questionnaire was also translated into Arabic to accommodate Arabic-speaking respondents, with validation by three native Arabic professionals. It utilized a 4-point Likert and rating scales.

The questionnaire was answered using the following Likert and rating scales:

Table 1. Likert scale for the Nurses' Assessment of the Challenges of Digitization Adaptation

| Mean | Mean Range | Verbal Interpretation |
|------|-------------|-----------------------|
| 4 | 3.50 - 4.00 | Strongly Agree |
| 3 | 2.50 - 3.49 | Agree |
| 2 | 1.50 - 2.49 | Disagree |
| 1 | 1.00 - 1.49 | Strongly Disagree |

Table 2. Likert scale for the Nurses' Assessment of their Competency in Digitization Adaptation

| Mean | Mean Range | Verbal Interpretation |
|------|-------------|-----------------------|
| 4 | 3.50 - 4.00 | High level |
| 3 | 2.50 - 3.49 | Moderately high level |
| 2 | 1.50 - 2.49 | Moderately low level |
| 1 | 1.00 - 1.49 | Low level |

Table 3. Likert scale for the Nurses' Assessment of their Adaptation Level on Digitization

| Mean | Mean Range | Verbal Interpretation |
|------|-------------|-----------------------|
| 4 | 3.50 - 4.00 | High level |
| 3 | 2.50 - 3.49 | Moderately high level |
| 2 | 1.50 - 2.49 | Moderately low level |
| 1 | 1.00 - 1.49 | Low level |

2.4.3. Questionnaire Validity Testing

Before administering the self-made questionnaire to target respondents, it un-

derwent rigorous validity and reliability testing. A diverse panel of ten healthcare professionals with expertise in digitization or nursing informatics. Using the Content Validity Index (CVI), the questionnaire achieved an S-CVI of 99% and an S-CVI/UA of 90%, indicating strong content validity.

To establish reliability, the questionnaire was administered to 30 respondents who met the inclusion criteria but were excluded from the final survey to prevent bias. Cronbach's Coefficient Alpha was used to measure internal consistency, showing coefficients of 0.824 for challenges in digitization adaptation, 0.906 for competency, and 0.859 for adaptation level, indicating "Good" to "Excellent" reliability.

2.5. Data Gathering Technique

Before collecting data, the researcher obtained necessary approvals from the Office of the Graduate School and from three rehabilitation hospitals in Abu Dhabi, UAE.

The standardized, validated questionnaire, distributed via Google Forms, included a consent section that outlined the study's purpose, objectives, and participant rights, which participants had to acknowledge before proceeding. The survey allowed one response per participant and did not collect email addresses, maintaining confidentiality. These measures ensured reliable and valid data collection while minimizing biases and maintaining participant trust. Responses were retrieved via Google Forms for statistical analysis.

2.6. Data Analysis

After data collection, the researcher consolidated, analyzed, and presented the data using various statistical tools and specialized software. To test for normality, the Shapiro-Wilk Test was used, revealing p-values < .05, indicating non-normal distribution. Therefore, non-parametric statistics, specifically Spearman's Rho Correlation, were applied to determine significant relationships between variables.

Arithmetic Mean. This tool described the respondents' assessment of challenges (SOP 01), nurses' competency in digitization (SOP 02), and adaptation levels (SOP 03), providing a summary of central tendency (Manikandan, 2016).

Standard Deviation. This measured the variation in responses related to challenges, competency, and adaptation to

Table 4. Relationship of the Respondents' Assessment of Challenges (IV) and Competency Assessment (IV) to their Adaptation to Digitization (DV).

| Correlated Variables | rho | p-value | Decision on H0 | Verbal Interpretation |
|---|----------------|-------------|----------------|---|
| Assessment of Challenges to Their Adaptation to Digitization | 1.000** | .000 | Reject | High Positive Significant Relationship |
| Technological Component | 0.859** | .000 | Reject | High Positive Significant Relationship |
| Patient Component | 0.858** | .000 | Reject | High Positive Significant Relationship |
| Nursing Component | 0.917** | .000 | Reject | High Positive Significant Relationship |
| Environment Component | 0.882** | .000 | Reject | High Positive Significant Relationship |
| Competency Assessment to Their Adaptation to Digitization | 0.241** | .001 | Reject | Positive Significant Relationship |
| Digital Professionalism | 0.201** | .004 | Reject | Positive Significant Relationship |
| Leadership & Advocacy | 0.215* | .002 | Reject | Positive Significant Relationship |
| Data & Information Quality | 0.245** | .000 | Reject | Positive Significant Relationship |
| Information-enabled Care | 0.254** | .000 | Reject | Positive Significant Relationship |
| Technology | 0.164* | 0.019 | Reject | Positive Significant Relationship |

** Correlation is significant at the 0.01 level (2-tailed)

digitization, highlighting data dispersion (Sykes, 2016). It helped identify significant challenges, competency levels, and adaptation degrees among nurses.

Spearman's Rank Correlation Coefficient (Spearman's Rho). Used for SOP 04 and SOP 05 to explore relationships between adaptation to digitization and assessments of challenges and competency. Spearman's Rho measures the monotonic correlation between two ranked variables without assuming a normal distribution, with values ranging from -1 to +1 (Tschimpke et al., 2023).

Multiple Linear Regression Analysis. Applied to SOP 06 to examine the relationship between nurses' assessments of challenges and competency and their adaptation to digitization. This technique analyzes the impact of multiple independent variables on a single dependent variable, assuming linear relationships and normally distributed residuals. Multicollinearity was tested using tolerance and variance inflation factor (VIF) values (Kafle, 2019).

3. RESULTS

3.1 Relationship between the Respondent's Adaptation to Digitization and their Assessment of Challenges and Competency.

Table 4 shows the relationship of the respondents' assessment of challenges (IV) and competency assessment (IV) to their adaptation to digitization (DV).

3.1.1 Relationship of the Respondents' Assessment of Challenges (IV) to

their Adaptation to Digitization (DV)

The Spearman rho analysis shows a uniformly high positive significant correlation between various components and nurses' adaptation to digitization. The overall correlation between nurses' assessment of challenges and their adaptation is exceptionally strong (rho = 1.000, p-value = 0.000), indicating a direct relationship where increased perception of challenges leads to higher adaptation levels, significant at both the 1% and 5% levels. Similarly, significant correlations are observed in the technological (rho = 0.859), patient (rho = 0.858), nursing (rho = 0.917), and environment components (rho = 0.882), each with a p-value of 0.000, confirming that all these factors are closely aligned with and significantly impact nurses' ability to adapt to digital changes in the workplace.

3.1.2 Relationship of the Respondents' Competency Assessment (IV) to their Adaptation to Digitization (DV)

The Spearman rho analysis indicates a series of significant positive correlations between various nurse competencies and their adaptation to digitization, shedding light on the intricate relationships within the digital transformation in healthcare settings. Notably, there is a moderate but meaningful correlation between overall nurse competency and their adaptation to digitization (rho = 0.241, p-value = 0.001). This statistic reveals that higher levels of competency are generally associated with more effective adaptation to digital tools and processes, a finding significant at both the 1% and 5% levels.

Further details from the analysis emphasize the importance of specific competencies:

a) Digital Professionalism shows a positive correlation (rho = 0.201, p-value = 0.004), suggesting that professionalism in digital contexts significantly enhances adaptation.

b) Leadership and Advocacy are also positively linked to better digital adaptation (rho = 0.215, p-value = 0.002), indicating that nurses who exhibit strong leadership and advocacy skills are better equipped to handle digital transitions.

c) Data and Information Quality, critical for effective digital operations, correlates positively with adaptation (rho = 0.245, p-value = 0.000).

d) Information-enabled Care demonstrates its relevance with a correlation of 0.254 (p-value = 0.000), highlighting that the ability to integrate and leverage information is key to adapting successfully.

e) The Technology Component, although with a lower correlation (rho = 0.164, p-value = 0.019), still shows a significant impact, underscoring the foundational role of technology in digital adaptation.

These correlations collectively underscore the multifaceted nature of digital adaptation in nursing. Developing competencies across these specific areas not only aligns with successful digital integration but also enhances the overall efficacy and readiness of nurses in the evolving digital landscape of healthcare.

Table 5. Regression Analysis of the Respondents' Assessment of Challenges (IV) and Competency Assessment (IV) to their Adaptation to Digitization (DV).

| Model | Unstandardized Coefficients | | Standardized Coefficients Beta | t | Sig. | Collinearity Statistics | | Verbal Interpretation |
|---|-----------------------------|------------|-----------------------------------|--------|-------|-------------------------|-------|--|
| | B | Std. Error | | | | Tolerance | VIF | |
| Regression Coefficients for Nurses Challenges Contributing to High Level of Adaptation to Digitization | | | | | | | | |
| (Constant) | 0 | 0.007 | | 0.042 | 0.967 | | | |
| Technological Component | 0.214 | 0.003 | 0.263 | 71.618 | 0.000 | 0.379 | 2.641 | Predictor; reject null (significant) |
| Patient Component | 0.262 | 0.003 | 0.275 | 75.23 | 0.000 | 0.381 | 2.625 | Predictor; reject null (significant) |
| Nursing Component | 0.263 | 0.004 | 0.278 | 64.875 | 0.000 | 0.277 | 3.612 | Predictor; reject null (significant) |
| Environment Component | 0.261 | 0.003 | 0.31 | 84.394 | 0.000 | 0.378 | 2.643 | Predictor; reject null (significant) |
| Regression Coefficients for Nurses Competency Contributing to High Level of Adaptation to Digitization | | | | | | | | |
| (Constant) | 1.935 | 0.26 | | 7.458 | 0 | | | |
| Digital Professionalism | 0.178 | 0.121 | 0.187 | 1.469 | 0.143 | 0.278 | 3.596 | Not a predictor; accept null (not significant) |
| Leadership & Advocacy | 0.078 | 0.135 | 0.08 | 0.575 | 0.566 | 0.23 | 4.353 | Not a predictor; accept null (not significant) |
| Data & Information Quality | 0.003 | 0.127 | 0.003 | 0.023 | 0.982 | 0.267 | 3.741 | Not a predictor; accept null (not significant) |
| Information-enabled Care | 0.175 | 0.127 | 0.177 | 1.37 | 0.172 | 0.269 | 3.721 | Not a predictor; accept null (not significant) |
| Technology | -0.098 | 0.11 | -0.103 | -0.892 | 0.374 | 0.34 | 2.943 | Not a predictor; accept null (not significant) |

a. Dependent Variable: Nurses Adaptation towards Digitization

3.2 Regression Analysis of the Respondent's Assessment of Challenges and Competency to their Adaptation to Digitization.

Table 5 presents the Regression Analysis of the Respondents' Assessment of Challenges (IV) and Competency Assessment (IV) to their Adaptation to Digitization (DV).

3.2.1 Regression Analysis of the Challenges Contributing to High Level of Adaptation to Digitization

The regression analysis demonstrates a statistically significant relationship between various challenges nurses face in digitization and their adaptation to these digital changes. The β values for the technological, patient, nursing, and environment components are 0.263, 0.275, 0.278, and 0.310 respectively, each indicating a positive and significant influence on nurses' adaptation to digitization, with p-values of 0.000 for all components. These results strongly suggest rejecting the null hypotheses, affirming that challenges in these areas are predictive of a higher level of nurses' adaptation to digitization.

Additionally, the Tolerance values for these variables (0.379, 0.381, 0.277, and 0.378) and the corresponding VIF values

(2.641, 2.625, 3.612, and 2.643) confirm the absence of significant multicollinearity among the independent variables. This absence of multicollinearity indicates that each variable independently contributes to predicting the adaptation outcomes, thereby enhancing the reliability of the regression model's findings.

3.2.2 Regression Analysis of the Competencies Contributing to High Level of Adaptation to Digitization

The regression analysis explores the impact of nurses' competency variables on their adaptation to digitization. The β coefficients for digital professionalism, leadership and advocacy, data and information quality, information-enabled care, and technology are 0.187, 0.080, 0.003, 0.177, and -0.103 respectively. Except for information-enabled care ($\beta = 0.177$, p-value = 0.172), which shows a positive and statistically significant relationship, other competencies do not significantly affect nurses' adaptation to digitization, indicated by high p-values (digital professionalism: p = 0.143, leadership & advocacy: p = 0.566, data and information quality: p = 0.982, technology: p = 0.374).

The analysis also confirms the absence of multicollinearity among these variables, with Tolerance values all

above 0.1 and VIF values below 10 (Digital professionalism: VIF = 3.59, Leadership & Advocacy: VIF = 4.353, Data & Information Quality: VIF = 3.741, Information-enabled Care: VIF = 3.721, Technology: VIF = 2.943). These findings suggest each competency variable independently contributes to the model without redundancy, ensuring the reliability of the results.

3.3 Overall Relationship of the Respondent's Assessment of Challenges and Competency to their Adaptation to Digitization

Table 6: Relationship of the Respondents' Assessment of Challenges (IV1) and Competency Assessment (IVs) to their Adaptation to Digitization (DV)

| IV | DV | R | R ² | p-value | Verbal Interpretation |
|---------------------------|----------------------------|--------|----------------|---------|---|
| Challenges and Competency | Adaptation to Digitization | 0.403* | 0.162 | .000 | Significant, Moderate, Positive Correlation |

*Significant at .05 level (p < .05)

IV- Independent Variable

DV- Dependent Variable

R= Multiple correlation coefficient

R²= Coefficient of Determination

p-value= level of significance (if p < .05, significant; if p > .05, not significant)

H0=Null Hypothesis

Table 8 reveals a moderate correlation between nurses' assessments of challenges and competencies and their adaptation to digitization, with a multiple correlation coefficient (R) of 0.403 and a significance level of $p < .001$, leading to the rejection of the null hypothesis. This R value suggests a noticeable, though not strong, relationship, as values closer to 1 indicate stronger relationships. The coefficient of determination (R^2) of 0.162 shows that about 16.2% of the variance in adaptation to digitization is explained by these factors, while the majority (83.8%) of variability is influenced by other, unexamined factors. This data indicates that while challenges and competencies are significant, they are not the sole determinants of nurses' adaptation to digital changes.

3.4 "D.I.G.I.T.A.L. Adaptation Framework in Rehabilitation Hospitals"



Figure 1. "D.I.G.I.T.A.L. Adaptation Framework in Rehabilitation Hospitals"

The D.I.G.I.T.A.L. Adaptation Framework effectively illustrates the progression and interconnectedness of the various components of integrating digital technologies into nursing care delivery within rehabilitation hospitals. "D—Digitization Adaptation and Assessment" component, which serves as the foundation upon which the entire process is built. "I - Involve Key Stakeholders" component, which emphasizes the crucial role of actively engaging clinicians, nurses, nurse leaders, administrators, IT staff, and patients in the success of digitization initiatives. "G - Generate Workflow Redesign and Optimization" and "I - Innovation and Continuous Improvement" within the same circle underscores their interconnectedness and the importance of addressing these aspects simultaneously to drive meaningful change.

"T - Training and Capability Building" and "A - Assurance to Quality and

Evaluation" emphasizes the close relationship between these components and the need for a strong focus on training and quality assurance to achieve desired outcomes. "L—Leverage Sustainability and Scalability Strategies," encapsulates the entire framework and represents the overarching goal of ensuring the long-term viability and growth of digitization initiatives. This strategic placement aligns with the United Nations Sustainable Development Goal 9 (SDG 9), mainly target 9.4. It aims to upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes.

4. DISCUSSION

4.1 Relationship Between the Respondent's Adaptation to Digitization and their Competency Assessment

Nurses' adaptation to digital healthcare is significantly influenced by their perception of challenges across various dimensions, including technology, patient interaction, professional responsibilities, and environmental factors.

Technological Challenges: Nurses' daily exposure to digital tools highlights the importance of adequate training and support to improve digital fluency and ensure patient information security (Brown et al., 2020; De Leeuw et al., 2020; Abdolkhani et al., 2022; Gajarawala & Pelkowski, 2021; Wong et al., 2021). Christoforou et al. (2020) also emphasized that digital technology integration in healthcare necessitates the development of new competencies.

Patient-Centered Challenges: Difficulties patients face with technology can impact care quality and require nurses to focus on patient education and engagement (Taylor et al., 2022; Campanozzi et al., 2023). Research suggests that improving digital health literacy is essential for enhancing patient outcomes and ensuring equity in healthcare access.

Professional Challenges: The shift towards digital healthcare can create inefficiencies and alter nursing roles, impacting care delivery and nurse autonomy (Jedwab et al., 2022; Longhini et al., 2022). Addressing these challenges through continuous training and involvement in digital tool implementation can facilitate smoother

transitions and improve job satisfaction.

Environmental Challenges: Successful digitization also depends on the availability of resources and organizational support (Fahy et al., 2021; Shaw et al., 2021; WHO, 2020). Adequate funding and leadership buy-in are crucial for acquiring and maintaining the necessary infrastructure and support systems.

The multi-faceted nature of these challenges dictates the effectiveness of nurses' adaptation to digitization. The more these challenges are recognized and addressed through targeted strategies, the better nurses can integrate digital tools into their practice, enhancing both patient care and their professional development.

4.2. Relationship between the Respondent's Adaptation to Digitization and their Competency Assessment

Nurses' adaptation to digital healthcare is significantly shaped by their competencies in various aspects of digital professionalism, leadership, data quality, and technology integration, emphasizing the need for targeted training and ethical practice in the digital environment.

Digital Professionalism: Nurses' proficiency in digital communication platforms is crucial. Laukka et al. (2022) and Booth et al. (2021) stress the importance of training in professional email etiquette, online collaboration tools, and appropriate social media use, highlighting how digital professionalism underpins effective care delivery and patient safety.

Leadership and Advocacy: The role of nurse leaders in digital transformation is pivotal. E-leadership skills, as discussed by Finco et al. (2024), are essential for guiding digitization initiatives, emphasizing strategic thinking and ethical considerations like patient privacy and informed consent.

Data and Information Quality: Nurses' ability to assess and trust the quality of digital data directly affects their adaptation to digital tools. Lewis et al. (2023) outlines key dimensions of data quality in EHRs that are critical for effective healthcare delivery, suggesting automation to improve data assessment processes.

Technology Integration and Information-Enabled Care: Nurses' views on the importance of technology in patient care influence their adaptation to digital healthcare. Research by Ting et al. (2021)

supports a shift towards blended learning tailored to nurses' workflows to enhance EHR education, while Dong et al. (2021) emphasizes the need for behavioral security controls to address information security risks in healthcare.

Nurses who are competent with digital tools are more likely to seamlessly integrate these technologies into their practice, enhancing patient care. The American Academy of Family Practice recommends practical EHR interaction strategies to improve patient-centered communication, highlighting the importance of maintaining a human-centered approach during digital transitions (Powers et al., 2020).

Overall, nurses' digital competencies, ethical considerations, and leadership in digital transformation significantly influence their ability to adapt to and thrive in digitized healthcare settings, underscoring the need for comprehensive training and supportive leadership in these areas.

4.3. Relationship of the Respondent's Assessment of Challenges and Competency to their Adaptation to Digitization

The moderate correlation between nurses' assessments of digitization challenges, their competencies, and overall adaptation to digitization highlights how complex technology and workflow disruptions can affect confidence and adaptation. This correlation suggests that while these factors are important, other elements also significantly influence adaptation. For rehabilitation hospitals, this insight offers an opportunity to transform challenges into growth opportunities through targeted training, user-friendly technology design, and dedicated practice time. Such strategies can empower nurses, fostering a positive approach to digital adoption and creating a more confident, skilled workforce ready to leverage technology for enhanced patient care.

Multiple regression analysis in the study assesses the impact of training, support, and organizational culture on nurses' readiness for telehealth, exploring a broad range of factors influencing adaptation to digital health (Svensson et al., 2023). Additionally, Tu et al. (2021) explores nurses' perceptions and use of mobile health apps, emphasizing the role of user experience and training in their adoption. This underscores the necessity for user-centered design and comprehensive training programs to facilitate

successful integration and utilization of mHealth apps in hospital settings.

5. CONCLUSION

The researcher concluded that nurses find certain aspects of digitization, like data security and technology integration, less challenging due to factors such as existing protocols and effective communication. Rehabilitation hospital nurses reported decreased competence in online communication, indicating a need for ongoing education in digital etiquette and ethical guidelines. There is also a need to improve data entry practices and data governance knowledge. Nurses face competency gaps in digital documentation, coding systems, and standardized terminologies, requiring targeted training for consistent data capture in EHR systems. While telehealth shows promise, more support is needed for its effective use. Despite the potential of automated dispensing machines, some nurses have yet to adapt fully. The study rejected three null hypotheses, finding significant relationships between nurses' awareness of digitization challenges, their competency, and their adaptation to digitization. High awareness of challenges and self-assessed competency both influence adaptation, but other factors also play significant roles. The findings suggest that perceived challenges are predictors of high adaptation levels, while self-assessed competency alone does not significantly impact adaptation.

The study's findings illuminate the complex landscape of digitization in rehabilitation hospitals, revealing how nurses perceive and adapt to technological changes. The D.I.G.I.T.A.L. Adaptation Framework in Rehabilitation Hospitals was developed to address the specific needs identified through this research.

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Mabuhay!

Our greetings to all jubilarians celebrating our organization's 8th Annual International Nursing and Healthcare Forum and Reunion.

Kudos to the members of various committees and all UPINHF officers for the hard work that makes this affair memorable. You make this annual even an astounding success every time.

I wish to mention the very effective role the IFNAH journal plays in the pursuit of our organization's vision and the realization of our mission reflected in this year's theme: *"Upholding Healthcare Excellence Across Generations."* More power to the staff led by Josephine F. Villanueva, Chairman, Editorial Board. Carry on the noble task, you are doing a great service to our organization, our readers and the nursing and healthcare professions.

My family and I join the UPINHF family in this celebration.

TERRY DAJAY SENON, BSN (UPCN '67), RN



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The Shape of the Nursing World to Come

Elnora Eslao- Duque ,BS,N ,STD, MPH, MOSH, PhD
edunqueconsultancy@gmail.com

Introduction

Nurses from my country and I deeply appreciate this opportunity to share our experience in working together and learning from similar experiences of other nurses worldwide on how standards are derived, understood, accepted and maintained in shaping the umbrella of quality health and care systems for all people.

As the overall chair of the Joint Committee on Standards of Nursing Practice of the Philippine Nurses Association (PNA) and the Association of Nursing Service Administrators of the Philippines (ANSAP), I am one with colleagues in nursing in working towards the dream or vision “relevant, accessible and affordable care for all Filipinos” through a goal-oriented or outcome based nursing care system and an ongoing qualitative and constructive evaluation of quality health and nursing care.

Groups are likely to differ in their concept about quality from a traditional notion of quality as absolute associated with distinctiveness and exclusivity. An absolute notion of quality is synonymous with excellence and exceedingly high standards as compared to a more relative notion of quality as checking standards that are measured against realistic goals/outcomes as criteria believed or known to influence the quality of health and nursing care.

Today, increasing concern for social accountability, effectiveness and wider access to healthcare expressed in the Primary Health Care Conference in Alma Ata USSR in 1978 has shifted the notions of quality away from the traditional and absolute, to a more relative notion of quality.

Model of Quality Assurance Planning

Then relative notion of quality allows for non-universal standards. The process involves the following:

(i) generalizing and projecting the

health problems of the patient groups and the goals or outcomes to be attained that in turn become the basis in

(ii) determining the criteria if, there is quality or not in relation to the goal/outcome and the structural components and staff performance that are likely to influence the quality of nursing care

The model of quality assurance planning is extended to show the mechanism by which quality institutions add value by developing and maintaining a Quality Management (QM) system and a Performance Development Management (PDM) system.

The maintenance of a Quality Management (QM) system and a Performance Development and Management (PDM) system is based on a culture where staff individually and as a team assume continuous responsibility in collaboration with immediate supervisor in developing own roles and responsibilities and skills required based on position description and goals of the service in monitoring and evaluating own performance towards continuous quality improvements. (CQI)

Framework in Developing, Maintaining and Evaluating the Quality of Nursing Practice

The framework used by the Joint PNA/ANSAP Committee on Standards of Nursing Practice in developing, maintaining and evaluating standards of nursing practice is presented as a two-phase process in Annex 1 as described to some details below

Phase one is a two-step process. First, is the clarification of the contextual basis of nursing practice in the clinical/administrative, teaching / learning and research institutions and in structuring the cyclic relationship of the patient groups with health problems associated with socio economic, cultural factors, technology and directions of the healthcare system. Second, is the clarification of the conceptual basis

or nature of nursing in terms of its focus, process, philosophy in relation to the underlying values and principles, expected roles and function of the nurses.

Phase two involves the selection of the criteria against which to evaluate the extent which the structural components and staff performance are adequate in helping /assisting the people cope with health/illness situations in all stages of the life cycle through a nursing care system in relation to following: Maternal and Child Health, Medical Surgical, Communicable Diseases, Orthopedic, Intensive Care, Psychiatric and Mental Health Nursing and other nursing services that are nested in healthcare institutions and in the Community/Public Health. Educational institutions, schools and occupational settings.

Considering the complexities of the problems in terms of cost in time and efforts in the development and maintenance of quality nursing care system against the availability of resources and longtime consequences, the committee looked into the issues / problems to be addressed in developing maintaining and evaluating standards of standards of nursing practice.

Issues Problems /Needs in Developing, Maintaining and Evaluating the Standards of Nursing Practice

The basic issue is how to plan, develop, implement and evaluate a quality nursing care system. Corollary to this is the need to address the following problems:

First, is the need for a standards of nursing practice as a caring profession that are valid, understood and acceptable to nurses as care specialist and other disciplines notably, the doctors with whom nurses are engaged in joint practice. Here the lack of recognition of nursing as an intellectual discipline distinct from medicine accounts for many of the unresolved problems in interprofessional relationships despite

efforts to delineate the responsibilities of various disciplines involved in the delivery of health services.

Second, is the need to promote the commitment of nurses to the goal/outcome-oriented approach in quality assurance planning through a Performance Development and Management System where nurses assume responsibilities in developing roles, functions and skills in monitoring, evaluating and improving performance based on best practices.

Third, is the importance of nurses behaving as self-accountable professionals and reflective practitioners through increased consciousness of a set of values or ideals that determine the priorities for actions:

- *Professional values* that are referred to as the four Cs in nursing, namely: *Compassion, Competence, Confidence and Congruence* that reflect the ability to learn *how to feel, think and act* based in actual experience in helping/assisting people to assume responsibility for health promotion and maintenance, healing and recovery and rehabilitation from illness and injury and independence in carrying out activities of daily living.

- Basic human Values of importance to all people based on belief about the world and institutions/organizations in their life and roles in adapting to limitations associated with age, illness, injury and conditions in the environment that influence their ability and success in addressing them.

- Social values of Accountability/Ethics, Cooperation, Collaboration, Coordination, Unity in Diversity and Networking with other disciplines/experts within and outside the healthcare institutions in which nurses act as coordinator in a healthcare team.

- Economic/ productivity values such as Efficiency, Cost Effectiveness and Macroeconomics in managing human, material and financial resources including information needed in responding to the problems, needs and requirements of people towards a better quality of life for all including those involved in the delivery of health care services, notably the nurses who are constantly in close and direct contact with people in healthcare institutions community, schools and work settings

Fourth, is the need for standards of nursing practice as guide in developing and evaluating the degree to which

educational programs prepare nurses in providing quality nursing care and contribute to professional knowledge. In this sense, knowledge is defined as a fluid mix of framed experiences, contextual information and expert insights that provides a framework for evaluating and incorporating new experiences if learning is to continue.

Fifth, is the need for nursing administration to exercise leadership and management responsibilities in designing and implementing a Quality Management System through a cyclic process of planning, doing, checking and acting to institutionalize best practices in improving the quality of nursing care.

Sixth, is the need to develop alternative mechanisms to ensure the quality of nursing education, through a program of certification of quality. This certification could be used the basis of mandatory and voluntary accreditation of educational and healthcare organizations by a designated authority.

Summary

The shape of the nursing world to come depends on a Quality Standard System (QSS) that contributes to continuous quality improvement (CQI) toward shared vision, quality health care for all Filipinos.

The quality assurance planning model is based on ecological or relational perspective and relative notions of quality assurance as summarized below:

- Quality as *transformation* This is most appropriate in a rapidly changing context and in dealing with the complexities of the clinical/administrative, teaching/ learning and research situations that enable nurses to develop full potential. Emphasis is placed on opportunities to develop their potential in helping /assisting people assume responsibility for self-care.

- Quality as *consistency* where nurses are able to live and work by a set of professional, basic human, social and economic values that enable nurses to determine the priorities to act consistently and persistently.

- Quality as *fitness for purpose* which is related to the mission, direction and strategies to be achieved through well designed goals/outcomes in relation to the needs and requirements of client groups and those involved in meeting them particularly nurses who are in close

and direct contact with them.

- Quality as value for money where productivity ensures the ability of healthcare institutions to survive, grow, develop and succeed in responding to the needs/requirements of individuals and their family, neighborhood, work place, community for health care of which nursing is a very important component.

The development and maintenance of a quality nursing care system where the groundwork has been laid out by the through the Joint Philippine Nurses Association (PNA) and Association of Nursing Services Administrators of the Philippines (ANSAP) chaired by the author.

1. Involvement of nurses in nursing education, service, research and regulations in developing a goal-oriented approach and quality assurance planning based on shared vision mission, and

2. Dialogues with health administrators, educators, staff developers, politicians and any other who are likely to influence the quality of the nursing care system

Annex - Phases in the Development of Standards

Phase I - Contextual and Conceptual Basis

- Context: Why of nursing:
Socio-economics, Technical and Cultural Factors
Patients/Groups/Population
Health Problems, Needs and Requirements of the target/population groups
Goals and outcomes to be achieved
- Concepts: What of nursing practice
Definition of Nursing
Beliefs, action & meaning attached to nursing
Values developed over time
ANNEX Resource requirements

Phase II: Criteria or variables that influence the quality nursing care in various setting and specializations

- Defining and Checking standards based on the variables that influence the quality of nursing care in various stages and area of practice
 - Structural components
 - Staff Performance
- Quality/Assurance Mechanism:
 - Quality Standards System (QSS)
 - Performance Development and Management (PDMS)

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Philippine Nurses Association Nursing in Primary Health Care in the Philippine Setting . Statement of the Philippine Nurses Association 57th Foundation Anniversary



FEATURE: *A UP Nurse*



DR. ERLINDA CASTANEDA WHEELER
BSN, MSN, DNS, PHD.

Graduated with a BSN degree from the University of the Philippines College of Nursing (UPCN '67) Erlinda Castaneda started working as a staff nurse. Overcoming myriads of challenges and prevailing over uncertainties and some difficulties along her path, Erlinda became a full-fledge professor and retired from her 46 long years in the academe with the distinction of Professor Emeritus.

Her life in the academia was certainly filled with remarkable feats, yet for her, there are two important milestones that she wishes to highlight which she considers *“my proudest moments in my academic experience.”* They are:

First. On April 15, 1998, Dr. Erlinda Castaneda Wheeler was invited to be one of the plenary speakers of the **First International Nursing Research Congress**, Manila, Philippines. Surely there was somehow a sense of pride for a humble alumna coming home to dear *alma mater* credentially equipped to share her expertise and perspective of the future of nursing under a challenging and provocative topic: *“Clinical Nursing Research in the Next Millenium.”*

Second. Dr. Erlinda C. Wheeler was coordinator of the University of Delaware’s undergraduate research program. She received financial grants for the next five years from the National Institute of Health (NIH) through the Delaware Biotechnology Institute INBRE “to teach undergraduate nursing research course by providing students with hands on experience in the conduct of nursing research and provide faculty with assistance in moving their research agenda forward.” The endeavor was a success, the outcome was well received by the faculty and students that the results were documented and published titled: *“Symbiosis--- Undergraduate Research Mentoring and Faculty Scholarship in Nursing,”* NURSING OUTLOOK, Volume 56, Number 1, 2008. Dr. Wheeler was the lead author of the article.

For all her success, for the legacy she is leaving with upcoming nurses, for the outstanding professional she has become, she expresses her profound gratitude to her alma mater, University of the Philippines, the University of Rochester and the State University of New York. She also thank her mentors, professors, colleagues and her UPCN '67 classmates for their friendship and encouragement, and more importantly and most of all her Lord Almighty for all the blessings and guidance bestowed along the way.

Work Empowerment, Work Engagement, and Professional Quality of Life of Nurse Managers in Selected Level III Hospitals in Metro Manila

Regie D. Legaspi, RN, MAN, CSSGB, CHA

Doctor in Nursing Management Candidate
Trinity University of Asia

Associate Director, St. Luke's Medical Center- Global City
regiedlegaspi@tua.edu.ph

Bea-Gracia M. Cruz, RN, MAN, MBAH, DNM, CHA, FPCHA

Full Professor
Trinity University of Asia
bgmcruz@tua.edu.ph

Abstract

The healthcare field is becoming increasingly complex due to multiple intersecting and emerging concerns at patient, nursing, and organizational levels. Nurse managers must be equipped not only with adequate competence but also with positive well-being. This descriptive correlational study assessed work empowerment, work engagement, and professional quality of life among 191 nurse managers at two level III Joint Commission-accredited hospitals in Metro Manila. It also examined the relationship of work empowerment and work engagement to professional quality of life. Data collection utilized the Conditions for Workplace Effectiveness Questionnaire (CWEQ), Utrecht Work Engagement Scale (UWES), and Professional Quality of Life (ProQOL) Scale. Findings indicated high levels of empowerment (mean = 3.84, SD = 0.58) and engagement (mean = 4.55, SD = 0.78), particularly in access to resources (mean = 3.89, SD = 0.83) and access to opportunity (mean = 3.98, SD = 0.81). Robust regression analysis revealed that the dedication subscale of UWES was a significant predictor of the following subscales of the PRoQOL Scale: compassion satisfaction ($\beta=0.3245, p=0.0001$) and low compassion fatigue ($\beta=-0.4010, p<0.0001$) and burnout levels ($\beta=-0.3997, p<0.0001$). These results suggest that targeted interventions to enhance work empowerment and engagement, particularly focusing on increasing dedication, can significantly improve nurse managers' professional quality of life. Implementing frameworks can lead to better work conditions for nurse managers, which can positively impact the broader healthcare system.

Keywords:

Filipino nurses, nurse managers, professional quality of life, work empowerment.

Introduction

Nurses comprise the largest group of health professionals within the healthcare industry, playing an indispensable role in patient care outcomes. In the study of Huang (2021), it was found that a higher patient-to-nurse ratio was associated with increased levels of personal burnout and job dissatisfaction among nurses. The higher patient-to-nurse ratio also had a significant impact on nurses' work empowerment, work engagement, and professional quality of life. According to Rosetter (2024), more than 80% of nurses report experiencing burnout, feeling underpaid, and being frustrated with their administrators. Many also note that the past year has taken a significant toll on their mental health. Nurses are increasingly leaving bedside care due to several critical issues: insufficient staffing ratios, unequal pay for equal experience, lack of hazard pay during the pandemic, inadequate support, and the inability to take breaks, sick days, or decline extra shifts (Nurse.org, 2022). According to the World Health Organization (WHO) (2020), these factors are essential because of their substantial influence on nurses' efficiency and well-being in their jobs. Work engagement, characterized by vigor, dedication, and absorption, leads to positive work outcomes (Al-Dossary, 2022).

According to Aunguroch et al. (2024), higher work engagement is associated with better performance, more positive emotions, and increased health and productivity among nurse employees. Conversely, compassion fatigue and life balance can negatively impact nurses' physical and mental health, reducing efficiency and increasing hospital expenses (Du et al., 2020; Dall'Ora, 2020). Organizations need to prioritize structured programs and interventions, focusing on strategies, processes, technology, performance, and human resources, which can

boost team development, work dynamics, and employee engagement. Professional quality of life encompasses compassion fatigue, burnout, and compassion satisfaction (Bahari et al., 2022). Burnout and compassion fatigue are significant side effects of ongoing working stress that include diminished personal accomplishment and emotional tiredness. Conversely, compassion satisfaction refers to the sense of fulfillment that nurse managers get from assisting others, such as patients and their teams (Chachula, 2021).

The work empowerment and engagement level of nurse managers significantly influence the quality of patient care (Wee & Lai, 2022). The professional quality of life of nurse managers, encapsulating both positive and negative effects, directly impacts the ability of healthcare workers to provide safe, high-quality patient care (Ndlovu, 2022). Therefore, healthcare organizations need to invest in evidence-based initiatives, to support nurse leaders' work engagement, work empowerment, and professional quality of life.

Nurse Managers and their roles

Nurses are appreciated for the extraordinary care that they provide to patients. They are empowered to decide for the nursing unit anything that impact patients, co-staff, and organization. Findings of the study of Alcludia (2019) on work empowerment and job satisfaction among nurse managers in a military hospital in the Kingdom of Saudi Arabia revealed a positive correlation between work empowerment and job satisfaction, indicating that factors such as formal and informal power, access to opportunities, support, information, and resources that contribute to work empowerment are also associated with job satisfaction.

Factors affecting their performance and wellbeing

Work Empowerment

Work empowerment, a complex and multifaceted concept, is of paramount importance in the healthcare sector, particularly within the roles of nurse managers. It is characterized by access to support, access to resources, access to information, access to opportunity, formal power, and informal power (Abel, 2018). Nurse managers, as leaders in healthcare settings, are entrusted with the task of enabling their nursing staff to have control over their work, access to resources, and opportunities for professional growth. Empowerment in healthcare settings is crucial for enhancing job satisfaction, reducing burnout, and improving overall organizational outcomes (Çelik, 2023). Effective leadership behaviors, such as empowering leadership, can positively impact employee empowerment, job satisfaction, and organizational commitment (Dennerlein & Kirkman, 2023). Creating a healthy and supportive work environment with adequate resources is essential for empowering nurse managers and ensuring their success in high-stress healthcare settings.

Work Engagement

Work engagement is a positive psychological state characterized by vigor, dedication, and absorption in one's work (Bakker et al., 2015). As key leaders in healthcare organizations, nurse managers, play a critical role in fostering work engagement among their nursing staff. Work engagement encompasses the energy and enthusiasm with which individuals

approach their tasks, their commitment to their roles, and their deep immersion in their work. Several factors contribute to the work engagement of nurse managers. Leadership style is a significant determinant (Lv, 2022). Research by Feliciano et al. (2022) suggests that transformational leadership, which involves inspiring and motivating staff, is positively associated with work engagement among nurse managers. Transformational leaders tend to create a motivating work environment that encourages nurse managers to be more engaged in their roles.

Creating robust support systems within the workplace is equally crucial. Nurse managers should have access to mentorship programs and peer support to help them cope with the unique challenges of their roles (Moloney, 2022). Such support systems offer opportunities to share experiences, seek guidance, and reduce feelings of isolation and stress. Additionally, leadership development programs should emphasize stress management, resilience, and self-care. Equipped with these skills and strategies, nurse managers are better prepared to handle high-pressure situations, prevent burnout, and maintain their work engagement.

Professional Quality of Life

Professional quality of life (ProQOL) is a multifaceted concept encompassing compassion fatigue, burnout, and compassion satisfaction (Heritage, 2018). For nurse managers, ProQOL reflects their overall satisfaction, well-being, and resili-

ence in facing challenging situations.

Mindfulness practices, such as meditation and deep breathing exercises, are increasingly recognized for their positive impact on ProQOL (Wong, 2018). Mindfulness helps nurse managers stay present in the moment, reduce stress, and enhance emotional regulation. Incorporating mindfulness practices into their daily routines can contribute to a more positive ProQOL.

Conceptual Framework

Figure 1 illustrates the conceptual framework of the study. We investigated the relationship of nurse managers' work empowerment and work engagement to their professional quality of life. Nurse managers from Level III private hospitals in Metro Manila answered a self-assessment questionnaire to determine their level of work empowerment. These assessments focused on access to support, resources, information, opportunities, formal power, and informal power. The assumptions of the findings of the study eventually served as a basis for the creation of a framework to establish the relationship of work empowerment, engagement, and professional quality of life of nurse managers. The predictor and outcome variables could greatly impact the delivery of nursing management.

Figure 1: Hypothesized Model Relating Work Empowerment, Work Engagement, and Professional Quality of Life of Nurse Managers in Selected Level III Hospitals in Metro Manila.

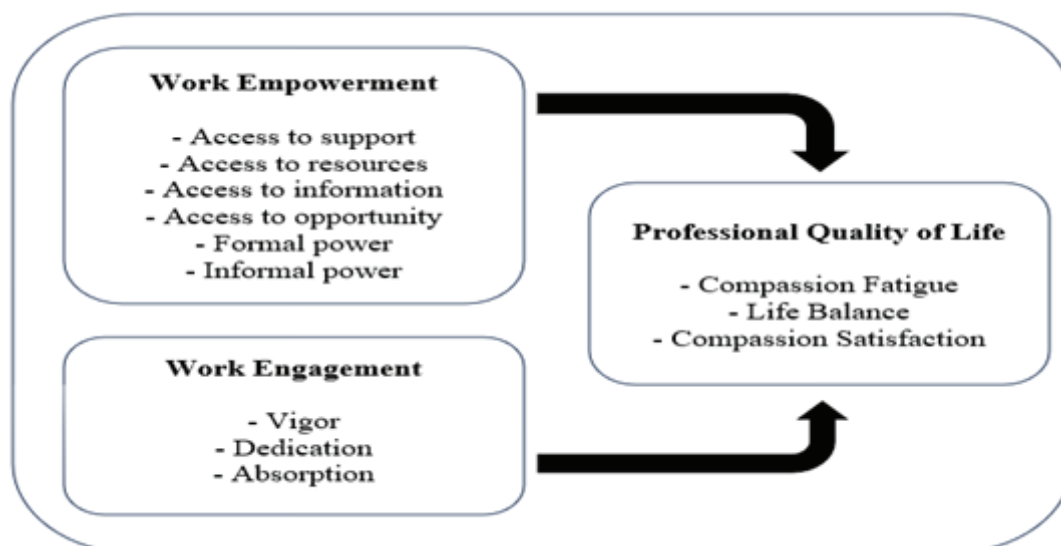


Figure 1: Hypothesized Model Relating Work Empowerment, Work Engagement, and Professional Quality of Life of Nurse Managers in Selected Level III Hospitals in Metro Manila.

Purpose

The purpose of the study was to describe nurse managers' perceived work empowerment, work engagement, and professional quality of life and to determine the relationship of nurse managers' work empowerment and work engagement to their professional quality of life.

Research Design and Methodology

Study Design

This study used a descriptive-correlational research design to determine the relationship between work empowerment, work engagement, and nurse managers' professional quality of life.

Sample and sampling criteria

In this study, the respondents were nurse managers aged 21 to 59 years old, working in level III private Joint Commission International accredited hospitals within Metro Manila. Study participants were Filipinos holding managerial/administrative responsibilities at the time of the conduct of the data gathering.

Using a total enumeration with an estimated 5% attrition rate due to health-related reasons (i.e., maternity leave, prolonged sick leave), a total of 191 respondents were required for this study. This computation accounts for the 95 population of nurse managers working in study site A and the 106 population of nurse managers working in study site B. To select the respondents for the study, the total enumeration sampling technique was applied. In this technique, the researcher chose to look at every member of the population who qualified based on the inclusion criteria.

Instrumentation

The survey consists of four parts: sociodemographic profile, and their perceived work empowerment, work engagement, and quality of life. The following instruments were used:

- The Conditions for Workplace Effectiveness Questionnaire (CWEQ) was used to measure the concept of structural empowerment with six sub-scales: access to opportunity, access to resources, access to information, access to support, formal power, and informal power (Laschinger, 2012). The instrument was reported to have a good internal consistency with Cronbach's alpha value of 0.93.

- The Utrecht Work Engagement

Scale (UWES) (Schaufeli et al., 2006) was used to measure participants' perceived work engagement. It consists of statements divided into three dimensions: vigor, dedication, and absorption. The instrument was reported to have good internal consistency having an overall Cronbach's alpha coefficient of 0.93 while the Cronbach's alpha of the three subscales was 0.79 for absorption, 0.87 for dedication, and 0.85 for vigor for the various parameters.

- Lastly, for the professional quality of life, we used the Professional Quality of Life (ProQOL) Scale Version 5 which covers three indicators: compassion fatigue or secondary traumatic stress, life balance or burnout, and compassion satisfaction, measured using 30 statements. The tool's validity and reliability have been proven, with a Cronbach's alpha for Compassion Satisfaction of 0.88, burnout of 0.75, Compassion fatigue of 0.81, and an overall alpha of 0.88 (Stamm, 2009). Permission to use CWEQ, UWES, and ProQOL Scale Version 5 was obtained from their respective developers.

Data Collection

Before the commencement of the study, the Trinity University of Asia Institutional Review Board approved the study. Eventually, ethical review and administrative approval from St. Luke's Medical Center-Global City and

St. Luke's Medical Center-Quezon City were secured by the researcher. The recruitment process was performed by informing potential respondents of the study through an advertisement. The first author utilized a poster that was strategically placed in common areas such as the bulletin board to inform participants. Interested participants contacted the first author or the research assistant through the given contact information details. It was in this phase that both the liaison/researcher and participants discussed their mutual schedule availability for handing over the instrument and any concerns/inquiries related to the study. The key component was that the participant volunteered to take part in the research of his or her own accord. The researcher had no presumption on the identity of participants to promote confidentiality and non-biased sample selection. The data-gathering period did not extend for more than three months for both locales. Since the instrument was concise, the respondents were expected to finish answering in less than thirty minutes, depending on their available time for answering

Data Analysis

Data provided by participants in the questionnaire were entered and coded into an Excel file. The completeness of the submitted questionnaires was checked. Submitted questionnaires with incomplete answers were not included in

| Response | Scale | Range | Interpretation |
|----------|-----------|-------------|-----------------|
| 5 | Always | 4.20 – 5.00 | Very High Level |
| 4 | Often | 3.40 – 4.19 | High Level |
| 3 | Sometimes | 2.60 – 3.39 | Moderate Level |
| 2 | Rarely | 1.80 – 2.59 | Low Level |
| 1 | Never | 1.00 – 1.79 | Very Low Level |

For Work Engagement of nurse managers, a 7-point scale from 0 to 6. As such, the following were used in the interpretation.

| Response | Scale | Range | Interpretation |
|----------|--------------|-------------|-----------------------|
| 6 | Always | 5.16 – 6.00 | Very High Level |
| 5 | Very Often | 4.30 – 5.15 | High Level |
| 4 | Often | 3.44 – 4.29 | Moderately High Level |
| 3 | Sometimes | 2.58 – 3.43 | Moderate Level |
| 2 | Rarely | 1.72 – 2.57 | Moderately Low Level |
| 1 | Almost Never | 0.86 – 1.71 | Low Level |
| 0 | Never | 0 – 0.85 | Very Low Level |

the analysis. Jamovi (The Jamovi Project, 2024) and R Studio (Version 2.4.4) were used in the analysis of data.

Descriptive statistics (mean, standard deviation, and frequency) were generated to describe the socio-demographic characteristics of the participants. Mean rating scores of participants in the Conditions for Workplace Effectiveness Questionnaire (CWEQ), Utrecht Work Engagement Scale (UWES), and Professional Quality of Life (ProQOL) Scale Version 5 were computed. For work Empowerment and professional quality of life of nurse managers, a 5-point scale from 1 to 5 was used. As such, the following were used in the interpretation.

Pearson correlation (r) was used to determine the relationship between work empowerment, professional quality of life, and work engagement with each other. After that, robust regression was performed to determine which components of work empowerment and work engagement and work engagement significantly predict professional quality of life. Robust regression was appropriate due to the presence of outliers in the subscales of professional quality of life, as it provides a more reliable estimation in the presence of outliers.

Results

Profile of respondents

Table 1 presents the demographic profile of the respondents. Participants of the study were mostly aged 21-40 years old ($n=176$, 92%), female ($n=146$, 76.4%), and hold a BSN-RN qualification (146, 76.4%) Many have been in their roles for 1 to 2 years ($n=146$, 76%), and were working in the Medical/Surgical Unit (95, 49.7%), with fewer in specialized areas like operative care unit ($n=31$, 16%), intensive care units ($n=32$, 17%) and maternity and child care unit ($n=33$, 17%).

Work Empowerment

Regarding work empowerment, access to opportunity has the highest mean rating score (mean = 3.98, SD = 0.81), followed by access to resources (mean = 3.89, SD = 0.83). On the other hand, formal power has the lowest mean rating score (mean = 3.76, SD = 0.83) followed by access information (mean = 3.78, SD = 0.89). Overall, the mean rating score for work empowerment shows a high level of agreement among the respondents (mean = 3.84, SD = 0.58).

Work Engagement

Regarding work engagement, the dedication subscale has the highest mean rating score (mean = 4.89, SD = 1.04) followed by vigor (mean = 4.44, SD = 1.10). On the other hand, absorption has the lowest mean rating score (mean = 4.33, SD = 1.27). Overall, the mean rating score for work engagement shows a high level of agreement among the respondents (mean = 4.55, SD = 0.78).

Professional Quality of Life

Regarding professional quality of life, compassion satisfaction has the highest mean rating score (mean = 4.06, SD = 0.86), followed by compassion fatigue (mean = 2.15, SD = 1.09). On the other hand, burnout or life balance has the lowest mean rating score (mean = 2.03, SD = 1.04). Overall, the mean rating score for professional quality of life shows a moderate level of agreement among the respondents (mean = 2.74, SD = 0.49).

Relationship between Work Empowerment, Work Engagement, and Professional Quality of Life

Table 5 presents measures of association between work empowerment, work engagement, and professional quality of life. Among the subscales of the Utrecht Work Engagement Scale, it was found that only dedication was significantly associated with compassion fatigue except ($r = -0.2692$, $p < .001$). On the other hand, among the subscales of the Conditions for Workplace Effectiveness Questionnaire, only informal power was found to be not significantly associated with burnout ($r = -0.0830$, $p < .2534$). In terms of compassion satisfaction, all subscales of work empowerment and work engagement are significantly associated with the subscale.

The strongest correlation was observed between dedication and compassion satisfaction ($r = 0.6600$, $p < .001$), vigor and compassion satisfaction ($r = 0.5956$, $p < .001$), and absorption and compassion satisfaction ($r = 0.4530$, $p < .001$) while the weakest was between absorption and compassion fatigue ($r = 0.0360$, $p = .6180$), access to opportunity and compassion fatigue ($r = 0.0411$, $p = .5723$), and access to support and compassion fatigue ($r = 0.0420$, $p < .5643$).

In the robust regression analysis, the dedication subscale of the Utrecht

Work Engagement Scale (UWES) was identified as the only significant predictor of compassion fatigue ($\beta = -0.4010$, $p = .0265$). This finding indicates that for every unit increase in dedication, the compassion fatigue score is expected to decrease by 0.4010, assuming all other variables remain constant. The model can explain 16.09% of the variation in compassion fatigue.

Regarding burnout, the dedication subscale of the Utrecht Work Engagement Scale (UWES) emerged as the sole significant predictor ($\beta = -0.3997$, $p = .0265$). This finding suggests that for every unit increase in dedication, the burnout score is expected to decrease by 0.4010, holding other factors constant. The model can explain 27.83% of the variation in burnout.

Lastly, the dedication subscale of the Utrecht Work Engagement Scale (UWES) was the only significant predictor of compassion satisfaction ($\beta = 0.325$, $p = .0265$). This finding implies that for every unit increase in dedication, the compassion satisfaction score is expected to increase by 0.325, with other variables held constant. The model can explain 55.03% of the variation in compassion satisfaction.

Discussion

This study aimed to describe nurse managers' perceived work engagement, work empowerment, and professional quality of life, and determine the relationships among these concepts. The study found that nurses felt empowered by having access to opportunities and resources, which are crucial for their sense of empowerment. However, they rated lower in formal power and access to information, indicating areas for improvement. According to Ruth-Sahd and Grim (2021), conditions for work effectiveness, such as access to information and formal power, have a relationship to the nurse educator's professional quality of life (ProQOL). While nurses generally feel empowered, there may be organizational barriers limiting their formal power and access to information. Addressing these barriers could further enhance their empowerment, leading to better job performance and satisfaction.

Nurses also showed high work engagement, particularly in dedication and vigor. However, slightly lower scores in absorption suggest challenges in main-

taining deep focus and immersion in their tasks, possibly due to workload, distractions, or lack of support. According to Aulia (2022), vigor and dedication are valuable tools for assessing and understanding work engagement, which is essential for promoting job satisfaction and organizational success (included dedication). Improving strategies to enhance absorption could lead to higher engagement levels and overall job performance and satisfaction.

In terms of professional quality of life, nurses reported high levels of compassion satisfaction, indicating positive professional well-being. However, they also reported moderate levels of compassion fatigue and lower scores in burnout or life balance, pointing to areas needing attention. According to Du et al. (2020), compassion fatigue and life balance can negatively impact the physical and mental health of nurses, reducing efficiency and increasing hospital expenses. While nurses find satisfaction in their roles, they also face the risk of fatigue and burnout. Implementing supportive measures to address these issues is essential for maintaining a healthy and motivated nursing workforce.

The study also found significant associations between work empowerment, work engagement, and professional quality of life. Dedication emerged as a strong predictor of various professional quality-of-life outcomes. It revealed that increases in dedication were associated with decreases in compassion fatigue and

burnout, and increases in compassion satisfaction. According to Jaya et al. (2021), dedication has a positive impact on employee performance. These associations suggest that dedication plays a crucial role in enhancing professional quality of life. According to De Carvalho et al. (2023), professional quality of life is positively correlated with work engagement. This implies that high work engagement leads to a higher professional quality of life. The strongest correlations were observed between dedication and compassion satisfaction, highlighting the importance of fostering a dedicated workforce. However, weaker correlations with compassion fatigue suggest that while engagement is generally beneficial, other factors may also contribute to fatigue, necessitating a multifaceted approach to support nurses.

Recommendation

Given the significant relationship between work empowerment, engagement, and the professional quality of life among nurse managers, hospitals should enhance empowerment opportunities. Recommendations include providing access to essential resources, support, and professional development through rewards and recognition programs, quarterly leadership presentations, cross-functional training, and interdisciplinary evaluations. Initiatives to increase engagement should focus on career development through management training and nursing leader summits. To prevent

compassion fatigue and burnout, hospitals should implement quarterly stress management workshops, wellness programs, and mental health support resources, along with regular assessments of well-being. Encouraging compassion satisfaction can be achieved through appreciation programs, peer support groups, and monthly sessions with nursing leaders. Presenting the framework to nursing divisional meetings and adopting it to address work empowerment, engagement, and professional quality of life is crucial for creating a supportive work environment. Future studies should explore the long-term effects of these initiatives on nurse managers' quality of life and their impact on patient outcomes and healthcare delivery. Overall, fostering empowerment and engagement is key to improving the professional quality of life for nurse managers.

Conclusion

The findings suggest that enhancing work empowerment and fostering dedication can significantly improve nurses' professional quality of life, reducing compassion fatigue and burnout while increasing compassion satisfaction. These insights provide a valuable foundation for developing targeted strategies and interventions to support the nursing workforce and improve their professional quality of life. Overall, fostering empowerment and engagement is key to improving the professional quality of life for nurse managers.



Tables

Table 1

Demographic Profile of Nurse Managers in Selected Level III Hospitals in Metro Manila, N = 191

| Variables | Frequency | Percentage (%) |
|----------------------------|-----------|----------------|
| Age | | |
| 21-30 years old | 56 | 29.3 % |
| 31-40 years old | 120 | 62.8 % |
| 41-50 years old | 14 | 7.3 % |
| 51-59 years old | 1 | 0.5 % |
| Sex | | |
| Female | 146 | 76.4 % |
| Male | 45 | 23.6 % |
| Unit of Assignment | | |
| Intensive Care Unit | 32 | 16.8 % |
| Medical/Surgical Unit | 95 | 49.7 % |
| Operative Care Unit | 31 | 16.2 % |
| Maternal & Child Care Unit | 33 | 17.3 % |

Table 2

Summary of Level of Work Empowerment by the Nurse Managers

| Component | Overall Mean | SD | Interpretation |
|-------------------------|--------------|------|------------------|
| Work Empowerment | 3.84 | 0.58 | Often/High Level |
| Access to Support | 3.82 | 0.85 | Often/High Level |
| Access to resources | 3.89 | 0.83 | Often/High Level |
| Access to Information | 3.78 | 0.89 | Often/High Level |
| Access to Opportunity | 3.98 | 0.81 | Often/High Level |
| Formal Power | 3.76 | 0.83 | Often/High Level |
| Informal Power | 3.82 | 0.84 | Often/High Level |

Table 3

Summary of Degree of Work Engagement of Nurse Managers working in Level III hospitals in Metro Manila

| Component | Mean | SD | Interpretation |
|------------------------|------|------|-----------------------|
| Work Engagement | 4.55 | 0.78 | Very often/High Level |
| Vigor | 4.44 | 1.10 | Very often/High Level |
| Dedication | 4.89 | 1.04 | Very often/High Level |
| Absorption | 4.33 | 1.27 | Very often/High Level |

Table 4

Extent of Professional Quality of Life of Nurse Managers working in Level III hospitals in Metro Manila

| Component | Mean | SD | Interpretation |
|------------------------------|-------------|-----------|-----------------------|
| Professional Quality of Life | 2.74 | 0.49 | Moderate Level |
| Compassion Fatigue | 2.15 | 1.09 | Rarely/ Low Level |
| Burnout or Life Balance | 2.03 | 1.04 | Rarely/ Low Level |
| Compassion Satisfaction | 4.06 | 0.86 | Often/ High Level |

Table 5

Measures of association between work empowerment, work engagement, and professional quality of life of Nurse Managers working in Level III hospitals in Metro Manila

| | | Professional Quality of Life | | | |
|-------------------------|------------------------------|-------------------------------------|---------------------------|----------------|--------------------------------|
| | | | Compassion Fatigue | Burnout | Compassion Satisfaction |
| Work Empowerment | Access to Support | Pearson's <i>r</i> | 0.0420 | -0.2305 | 0.3404 |
| | | <i>p</i> -value | 0.5643 | 0.0013 | <0.0001 |
| | Access to Resources | Pearson's <i>r</i> | 0.0450 | -0.1813 | 0.3894 |
| | | <i>p</i> -value | 0.5365 | 0.0121 | <0.0001 |
| | Access to Information | Pearson's <i>r</i> | 0.0464 | -0.1894 | 0.3159 |
| | | <i>p</i> -value | 0.5241 | 0.0087 | <0.0001 |
| | Access to Opportunity | Pearson's <i>r</i> | 0.0411 | -0.1643 | 0.3919 |
| | | <i>p</i> -value | 0.5723 | 0.0231 | <0.0001 |
| | Formal Power | Pearson's <i>r</i> | 0.0830 | -0.1874 | 0.4230 |
| | | <i>p</i> -value | 0.2535 | 0.0094 | <0.0001 |
| Work Engagement | Informal Power | Pearson's <i>r</i> | 0.0483 | -0.0830 | 0.3844 |
| | | <i>p</i> -value | 0.5069 | 0.2534 | <0.0001 |
| | Vigor | Pearson's <i>r</i> | -0.1657 | -0.3640 | 0.5956 |
| | | <i>p</i> -value | 0.0220 | <0.0001 | <0.0001 |
| | Dedication | Pearson's <i>r</i> | -0.2692 | -0.4459 | 0.6600 |
| | | <i>p</i> -value | <0.0001 | <0.0001 | <0.0001 |
| Absorption | | Pearson's <i>r</i> | 0.036 | -0.165 | 0.4530 |
| | | <i>p</i> -value | 0.618 | 0.023 | <0.0001 |

Table 6*Robust regression result for predicting professional quality of life*

| Constructs | Professional Quality of Life | | | | | |
|-------------------------|------------------------------|----------|----------------|----------|----------------------------|----------|
| | Compassion Fatigue | | Burnout | | Compassion Satisfaction | |
| | $R^2 = 0.1609$ | | $R^2 = 0.2783$ | | $R^2 = 0.5503$ | |
| | Estimate | p-value | Estimate | p-value | Estimate | p-value |
| (Intercept) | 2.5670 | < 0.0001 | 3.8918 | < 0.0001 | 0.9732 | < 0.0001 |
| Work Empowerment | | | | | | |
| Access to Support | -0.0344 | 0.7980 | -0.2353 | 0.1815 | -0.1239 | 0.1458 |
| Access to Resources | 0.0711 | 0.6330 | 0.1057 | 0.449 | 0.0221 | 0.8232 |
| Access to Information | -0.0181 | 0.8810 | -0.0929 | 0.4211 | -0.0726 | 0.3344 |
| Access to Opportunity | -0.0059 | 0.9700 | 0.0576 | 0.7579 | 0.0619 | 0.5197 |
| Formal Power | 0.3141 | 0.1040 | -0.0274 | 0.8904 | 0.1668 | 0.1675 |
| Informal Power | -0.0018 | 0.9890 | 0.2879 | 0.0721 | 0.1003 | 0.2952 |
| Work engagement | | | | | | |
| Vigor | -0.0675 | 0.5550 | -0.2006 | 0.0632 | 0.1269 | 0.0626 |
| Dedication | -0.401 | < 0.0001 | -0.3997 | < 0.0001 | 0.3245 | < 0.0001 |
| Absorption | 0.1344 | 0.1680 | 0.123 | 0.1983 | 0.0854 | 0.1504 |

Appendix**Questionnaire****Part I. Profile of the Nurse Managers**

Directions: Please provide the correct information in each question below.

Age: _____ Length of Service as Manager: _____

Sex: () Male () Female Unit of Assignment: _____

Highest Educational Attainment: () BSN-RN () Master's Degree. () Doctorate Degree

Part II. Work Empowerment

Directions: Please check the column of your response to each statement based on their frequency. Consider the scale below.

5 – Always (7 times a week or everyday)

4 – Often (2 to 4 times a week)

3 – Sometimes (2 to 3 times a month)

2 – Rarely (Once a month)

1 – None (Zero)

| Access to Support | 1 | 2 | 3 | 4 | 5 |
|---|----------|----------|----------|----------|----------|
| <i>How much access to support do you have in your present job, the hospital administration...</i> | | | | | |
| 1. provides specific comments about the things I do well | | | | | |
| 2. provides specific comments about the things I could improve | | | | | |
| 3. offers me helpful problem-solving advice or hints | | | | | |
| 4. opens information or suggestions about job possibilities | | | | | |
| 5. discuss further training or education | | | | | |
| 6. extends help when there is a work crisis | | | | | |
| 7. extends help in gaining access to people who can get the job done | | | | | |
| 8. extends help in gaining materials and supplies needed to get the job done | | | | | |
| 9. gives rewards and recognition for a job well done | | | | | |
| Access to Resources | 1 | 2 | 3 | 4 | 5 |
| <i>How much access to resources do you have in your present job, the hospital administration...</i> | | | | | |
| 1. has supplies necessary for the jobs | | | | | |
| 2. allots me time to do necessary paperwork | | | | | |
| 3. allots me time to accomplish job requirements | | | | | |
| 4. lets me acquire temporary help when needed | | | | | |
| 5. grants me the right to decide about obtaining (permanent) human resources for my unit | | | | | |
| 6. gives me the right to decide about obtaining supplies for my unit | | | | | |
| 7. gives me the right to decide about obtaining equipment for my unit. | | | | | |
| Access to Information | 1 | 2 | 3 | 4 | 5 |
| <i>How much access to information do you have in your present job. The hospital administration...</i> | | | | | |
| 1. informs us of the current state of the hospital | | | | | |
| 2. clarifies to me the relationship of my unit to the hospital | | | | | |
| 3. advises me of what other departments or other people in positions like mine think of my unit or work | | | | | |
| 4. shares with us the values of top management | | | | | |
| 5. shares with us the goals of top management | | | | | |
| 6. shares with us the plan for the department | | | | | |
| 7. gets me informed of how salary decisions are made for people in positions like mine | | | | | |
| 8. shares what other departments think of our unit | | | | | |
| Access to Opportunity | 1 | 2 | 3 | 4 | 5 |
| <i>How much of each kind of opportunity do you have in your present job? The hospital administration...</i> | | | | | |
| 1. assigns me challenging work | | | | | |
| 2. provides us the chance to gain new skills and knowledge on the job | | | | | |
| 3. provides access to training programs for learning new things | | | | | |
| 4. opens opportunity for us to learn how the hospital works | | | | | |

| | | | | | |
|---|----------|----------|----------|----------|----------|
| 5. assigns me challenging work or tasks where I can use all my skills and knowledge | | | | | |
| 6. gives us the chance to advance to better jobs | | | | | |
| 7. gives us the chance to assume different roles not related to our current job | | | | | |
| Formal Power | 1 | 2 | 3 | 4 | 5 |
| <i>In my work in the hospital, I...</i> | | | | | |
| 1. have the amount of variety in tasks associated with my job | | | | | |
| 2. can receive rewards for unusual performance on the job | | | | | |
| 3. can receive rewards for innovation on the job | | | | | |
| 4. have flexible and varied number of tasks | | | | | |
| 5. know the number of approvals needed for nonroutine decisions | | | | | |
| 6. am aware of the relation of tasks in my job to current problem areas of the organization | | | | | |
| 7. participate in educational program | | | | | |
| 8. participate in problem-solving task forces | | | | | |
| 9. have visible number of work-related activities within the institution. | | | | | |
| Informal Power | 1 | 2 | 3 | 4 | 5 |
| <i>In my work in the hospital, I...</i> | | | | | |
| 1. can collaborate on patient care with physicians, and give and receive feedback | | | | | |
| 2. am able to receive feedback from physician | | | | | |
| 3. being sought out by physicians for patient information | | | | | |
| 4. receive recognitions by physicians | | | | | |
| 5. am being asked by physicians about my opinions | | | | | |
| 6. am being sought out by peers or other managers for help with their problems (e.g. ward management, patient care, etc.) | | | | | |
| 7. am being asked by my immediate supervisor about my opinions | | | | | |
| 8. receive early information of upcoming changes in the department | | | | | |
| 9. have a chance to increase my influence outside of my department | | | | | |
| 10. am able to seek out ideas from auxiliary workers in and outside of my unit (e.g. clerks, technicians, etc.) | | | | | |
| 11. get to know auxiliary workers as people | | | | | |
| 12. can seek out ideas from auxiliary workers outside of the unit | | | | | |
| 13. am being sought out by peers for information | | | | | |
| 14. receive helpful feedback from peers | | | | | |
| 15. am being ask by peers on about my opinions on patient care issues | | | | | |
| 16. am being sought out by peers for help with problems | | | | | |
| 17. can exchange favours with peers | | | | | |
| 18. am able to seek out ideas from professionals other than physicians (e.g. physiotherapist, dieticians, etc.) | | | | | |

Adopted from Conditions of Work Effectiveness Questionnaire I and II (Laschinger, 2012)

Part III. Work Engagement

Directions: Please check the column of your response to each statement based on how you feel about your job. Consider the scale below.

- 6- Always (7 times a week or Every day)
- 5-Very often (2-4 times a week)
- 4 – Often (Once a week)
- 3 – Sometimes (2-3 times a month)
- 2 – Rarely (Once a month)
- 1 – Almost Never (A few times a year or less)
- 0 – Never (Zero)

| Vigor | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
|---|----------|----------|----------|----------|----------|----------|----------|
| 1. At my work, I feel bursting with energy. | | | | | | | |
| 2. At my job, I feel strong and vigorous. | | | | | | | |
| 3. When I get up in the morning, I feel like going to work. | | | | | | | |
| 4. I can continue working for very long periods at a time. | | | | | | | |
| 5. At my job, I am very resilient, mentally. | | | | | | | |
| 6. At my work, I always persevere, even when things do not go well. | | | | | | | |
| Dedication | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. I find the work that I do full of meaning and purpose. | | | | | | | |
| 8. I am enthusiastic about my job. | | | | | | | |
| 9. My job inspires me. | | | | | | | |
| 10. I am proud of the work that I do. | | | | | | | |
| 11. To me, my job is challenging. | | | | | | | |
| Absorption | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. Time flies when I am working. | | | | | | | |
| 13. When I am working, I forget everything else around me. | | | | | | | |
| 14. I feel happy when I am working intensely. | | | | | | | |
| 15. I am immersed in my work. | | | | | | | |
| 16. I get carried away when I am working. | | | | | | | |
| 17. It is difficult to detach myself from my job. | | | | | | | |

Adopted from Utrecht Work Engagement Scale (UWES) (Schaufeli, Bakker & Salanova, 2006)

CALL FOR MANUSCRIPTS

Submission Deadline: May 15, 2025

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Part IV. Professional Quality of Life

Directions: Please check the column of your response to each statement based on how you frequently experienced them in the last 30 days. Consider the scale below.

- 5 – Always (7 times a week or everyday)
- 4 – Often (2 to 4 times a week)
- 3 – Sometimes (2 to 3 times a month)
- 2 – Rarely (Once a month)
- 1 – None (Zero)

| Compassion Fatigue | 1 | 2 | 3 | 4 | 5 |
|---|----------|----------|----------|----------|----------|
| 1. I am preoccupied with more than one person I help. | | | | | |
| 2. I jump or am startled by unexpected sounds. | | | | | |
| 3. I find it difficult to separate my personal life from my life as a nurse manager. | | | | | |
| 4. I think that I might have been affected by the traumatic stress of those I help. | | | | | |
| 5. Because of my helping, I have felt “on edge” about various things. | | | | | |
| 6. I feel depressed because of the traumatic experiences of the people I help. | | | | | |
| 7. I feel as though I am experiencing the trauma of someone I have helped. | | | | | |
| 8. I avoid certain activities or situations because they remind me of frightening experiences of the people I help. | | | | | |
| 9. As a result of my helping, I have intrusive, frightening thoughts | | | | | |
| 10. I can’t recall important parts of my work with trauma victims. | | | | | |
| Burnout or Life Balance | 1 | 2 | 3 | 4 | 5 |
| 11. I don’t feel happy. | | | | | |
| 12. I feel disconnected from others. | | | | | |
| 13. I am not as productive at work because I am losing sleep over traumatic experiences of a person I help. | | | | | |
| 14. I feel trapped by my job as a nurse manager. | | | | | |
| 15. I lost beliefs that sustain me. | | | | | |
| 16. I feel like I’m not the person I always wanted to be. | | | | | |
| 17. I feel worn out because of my work as a nurse manager. | | | | | |
| 18. I feel overwhelmed because my case work load seems endless. | | | | | |
| 19. I feel “bogged down” by the system | | | | | |
| 20. I am not a very caring person. | | | | | |
| Compassion Satisfaction | 1 | 2 | 3 | 4 | 5 |
| 21. I get satisfaction from being able to help people. | | | | | |
| 22. I feel invigorated after working with those I help. | | | | | |
| 23. I like my work as a nurse manager. | | | | | |
| 24. I am pleased with how I am able to keep up with helping techniques and protocols. | | | | | |
| 25. My work makes me feel satisfied. | | | | | |
| 26. I have happy thoughts and feelings about those I help and how I could help them | | | | | |
| 27. I believe I can make a difference through my work. | | | | | |
| 28. I am proud of what I can do to help. | | | | | |
| 29. I have thoughts that I am a “success” as a nurse manager. | | | | | |
| 30. I am happy that I chose to do this work. | | | | | |

Adopted from *Professional Quality of Life (ProQOL) Scale Version 5* (Stamm, 2009)

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Analyzing Climate And Health For Resilience

Erwin William Leyva, PhD, RN

President, Sigma Theta Tau International Honor Society of Nursing
Alpha Alpha Phi Chapter, University of the Philippines Manila
eleyva1@alumni.jh.edu

Abstract

Climate change poses added risks brought by known genetic, socioeconomic and behavioral risk factors of illness. The purpose of this paper is to describe the effects of climate and social determinants on health and illustrate role of nursing in climate change and health research to influence practice and policy. Climate change interacts with social determinants of health in increasing risks for cardiovascular, respiratory, kidney, and mental health problems further exacerbating health disparities and inequities. Research gaps continue to exist in terms of attribution and projection studies, evaluation of adaptation interventions, and understudied vulnerable populations. Nurses play a role in preventing adverse climate-induced health outcomes and building resilience through health education, community organization and capacity building, service delivery, partnership and collaboration and health policy.

Keywords: climate change, resilience, nursing

Introduction

Climate change interacts with social determinants of health in increasing the risks for poor health and consequent reduction in quality of life. Though the underlying mechanisms are complex and often involving cellular to societal factors, a reflection on the implementation of community-based health programs and how these can be impacted by climate change may offer a palpable appreciation of this public health issue. The communities served by the University of the Philippines College of Nursing are characterized as urban poor with a significant prevalence of non-communicable diseases, particularly hypertension and diabetes (Hernandez, 2020). Risk factor assessments reveal that the prevalence of obesity, physical inactivity and high salt and high fat diet. Those who have uncontrolled hypertension or diabetes often report noncompliance to therapeutic

management, especially medications, diet and exercise. Those who often report lack of access to health care usually cite lack of finances. In some areas, the socioeconomic disparities are glaring as impoverished households reside very close to high rise condominiums and commercial establishments.

Extensive literature exists suggesting that social and economic factors contribute greater to health outcomes (Chelak & Chakole, 2023; Palmer et al., 2019). It contributes 40%, compare to 10% brought by physical environment, 20% from clinical care, and 30% from health behaviors (e.g., tobacco use, diet and exercise, alcohol and drug use) (Johnson et al., 2022). Some social determinants are demographic in nature including age, employment, family income, sex and gender. Other core elements include access to health services, health insurance coverage and health literacy (Ives et al., 2024). The PRECEDE-PROCEED Model have been used in developing and implementing community-based health programs (Hernandez, 2020; Leyva, 2021). The model assumes that a health program is developed based on a thorough assessment of root cause, that is predisposers (i.e., knowledge, attitudes, and beliefs), enablers (i.e., availability and accessibility of services), and enablers (feedback from family, friends, health care provider) predict behavior. Behavior interacts with genetics and the environment towards health and quality of life (Green, 2005).

Climate change acts on existing vulnerability and resilience pathways

Globally, temperatures are rising which may lead to adverse health outcomes. In the Philippines, hottest temperatures in recent history have been recorded lately. Flood risk in areas such as Metro Manila continue to pose hazards (Lagmay et al., 2017). The Philippines is one of the most at risk countries in the world for climate change. In the United

States, temperature have increased by 1.3 – 1.9 F since 1895, especially in the North and Western states. More pronounced increases in precipitation and floods have been noted in the Midwest and Northeast. Hurricanes have increased in intensity, frequency, and duration. Furthermore, the same were found with wildfires, heat waves and drought (Balbus et al., 2016).

The effects of climate change on health are mainly attributed to three related climate stressors: temperature/ heat, precipitation, and air pollution. High environmental temperatures have been associated with higher risk for cardiovascular, respiratory, and kidney disease. Extremes of precipitation have been associated with deaths from drowning, injuries and poor mental health (Leyva et al., 2017; Rocque et al., 2021). Air pollution have been associated with respiratory diseases such as asthma and chronic obstructive pulmonary disease. Climate change affects health through complex and interacting mechanisms. For example, weather affects our attitudes toward exercise, with some people preferring to refrain from exercise due to extreme heat or heavy rain (Tucker & Gilliland, 2007). Others will lose access to health services during extreme weather events. Feedback mechanisms or social support may be diminished when people prefer to stay indoors due to unfavorable weather conditions. On a physiological level, direct exposure to extreme heat and air pollution may cause tissue injury (Ebi et al., 2021; Pryor et al., 2022). Others who have been traditionally disadvantaged due to their age, race, sex, and socioeconomic status will be all the more affected (Canaday et al., 2024). For example, older people will be more prominently affected due to the physiologic changes in changing and their complex care needs. Filipinos who are already one of the most physically inactive in the world, may be all the more physically inactive under bad weather. Men who are predominantly employed in farms and construction, will have greater

risk for heat-related illness.

Research gaps in climate change and health

There are three main gaps in climate change and health research: 1) attribution and projection studies ; 2) effectiveness of adaptation interventions; and 3) understudied vulnerable populations (Chua et al., 2019; Rocque et al., 2021). Though the scientific evidence linking climate change and health have been increasing over the years, issues about the differences in measuring climate stressors and health outcomes have lead to conflicting findings. Several cellular to societal factors also exist in a local context that may predict health outcomes. For example, a locality who has a lot of experience with floods, will be more likely to be prepared health wise than one who has none. Also health outcomes would also depend on the frequency, intensity and duration of the climate stressor. Since social determinants of health play a role, an in depth exploration of these local contexts would enable a better understanding on how climate has affected the health of the population. Furthermore, other scholars suggest to go beyond attribution and projection studies, and conduct more studies on adaptation interventions. Many interventions have been developed in terms of health education, community organization, partnership and collaboration, resource generation, health service delivery and health policy. However, evaluations

of these have been limited. Lastly, research on understudied vulnerable populations are warranted. This include ethnic and racial minorities and those living in low and middle income countries. Other populations, though may be challenging to reach, are those who are homeless.

Implications to practice

Health education. Nurses have a long history of strategies for health education. Risk communication, personal preparedness, and coping strategies can be integrated into teaching opportunities with the client. For example, when conducting health education for a patient with hypertension, discussions on heat protection during exercise may be included. Those who are survivors of typhoons and floods can be counselled to enhance their coping strategies with losses. Social media can also be used to set reminders for personal preparedness to disasters.

Community organization and capacity-building. Community organization has been found to be an effective strategy for addressing various public health issues. Nurses can set up core groups with local officials, health workers, and volunteers to increase awareness on climate change and health. Various modes can be done either through social media or traditional home visits. Community health volunteers can be trained to integrate climate and health key messages in conducting health education. Key messages may include identifying

climate risks (e.g., extreme heat), heat protection, preparing for disasters (e.g., evacuation), among others. They may also be involved in identification of vulnerable individuals and coordinating for their safety.

Service delivery. Since climate change is expected to impede health care access, nurses play a role in ensuring continuity of services. More broadly, recommendations of building a climate-resilient health care system increases. In primary care, care groups can be established under the supervision of a nurse in collaboration with a volunteer. Care groups can be a cluster of households in an area wherein the nurse can continue to monitor patients, ensure compliance to therapeutic management, and conduct referrals as needed. This would require adequate planning with patients considering varying weather conditions.

Partnership and collaboration. The nature of climate change and health in itself is multidisciplinary. Efforts will require sound data provided by climate scientists to determine the level of risk. For example, the UP NOAH provides a map that illustrates the flood risk in a geographic location, whether floods are most likely to be past a person's height, chest level, or knee level. Local village officials and organizations also play a role in preparedness and each role should be articulated in the disaster risk management plan. The effects of climate change are wide-ranging that require prepara-



tion for social and health outcomes. This would require a concerted effort from various health professionals such as doctors, nurses, midwives, social workers working together with the communities.

Policy. A policy that protects population health from climate stressors is the goal of many climate change and health research. For example, policies were drafted to determine occupational exposure to heat and hot environments. Policies will also be needed in terms of ensuring availability and accessibility of health services under extreme weather conditions, especially considering those who belong to the marginalized sectors of society.

Conclusion

Understanding the mechanisms behind the relationship between climate change and health enables researchers and practitioners to address root causes and develop innovative interventions. Nurses are in critical roles to advance the science and promote health equity.

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Bridging the Divide: Creating an International Pathway to the Practice Doctorate In Nursing

Melanie Michael, DNP, APRN, FNP-C, CPHQ, FNAP

Associate Professor and Director of
Graduate Nursing Programs
Florida Southern College
Lakeland, FL (USA)

Imke Casey, DNP, CRNA, NI-BC, RHIT

Assistant Professor
Graduate Nursing Programs
Florida Southern College
Lakeland, FL (USA)

Laly Joseph, DVM, DNP, CNE, RN, C, MSN, ARNP, ANP-B.C, FNAP

Dean, Ann Blanton Edwards School of Nursing and Health Sciences
Dr. Keith R. Berend Endowed Chair in Nursing
Florida Southern College
Lakeland, FL (USA)

Jeanne Jenkins, PhD, MSN, MBA, RN, FNAP

Assistant Professor and Director of the Master of Science
Nursing and Post-Master's Certificate Programs
Florida Southern College
Lakeland, FL (USA)

Sandra Bensch, PhD, MSN, Diplom-Pflegepäd. (UAS), RN

Vice Dean
Faculty of Healthcare and Nursing
Catholic University of Applied Sciences
Mainz, Germany

Contact person: **Joseph Laly** | ljoseph@flsouthern.edu

Across the globe, governments and health systems are struggling to meet unprecedented challenges and threats to population health. Despite calls from policy makers, health system leaders, and educators for policy changes to accelerate the translation of new knowledge to improve health care delivery and outcomes, the legislative and education reforms necessary to achieve these goals at a broad level are likely to span several decades (Cabrera & Zabalegui, 2021; Dreher & Smith Glasgow, 2011; International Council of Nurses, 2023; MacKay, 2009; McKenna, 2018; World Health Organization [WHO], 2020). In the meantime, nurse leaders in academia and health care are obligated to lead the way and prepare nurses for advanced practice at the highest levels to guide system-level improvements. In this article we describe a synergistic model of doctoral nursing education (Michael & Clochesy, 2016) that currently exists in the United States which has substantially increased the number of nurses with doctoral level preparation in academia and health care. We also describe our approach for creating an educational pathway that allows graduate prepared nurses to earn a practice doctorate in nursing while continuing to reside in their respective countries of origin.

Advancement of Doctoral Nursing Education in the United States

In the United States, over the past two decades the American Association of Colleges of Nursing (AACN) has spearheaded efforts to create and advance a synergistic model of doctoral nursing education designed to place nursing at the forefront of health system improvement efforts and to advance nursing as a discipline and a profession. This bi-dimensional research-practice focused model of doctoral education includes two terminal degrees, the PhD and the Doctor of Nursing Practice (DNP). The framework is designed to concurrently support the generation of new knowledge by PhD nurse scientists and the translation of evidence by professional nurses practicing at the most advanced levels within the profession. Within the context of the model, AACN (2021) broadly defines nursing practice to include any form of nursing intervention that influences health care outcomes for individuals or populations, including the direct care of individual patients, management of care for individuals and populations, administration of nursing and health care organizations, and the development and implementation of health policy. The Commission on Collegiate Nursing Education (CCNE; and 2024) requires that DNP curricula include content and practice experiences to attain disciplinary expertise in an advanced nursing practice specialty or role. Examples of advanced nursing specialties include informatics,

administration/practice leadership, public health/population health, health policy and nursing education (AACN, 2021; CCNE, 2024). Advanced roles include the certified nurse practitioner, certified nurse-midwife, certified clinical nurse specialists, and the certified registered nurse anesthetist (AACN, 2021).

The PhD and the DNP degrees represent complementary and alternative approaches to the highest level of educational preparation in nursing. Over the past two decades and following implementation of the bi-dimensional PhD-DNP model there has been significant growth in the number of DNP programs, program enrollments, and program graduates. Currently there are approximately 400 DNP programs in the United States and more than 40,000 students enrolled (AACN, 2022). The number of graduates from these programs continues to follow and grow in tandem with increases in enrollment. Recent studies highlight the influence of DNP education on personal and professional growth and preparing graduates to lead system-level improvements in health care and in academic settings (AACN, 2022; Giardino & Hickey, 2020; Kesten, et al., 2020).

Local Efforts to Advance Doctoral Nursing Education

Florida Southern College is the oldest private college in the State of Florida

(U.S.A). The mission of the institution is to prepare students through dynamic engaged learning to make a positive and consequential impact on society. The College offers a wide variety of undergraduate, graduate, and professional programs, including the DNP Degree. In keeping with the College's mission, administrators and the faculty are committed to connecting international students with educational opportunities to improve societies around the world.

In response to the call for elevation of nursing preparation throughout the world, College leaders and DNP Program faculty have committed to advancing the discipline and profession of nursing at home and abroad by creating an educational pathway that allows international students to earn a practice doctorate (DNP) online while continuing to reside in their respective countries of origin.

The DNP Program at Florida Southern College is a post-master's program of study designed to prepare graduates in organizational leadership, health care quality improvement, health care policy and advocacy, finance, information systems, and project management. Emphasis is on leadership development and the application of evidence for the improvement and enhancement of patient care and health care delivery systems. The program and the curriculum are based on AACN guidelines and CCNE accreditation standards. The Doctor of Nursing Practice Program at Florida Southern College is accredited by the Commission on Collegiate Nursing Education (<http://www.ccnaccreditation.org>).

International Practice Doctorate Pathway Development

The overarching goal of the international pathway for DNP students is to expand opportunities for qualified nurses throughout the world to acquire advanced nursing knowledge, skills, and confidence needed to design and lead health system improvements. This work was completed in collaboration with college leaders at the highest levels and with the College's Office of International Students. It was supported by the Dean in the Ann Blanton Edwards School of Nursing and Health Sciences and coordinated by DNP Program faculty.

Early efforts focused on an examination of the legal and regulatory requirements and structures required for

implementation of the envisioned DNP academic program pathway for international students. Armed with the results, the work commenced in spring 2022. Program structure and process changes required to make the DNP program available to international students were successfully developed over a period of approximately one year. These were approved by the administration and the Florida Southern College Graduate Council in February 2023. Other milestones include updates to the 2023-2024 academic catalog and the development of a dedicated web site for prospective international DNP students.

Under this model, students can fulfill admission criteria by meeting licensure, insurance, and health requirements in the state, territory, or locale where the student resides or is employed. All didactic coursework is completed online. Leadership-focused practice immersion learning experiences and a final doctoral scholarly practice-improvement project can be completed at the student's place of employment. This arrangement provides each student with the opportunity to make a valuable contribution toward meeting improvement priorities at the organizational level and to showcase attainment of doctoral-level practice competencies within the institution. The program requires a strong commitment to ongoing virtual student-faculty collaboration.

Directions for Future Work and Implications for Practice:

The diversity and complexity of threats to population health in countries across the world underscore the need for nurses with advanced knowledge and skills in population health, health policy, and interprofessional practice. Chronic and communicable diseases top the list in some locations. However, many experts agree that social determinants are the primary drivers of the health inequities seen within and between countries. Economic and political instability, poverty, social and educational inequality, access to safe and nutritious food and water, and access to health care adversely impact the health of billions of people worldwide.

With approximately 20 million members across the globe, nurses represent the largest occupational group in the health sector (WHO, 2020). Population health goals at the local, regional, nation-

al, and international levels cannot be realized without maximizing the contributions of the nursing workforce. To meet these challenges, nurses must be educated and prepared at advanced levels with a broad array of knowledge and skills. In the United States, these fall within the purview of the practice doctorate. DNP graduates are required to demonstrate attainment of competencies in ten domains (AACN, 2021; CCNE, 2024). Examples include the ability to collaborate with interprofessional teams to address population health care needs, engage in scholarship to advance health at the systems level, utilize information and communication technology to address needs and gaps in care, and advocate for policies and structures to elevate the nursing profession and reduce health disparities. It is important to emphasize that the DNP is not a role but rather a practice-focused doctoral degree that prepares nurses with specialized knowledge and skills to fulfill many roles. The curriculum incorporates principles and concepts that can be applied universally to advance health and the nursing profession. These are important considerations because one in eight nurses practice in a country other than the one where they were educated or born (WHO, 2020). These nurses are uniquely poised to serve as ambassadors and advocates for nursing.

An emerging body of evidence suggests that DNP graduates possess the leadership and professional skills needed to elevate the nursing profession and advance population health goals. The results of a study published by Giardino and Hickey in 2020 to examine the views of DNP students regarding the impact of DNP education on personal and professional growth showed that students were emboldened to move forward in the nursing profession as leaders and innovators. The authors concluded that DNP programs are successfully graduating nurses with the competencies required to lead health care transformation at all levels. Similarly, in 2021 Kesten et al. published the results of a study focused on analyzing the skills acquired by nurses with practice doctorates. The authors concluded that within the nursing profession, DNP prepared nurses are uniquely equipped to affect health care improvements across multiple settings and are highly skilled in their abilities to engage in practice scholarship to improve health

outcomes and mentor the next generation of nurses.

Currently there are more than 40,000 students enrolled in DNP Programs in the U.S. The implementation of the practice doctorate in the United States has come with many challenges. The results of multiple studies published over the past 20 years suggest that the challenges associated with expansion of the practice doctorate to other parts of the world will be even greater.

The results of a scoring review, published by Dobrowolska et al. in 2021, reveal significant inconsistencies in the aims, infrastructure, faculty, processes, and outcomes across doctoral nursing education programs at the national and international levels. The authors also point to a lack of cooperation and collaboration among scholars and educators internationally.

The lack of qualified nursing faculty reported by nearly every country in the world constitutes a major barrier to the elevation of nursing education at a global level (Dobrowolska et al., 2021; ICN, 2023; WHO, 2020) The shortages of faculty with knowledge and skills needed to supervise capstone projects, which are required to demonstrate attainment of end-of-program competencies, is particularly acute.

A lack of awareness of the aims and foci of the practice doctorate can lead to lack of public and employer acceptance as well as acceptance among other health professions (Larmer, et al., 2019). The acceptance of nurses as equal partners is a major barrier. Nursing is a gendered profession that has historically been dominated by other health professions in many parts of the world. This status has adversely impacted the ability of nursing to receive the funding and political support needed for elevation of the profession and inclusion in high-level decision making (WHO, 2020). Although these challenges are formidable, opportunities to work toward global objectives for the nursing profession exist.

Experts in nursing, medicine, and education agree that collaboration and sharing of resources among academic institutions and practice partners are essential to the attainment of shared global goals for the elevation of nursing and nursing education. Technology advancements place these goals within reach. Global digitalization has enabled our ability to

establish meaningful relationships and collaborations across continents and to provide high quality education anywhere in the world where Internet access exists. Although it seems clear that the legislative funding and regulatory reforms needed to support these goals will take decades, academic nursing can exercise agency and moral courage to lead the way by thinking globally and acting locally now.

Summary

The aims of the work described here included establishing an international pathway that allows qualified nurses to earn a practice doctorate while continuing to reside in their respective countries of residence. Doctoral preparation strengthens the profession by ensuring that nurses everywhere have an influential role in health policy formulation and decision making that affects health and social care systems.

The creation of a critical mass of nurses with advanced policy, population health, and interprofessional competencies is requisite to the elevation of nursing and nursing education. Legal and regulatory changes are also essential but will take decades, or even longer, to achieve. In the meantime, advances in communication and education technology place these objectives within our reach. However, nurses across the world must be willing to collaborate, to share responsibility, and to share resources. An emerging body of evidence suggests that nurses prepared in practice-focused doctoral programs are uniquely positioned to catalyze investments in nursing education and leadership at the local, regional, and national levels and to work alongside PhD colleagues to prepare the next generation of nurses. Every important movement in nursing has started with local or regional efforts and this one is no exception.

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Greetings to UPINHF and fellow members on this our 8th Annual International Nursing and Healthcare Forum and Reunion.

My felicitations and cheers to Glo Smitka for receiving the 2024 UPAA Distinguished Alumna for Nursing Education, and to Pinky Chance for being named the 2024 UPAA Distinguished Alumna for Leadership.

Congratulations to all alumni celebrating respective jubilees. Wishing you continued joy and success.

ELIZABETH JOSE CAMACHO

BSN (UPCN '67), MPA, RN
Recipient, UPCN Outstanding Alumna for
Nursing Entrepreneurship, 2014

A Case Study Approach To Teaching Advanced Health Assessment In Nurse Practitioner Programs

Jeanne B. Jenkins, PhD, MSN, MBA, RN, FNAP

Assistant Professor and Director of the Masters of Science in Nursing and the Post-Master's Certificate Programs
Florida Southern College
Lakeland, FL (USA)

Deborah H. Cantero, DNP, APRN, FNP-C, CNE

Assistant Professor and Coordinator for the Family Nurse Practitioner track
Florida Southern College
Lakeland, FL (USA)

Contact person: **Joseph Laly** | ljoseph@flsouthern.edu

Abstract:

This article aims to describe a quality improvement initiative that integrates a case study approach into an advanced health assessment course for nurse practitioner students. By introducing essential skills and concepts crucial for competency achievement, this method incorporates real-life scenarios from primary care, allowing students to apply diagnostic reasoning in a simulated learning environment. This teaching approach aims to bridge the Registered Nurse (RN) role with that of a competent, critically thinking Advanced Practice Nurse (APN) through a competency-driven educational approach.

Keywords:

Case study approach; advanced health assessment; nurse practitioner; competency-based education

According to the APRN Consensus Model (2008), advanced health assessment along with advanced pathophysiology and advanced pharmacology, are considered core courses in nurse practitioner (NP) education. As part of the 3P's, the aim of an advanced health assessment course is to build on the skills and competencies gained in the undergraduate nursing health assessment course and introduce the NP student to higher-level skills and concepts that form a solid foundation for all other NP competencies (Kelley, Kopac, & Rosselli, 2007). Helping bridge the gap between the RN role and a competent, critically thinking advanced practice nurse (APN) creates challenges for faculty, particularly in teaching the concepts of differential diagnosis and

building confidence in clinical decision making or clinical reasoning.

The American Association of Colleges of Nursing (AACN) (2021), competency-based education requires students to master essential competencies for their field of study. AACN's (2021) *The Essentials: Core competencies for professional nursing education* provide curriculum guidelines that outline foundational content necessary for advanced-level nursing education. The sub-competencies offer a framework for faculty to assess nurse practitioner students' progress toward meeting performance expectations throughout the program, with a focus on evaluating students' abilities. Incorporating opportunities for the students to reflect on their performance allows them to assess their own progression toward the attainment of competencies required for advanced practice (AACN, 2021).

The use of active learning strategies, such as simulation, to support competency-based learning has shown to be effective in various nurse practitioner programs (Graham et al., 2023; Herbert & Sibley, 2022; Nimmo et al., 2021; Strauch et al., 2024; Willbeck et al., 2023). Additionally, using simulation in nurse practitioner programs with unfolding case studies has shown to increase confidence and communication skills (Herbert & Sibley, 2022) and to be effective in promoting clinical decision-making skills (Graham et al., 2023).

For example, Graham and colleagues (2023) used a longitudinal, mixed methods approach with a leveled set of formative simulation experiences using standardized patients to evaluate the

nurse practitioner students' perceptions of simulation and the role of simulation in preparing them for clinical practicum experiences. Their findings supported that simulation was effective in promoting clinical decision-making skills. Sheikh (2022) used a rapid-cycle deliberate practice technique in telehealth simulation experiences with students receiving feedback based on well-defined objectives throughout the process. As a result, this approach demonstrated potential for nurse practitioner students to accomplish key telehealth health assessment behaviors and progression toward readiness for practice. Additionally, Moore and Montejo (2022) investigated the NP student's experience using virtual patient cases to supplement clinical learning. Students in their final semester of a distance family NP program completed 45 virtual patient cases over an 8-week period. Student perceived ability to manage common primary care problems increased for all virtual case topics supporting the use of alternative forms of clinical learning to supplement direct care clinical experiences (Moore & Montejo, 2022).

Faculty members must reassess their teaching methods and evaluation strategies to align with competency-based education. Nursing program faculty must rethink and explore new methods to better prepare the NP student for assessing, diagnosing, planning, and evaluating care across the lifespan in order to provide safe and quality health care (AANP National Certification Board, 2021). In response to this shift, our faculty team began evaluating students' understanding of key concepts and identifying critical checkpoints.



Our focus was on learner centeredness through engaged experiential learning in the classroom (Hodges, et al., 2019). We determined that a significant milestone is the advanced health assessment course, which precedes the clinical course sequence starting in the following semester. In this course, knowledge acquired in advanced pharmacology and advanced pathophysiology courses is reinforced, alongside the introduction and reinforcement of assessment skills essential for practice.

The purpose of this article is to describe a quality improvement initiative that incorporates a case study approach in an advanced health assessment course for nurse practitioner students. It details the development and implementation of an unfolding case study method used in the course, specifically for family and adult-gerontology primary care NP students, that incorporates role playing to prepare the students for their initial clinical practicum experiences. Our goals were to (1) prepare future Advanced Practice Nurses (APN) with the knowledge and skills needed for differential diagnosis, clinical reasoning, and clinical decision

making, and (2) to prepare the nurse practitioner student for transition to the clinical learning environment.

Implementation

Our MSN NP tracks are an in-person delivery with students attending class one day per week on campus. The case study approach was implemented as a method for the NP student to begin to develop and demonstrate the skills and confidence needed to make sound clinical decisions while providing comprehensive primary care. The advanced health assessment course is taught in the second semester of the program for all NP students who have completed their advanced pathophysiology and advanced pharmacology courses in the previous semester and will begin their clinical management course series in the third semester. Previously, our Advanced Health Assessment course faculty employed a traditional teaching model. This involved classroom didactic sessions focused on specific systems, followed by lab time where students practiced physical assessments on their lab partners. Students used checklists to

ensure all parts of the assessment were covered, with faculty available to assist during practice sessions. In this new model, the students spend two hours per week in the didactic portion of the course and two hours in lab. Eight cases are used during the semester during the lab portion of the course. Students also complete an Objective Structured Clinical Examination (OSCE) at both mid-term (formative assessment) and the end of the semester (summative assessment), utilizing standardized patients for each examination. OSCEs are utilized beginning in the advanced health assessment course and continue in the clinical management courses throughout the program as an assessment of the student's competency attainment.

The NP faculty developed case studies to promote critical thinking, clinical decision making, and clinical reasoning. The case studies are focused on relevant, high volume health conditions seen in the primary care setting across the lifespan. The specific topics include reproductive, HEENT, mental status/behavioral health, respiratory, cardiovascular, musculoskeletal, abdomen, and

neurological. The case studies promote deductive reasoning by the NP student as they analyze and synthesize the clinical information provided in the context of a patient encounter (Reinoso, et al., 2018). The students' reasoning moves from general to more specific as they work through the case and gather information. They begin to form and test hypotheses, develop a priority list of differential diagnoses, and treatment plan for the patient (Reinoso, et al., 2018).

Students are introduced to the case study format during week three of the advanced health assessment course, following content specific to subjective and objective information along with the diagnostic reasoning process. The case study is organized by four sections: (1) subjective, (2) objective, (3) assessment and plan, and (4) role playing, and are guided by specific learning objectives which are aligned with the broader course

learning outcomes.

Subjective

The learning outcome for the subjective section is that students will apply principles and strategies for interviewing and history-taking that align with the necessary subjective data collection to inform differential diagnosis and diagnostic reasoning. The case is introduced to the students during the final 15-20 minutes of the didactic portion of the advanced health assessment class. Students are only given the patient's chief complaint, such as abdominal pain in a 15-year old female, to simulate the limited information provided prior to entering the room during a primary care office visit. Students are instructed to work independently and begin brainstorming to create a list of questions they would ask a patient during an actual interview. Students are required

to use the case study student worksheet to document their question list focusing on the history of the present illness (HPI) using the OLDCARTS mnemonic, review of systems (ROS), past medical history, personal/social history, and current medications. At the conclusion of the didactic class, students transition to their assigned lab classroom.

Objective

In the objective section, students practice principles of the physical examination (PE) specific to the case study. Approximately 10-12 students are grouped in a dedicated lab space with exam tables and one NP faculty. Initially, the NP faculty and students engage in a highly interactive session reviewing the chief complaint and students' question list. Next the NP faculty provides each student with a handout that includes the case study's subjective and objective

Table 1: Alignment with Sub-Competencies for Advanced-Level Nursing Education (AACN, 2021)

| Case Study Activity | Competency Practiced/Assessed | Alignment with Domain 2: Person-Centered Care (AACN, 2021) |
|---|--------------------------------------|---|
| Subjective, Role Playing | Effective Communication | 2.2g |
| Subjective, Objective | Assessment Skills | 2.3h |
| Subjective, Objective, Assessment, and Plan | Advanced Diagnostic Reasoning | 2.4f |

findings. The students work with their lab partner to practice their PE while the NP faculty observe the students' techniques and provide real time feedback specific to sequencing and techniques. Students are guided in their PE practice by using their physical assessment checklists provided via their textbook.

Assessment and Plan

During the assessment and plan section of the case study students practice principles of differential diagnosis and diagnostic reasoning in alignment with the referenced case study. The students reconvene with their NP faculty who facilitates a group discussion to review questions from the objective portion prior

to moving forward to the assessment and plan. Students work with in pairs to brainstorm on the assessment and plan for the case, while utilizing class materials and evidence-based resources. There are two steps within the assessment and plan section.

Step one allows the students to focus on the subjective and objective information specific to the case. From this information, the students identify a minimum of three (3) differential diagnoses with rationales, and describe how each diagnosis applies to this patient specifically. A final primary working diagnosis is then identified.

In step two, students to work in pairs to develop a therapeutic plan for the patient,

including appropriate pharmacology based on clinical guidelines, labs, radiology, patient education including wellness and prevention, and follow-up. Students practice writing prescriptions for each medication prescribed utilizing a mock prescription template.

Role Play: Case Presentation to Preceptor

The final section of the case involves role-playing, allowing students to practice oral communication skills by presenting the patient's HPI, ROS, physical examination findings, and proposed therapeutic plan. Students present the case to their NP faculty, who assumes the role of the clinical preceptor,

simulating the clinical experiences they will encounter in the next semester. In a group setting, NP faculty and students discuss and review the assessment and plan based on the case study information. Each week, pairs of students take turns presenting the subjective, objective, assessment, and plan to the preceptor (NP faculty) while the lab group observes. The NP faculty ensures that all students participate in the role-playing portion, allowing for practice before the final cumulative OSCE check-off, which serves as a competency-based evaluation prior to beginning their clinical experience. At the conclusion of the lab session, the NP faculty leads a wrap-up discussion on the case, the findings, and the plan.

This innovative teaching approach enables students to engage in the diagnostic reasoning process within a simulated learning setting, demonstrating their progression toward meeting performance expectations. Specifically, this method allows NP faculty to introduce the framework of diagnostic reasoning and clinical decision-making from the APN perspective in a simulated environment aligned with Domain 2: Person-Centered Care (AACN, 2021) (see Table 1). This domain emphasizes the integration of assessment skills into practice and diagnosis. Students are tasked with applying knowledge from advanced pathophysiology and pharmacology courses alongside newly acquired skills from the advanced health assessment course to assess, diagnose, and develop treatment plans. By participating in these simulated exercises, students gain a clearer understanding of what to anticipate in their clinical experiences before beginning their clinical management courses.

Reflection

During the debriefing session on the case study pedagogical teaching strategy, NP faculty members unanimously agreed that it was positively received by both faculty and students. The implementation of a faculty-guided case study design within a structured lab setting proved highly effective. By incorporating primary care-based case scenarios with real-world applicability, students were able to engage in the diagnostic reasoning process within a simulated learning environment. The role-playing component provided students with an op-

portunity to demonstrate effective communication skills through case presentations to the preceptor, preparing them for the clinical management course ahead. Students expressed that the role-playing exercise was invaluable for practicing their case presentation skills and building confidence in the diagnostic reasoning process, facilitating the transition in professional identity from the Registered Nurse (RN) to the Advanced Practice Nurse (APN) role. Student reported the experience was highly applicability to real primary care practice and provided an intensive opportunity to think like an APN.

In the future, the NP faculty plan to expand the number of primary care cases and to incorporate opportunities for students to employ reflective journaling, specific to their individual progression toward attainment of the competencies required for advanced practice and their professional identity transition, as a way to introduce students to reflective practice in the APN role.

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Osteoporosis and Immune Health: Essential Knowledge for Nursing Practice

Jennifer Oliveros Manilay, PhD

Department of Molecular and Cell Biology
University of California, Merced
5200 North Lake Road, Merced, CA, 95343
Email: jmanilay@ucmerced.edu

Abstract: Osteoporosis is a global public health concern affecting over 200 million people, characterized by reduced bone mass and increased fracture risk. This review examines the pathophysiology, prevalence, and treatment of osteoporosis, with a specific focus on Filipino populations in both the Philippines and the United States. The role of nurses in managing osteoporosis, particularly through patient education and coordination of care, is emphasized. Furthermore, the intricate relationship between the skeletal and immune systems is explored, highlighting the concept of osteoimmunology and its implications for bone health and disease. The impact of osteoporosis medications on the immune system is critically analyzed, revealing that bisphosphonates, selective estrogen receptor modulators, denosumab, and romosozumab can influence immune function, potentially increasing the risk of infections. This review underscores the necessity for continued research and vigilant clinical monitoring to optimize osteoporosis treatment and patient outcomes, particularly in diverse ethnic populations such as Filipinos. This article aims to equip nursing professionals with comprehensive knowledge to effectively care for osteoporosis patients, ensuring both skeletal and immune health are maintained.

About the Author: Jennifer Oliveros Manilay, PhD is a developmental immunologist. Dr. Manilay's current area of research is the influence of communication between bone and hematopoietic stem cells on immune cell fate decisions (osteoimmunology). She is particularly interested in investigating the effects of romosozumab on immune cell function and immune aging.

1. Introduction

Osteoporosis is a skeletal condition where bone mass decreases and bone

tissue deteriorates, causing bones to become more fragile and increasing the risk of fractures. This condition poses a significant public health concern globally, affecting over 200 million people worldwide and contributing to substantial morbidity, mortality, and economic costs (Davis, et al., 2020) (Adejuyigbe, Kallini, Chiou, & Kallini, 2023). As the aging population grows, understanding the pathophysiology of osteoporosis and its treatment options is crucial for developing effective management strategies. While osteoporosis is a global health concern, its prevalence, risk factors, and impact can vary significantly among different ethnic groups, including Filipinos.

A multidisciplinary approach is vital in managing osteoporosis effectively. Collaboration among primary care physicians, endocrinologists, rheumatologists, physical therapists, and nurses ensures that patients receive comprehensive and coordinated care. Nurses, often serving as the primary point of contact for patients, play a pivotal role in facilitating communication among healthcare providers and ensuring that all aspects of the patient's care are addressed. Nurses play a crucial role in educating patients about the nature of osteoporosis, its progression, and the importance of adhering to treatment regimens. Understanding the pharmacologic treatments available for osteoporosis is essential for nurses. Current Food and Drug Administration (FDA)-approved treatments include bisphosphonates, selective estrogen receptor modulators (SERMs), parathyroid hormone analogs, RANKL (receptor activator of nuclear factor kappa beta ligand) inhibitors, and sclerostin inhibitors. Nurses should be knowledgeable about these medications, their mechanisms of action, and potential side effects to effectively educate patients and manage any adverse reactions. This knowledge enables nurses to provide comprehensive care and address any

concerns patients may have about their treatment plans.

2. Osteoporosis in Filipinos in the Philippines and the United States

2b. Osteoporosis in Filipinos in the Philippines: Prevalence and Risk Factors

In the Philippines, osteoporosis is increasingly recognized as a major public health issue, especially among postmenopausal women and older adults. Using the Philippines Fracture Risk Assessment Tool (FRAX) model to estimate intervention thresholds for identifying postmenopausal women at high fracture risk, Li-Yu et al. highlighted significant age-related increases in fracture risk, with fixed thresholds for major osteoporotic fractures at 3.75% and hip fractures at 1.25% (Li-Yu & Lekamwasam, 2021). Osteoporotic fractures, particularly hip fractures, are a growing concern in the Philippines. The low awareness and suboptimal management of osteoporosis contribute to the high fracture rates among the elderly. Studies have shown that Filipino men and women aged 50 and above have a significant prevalence of osteopenia and osteoporosis, with fracture rates increasing with age. For instance, 40.2% of Filipino men had osteopenia and 29.9% had osteoporosis, with a notable proportion experiencing fragility (Mendoza, Lopez, Valdez, & Mercado-Asis, 2016).

2c. Osteoporosis in Filipinos in the United States: Prevalence and Risk Factors

Filipinos in the United States face unique challenges related to osteoporosis due to differences in lifestyle, diet, and healthcare access compared to their counterparts in the Philippines. Lo et al. conducted a study comparing bone mineral density (BMD) among older U.S. women of Filipino, Chinese, Japanese,

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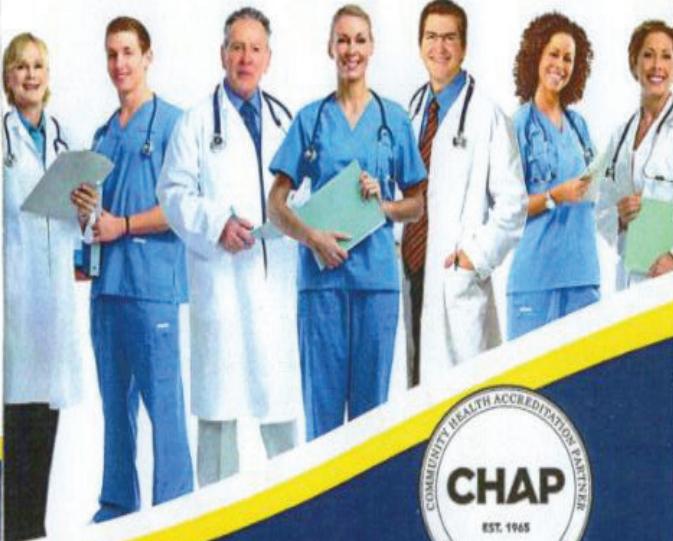
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and non-Hispanic White (NHW) ethnicities. The study found that Filipino women had lower BMD values compared to NHW women, although the differences were partially attributed to smaller bone size and different body compositions (Lo, et al., 2020). Acculturation and changes in dietary habits among Filipino Americans can influence osteoporosis risk. Traditional Filipino diets, often low in calcium and vitamin D, may contribute to lower BMD. However, increased awareness and access to healthcare services in the U.S. can help mitigate some of these risks through better prevention and treatment strategies. Despite lower BMD, the incidence of fractures, particularly hip fractures, tends to be lower among Filipinos compared to NHW populations. This paradox may be explained by differences in hip geometry, lifestyle factors, and lower body mass index, which can reduce the impact during falls. However, BMD differences between ethnic groups become more pronounced with age, highlighting the need for age-specific interventions and monitoring (Lo, et al., 2020) (Lo, Yang, Park-Sigai,

& Ott, 2023) (Mendoza, Lopez, Valdez, & Mercado-Asis, 2016).

2d. Comparison of Clinical Management and Treatment Guidelines in the Philippines and in the United States.

The management of osteoporosis in the Philippines is guided by localized clinical practice guidelines, which emphasize early diagnosis, adequate nutrition, and the use of pharmacologic interventions when necessary. Calcium and vitamin D supplementation, along with bisphosphonates, are commonly prescribed to improve bone health and reduce fracture risk. The use of tools like the Osteoporosis Self-Assessment Tool for Asians (OSTA) and the Philippines FRAX model aids in identifying high-risk individuals and tailoring treatment plans accordingly (Li-Yu, et al., 2011) (Li-Yu & Lekamwasam, 2021). In the United States, Filipino Americans benefit from advanced diagnostic tools and a broader range of treatment options. Clinical guidelines recommend routine BMD screening for at-risk populations, including postmenopausal women and

older adults. Bisphosphonates, denosumab, and romosozumab are among the medications used to manage osteoporosis (see Table 1). Treatment plans are individualized based on fracture risk assessments and patient-specific factors, such as comorbidities and preferences (Lo, et al., 2020) (Lo, Yang, Park-Sigai, & Ott, 2023).

3. Skeletal and Immune System Overview

Osteoporosis involves a multifaceted pathophysiology characterized by an imbalance between bone resorption and bone formation. This condition arises from the dysregulation of osteoclasts and osteoblasts, the primary cells responsible for bone remodeling. Osteoclasts facilitate bone resorption, while osteoblasts are involved in bone formation. The disruption of the delicate equilibrium between these processes leads to the progressive weakening of bone structure seen in osteoporosis. These cells are not only crucial for skeletal health but also significantly interact with the immune system. Osteoimmunology is an emerging field

| Drug Name (Brand Name) | Drug Type | Mechanism of Action |
|--|--|---|
| Calcium and Vitamin D | Supplementation | Ensure adequate nutrient availability for bone metabolism, reducing the risk of hip and other fractures |
| Alendronate (Fosamax) | Bisphosphonate | Binds to hydroxyapatite in bone, inhibiting osteoclast-mediated bone resorption. Increases BMD and reduces fracture risk, but may cause gastrointestinal discomfort and, rarely, osteonecrosis of the jaw |
| Estrogen | Hormone Replacement Therapy | Helps maintain bone density by reducing bone resorption |
| Raloxifene (Evista) | Selective Estrogen Receptor Modulator (SERM) | Mimics estrogen's beneficial effects on bone without some of its risks, such as increased breast cancer risk |
| Teriparatide (Forteo, Bonsity) | Parathyroid Hormone (PTH) Analog | Stimulates bone formation by activating osteoblasts. Useful in severe osteoporosis or those who failed other treatments, but long-term use is limited due to potential osteosarcoma risk |
| Denosumab (Jubbonti, Prolia, Wyost, Xgeva) | Biologic | Monoclonal antibody that inhibits RANKL, reducing the risk of vertebral, hip, and non-vertebral fractures. Discontinuation can lead to rapid increase in bone resorption |
| Romsozumab (Evenity) | Biologic | Monoclonal antibody targeting sclerostin, increasing bone formation and decreasing bone resorption. Improves BMD and reduces fracture risk, though there are concerns about cardiovascular events |

that explores the bidirectional interactions between the skeletal and immune systems. This interplay is particularly evident in the bone marrow, where hematopoietic (blood-forming) and skeletal (bone-forming) cells coexist and interact closely. This crosstalk involves various cytokines, chemokines, and growth factors that regulate both bone and immune cell functions. For example, B lymphocytes, which are central to the adaptive immune response, interact closely with the skeletal system, influencing bone mass and turnover (Manilay & Zouali, 2014). Conversely, bone cells such as osteoblasts and osteoclasts can modulate immune responses through the production of signaling molecules that affect immune cell differentiation and function (Donham & Manilay, 2020). Advances in osteoimmunology have shed light on the mechanisms underlying these interactions, offering potential pathways for therapeutic interventions in diseases that affect both systems.

4. Impacts of Osteoporosis Drugs on the Immune System

The interplay between osteoporosis treatments and the immune system is a critical area of research, particularly as the immune system plays a significant role in bone homeostasis. Osteoporosis and its treatments can impact the immune system in several ways. Bisphosphonates can influence immune cell function. They have been shown to modulate the activity of T cells and macrophages, potentially affecting the immune response. Long-term bisphosphonate therapy has been associated with an increased risk of infections, though the clinical significance of this remains to be fully elucidated (Davis, et al., 2020). SERMs and estrogen affect the immune system by altering the function of various immune cells, such as macrophages, T cells, and B cells. Estrogen deficiency in postmenopausal women is associated with increased pro-inflammatory cytokine production, which contributes to bone resorption. Estrogen replacement can mitigate these effects, highlighting the hormone's role in maintaining immune balance (Davis, et al., 2020) (Adejuyigbe, Kallini, Chiou, & Kallini, 2023).

Biologic therapies for osteoporosis also have effects on the immune system. For example, denosumab affects not only osteoclasts but also the immune cells

that express RANKL, such as T cells and dendritic cells. This inhibition can lead to alterations in immune function, including an increased risk of infections and potential impacts on immune surveillance. Denosumab treatment has been associated with an elevated risk of infections. A meta-analysis of 33 randomized controlled trials involving 22,253 patients found a 1.21-fold increase in the incidence of serious adverse events of infections during denosumab therapy compared to controls (Diker-Cohen, et al., 2020). Specific infections with increased incidence include ear, nose, and throat infections, gastrointestinal infections, pneumonia, urinary tract infections, tuberculosis, fungal infections, candidiasis, herpes zoster, and sepsis (Huang, et al., 2023). These findings highlight the immunomodulatory effects of denosumab, which may compromise the immune system's ability to combat infections effectively.

Romosozumab is used to treat osteoporosis in postmenopausal women at high risk of fractures, and represents a significant advancement in osteoporosis treatment due to its dual action of promoting bone formation and reducing resorption (Anastasilakis & Tsourdi, 2024). However, its impact on the immune system and associated risks requires thorough investigation. While its direct impact on the immune system is less pronounced than its skeletal effects, studies in mouse models showed that the inhibition of sclerostin and subsequent alterations in the bone marrow environment can influence hematopoiesis and inflammatory responses (Cain, et al., 2012). The inflammatory environment induced by sclerostin inhibition can lead to significant changes in the bone marrow's support for hematopoiesis. The increased levels of pro-inflammatory cytokines observed in sclerostin knockout models suggest that romosozumab may similarly influence the bone marrow niche, potentially affecting both bone health and immune function (Donham, et al., 2021). Continued research and careful clinical monitoring, like regular assessments of complete blood counts and inflammatory markers, are essential to fully understand the long-term implications of romosozumab on immune function and to optimize its safety and efficacy in clinical practice.

5. Conclusion

The management of osteoporosis, especially within the context of diverse populations such as Filipinos, necessitates a multidisciplinary approach that includes primary care physicians, endocrinologists, rheumatologists, physical therapists, and nurses. Nurses play a pivotal role in patient education, ensuring adherence to treatment regimens, and facilitating communication among healthcare providers. Understanding the pathophysiology of osteoporosis and the impacts of various pharmacologic treatments on both bone and immune health is essential for providing comprehensive care. While current treatments effectively improve bone mineral density and reduce fracture risk, their potential immunomodulatory effects warrant careful monitoring. Future research should continue to explore the intricate connections between the skeletal and immune systems to develop more targeted and safe therapeutic interventions. Through a thorough understanding of these dynamics, nursing professionals can enhance patient care, improve outcomes, and address the unique challenges faced by different ethnic groups, ultimately contributing to better public health outcomes globally.

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Decreasing the Attrition Rate of Nursing Students in the First Clinical Course Using Jeffreys' Success Program: Pilot Study

Illya DeVera-Bonilla

RN Faculty

RWJ Barnabas HealthTrinitas School of Nursing,

Elizabeth, New Jersey

Devera-bonilla@ucc.edu

Introduction and Statement of the Problem

The healthcare system continues to have a nursing shortage, and nursing programs are expected to contribute to the solutions by replenishing the supply of new graduates in the workforce. There are several pathways to becoming a nurse. Students who seek to enter the nursing profession may choose from a diploma, associate degree in nursing (ADN), or baccalaureate degree in nursing (BSN) programs. Completing any of these nursing programs provides eligibility for the National Council Licensure Examination (NCLEX-RN).

Pence and Suerth's (2020) literature review revealed that attrition occurs early in nursing programs. The attrition in nursing programs is reported to be a global problem, and multifactorial reasons include internal and external factors that affect students' success (Chan et al., 2019). Although many researchers point out that examining the factors contributing to attrition in the first clinical course and early identification of students who need academic support may assist nurse educators in supporting the students' success, nurse educators struggle to find evidence-based practices to decrease the attrition (Eudy & Brooks, 2022; Jeffreys, 2015).

The problem of a high attrition rate not only affects the supply in the nursing workforce but also the institutions' tuition revenue (Eudy & Brooks, 2022; Fagan & Coffey, 2019). For example, a pre-licensure diploma program in a highly diverse urban community in Union County, New Jersey, reports a high attrition rate in the first clinical nursing course.

The diploma and ADN programs are the fastest means to obtain eligibility for the NCLEX. For this reason, these

programs are more appealing to many students seeking a nursing career. Furthermore, these programs are community college based and offer lower tuition fees and time flexibility than the BSN program (Gentry & Graves, 2022). Although this may offer a more rapid entry into the nursing profession, the curriculum has the rigor to ensure that new graduates are prepared for practice.

Prospective nursing students entering these programs underestimate the rigor, responsibilities, time commitment, and required depth of knowledge to be successful (Fagan & Coffey, 2019). The literature suggests that high attrition is more prevalent in fundamental nursing courses than in other nursing courses (Eudy & Brooks, 2022; Pence & Suerth, 2020). In this course, the student must balance didactic, learning basic psychomotor skills, and clinical rotations, all together. In addition, According to Jeffreys (2015), students and the program's characteristics and interaction with the students could affect attrition (as cited in Eudy & Brooks, 2022). For over a decade now, the American Nurses Association (ANA) has recommended BSN as entry-level education in the nursing practice. Studies have shown that BSN-prepared nurses have better patient outcomes than diploma and ADN-prepared nurses (Rapoza et al., 2022; AACN, 2018). However, diploma or ADN-prepared nurses have consistently supplied the nursing workforce in the United States much quicker than the BSN-prepared programs (Pence et al., 2020).

The pre-licensure diploma nursing program for this study has an attrition rate of 24% in fall 2020, 32% in spring 2021, and 22% in fall 2021. These attrition rates are higher compared to other nursing courses in this program. Students

in this program, unlike traditional college students, work full-time or multiple jobs, have family responsibilities, and have been out of school for several years.

Fagan and Coffey's literature review revealed that one-third of qualified students leave the nursing program globally (2019). Addressing the attrition in the fundamental course has challenged the diploma program because most students enrolled in these programs are not typical traditional college students. The non-traditional students are working full-time or part-time, older, seeking a second-degree career, have a non-native English-speaking language, have families, are self-supporting students, and some have been out of school for many years (Jeffreys, 2007; Rudel, 2006). Rosenberg and O'Rourke (2014) identify these students as having a higher risk of failing in the nursing programs. In addition, these students often have stressors, such as financial strains, employment schedules, and familial responsibilities, preventing them from meeting the course requirements, skills practice, clinical preparation, post-clinical assigned work, study time, and tutoring sessions (Harris et al., 2014).

The fundamental course in this program serves as their first clinical course in nursing school. The system requires the students to attend didactic and clinical learning, which students struggle to meet the course requirements. The lack of academic readiness, time management, and stress from clinical situations affect their success in this program (Glossop, 2002).

Significance of the problem

Eudy (2022) explained the urgency of addressing the attrition rate in nursing schools to ensure an adequate nursing supply of nurses because of the aging

Table 1: Attrition rates of Trinitas Students in First Clinical Course

| Diploma Program First Clinical Course | FA2020 | SP2021 | FA2021 |
|---|------------|------------|------------|
| Total # students registered | 123 | 76 | 95 |
| The total # of students who passed | 93 | 52 | 74 |
| # students failed | 30 | 24 | 21 |
| Attrition rate (# failed / # registered) | 24% | 32% | 22% |

population and workforce. Haddad, Anamaria, and Toney-Butler (2022) cited in the Nursing Times that the US Bureau of Labor Statistics projects that in 2020-2030 an estimated 275,000 nurses are needed in the workforce. According to the American Association of Colleges of Nursing (AACN), fifty-five percent of registered nurses are 50 years older and expected to retire in the next 10-15 years, anticipating that more than a million nurses will retire (Peruski, 2019). Unfortunately, the high attrition rate in some nursing schools continues to cripple the ailing nursing shortage and cannot meet the high demands to supply the nursing workforce.

Nursing educators have a more significant challenge in finding ways to support nursing students' success. The attrition problem has been a long-standing issue, and because it is multifactorial, finding a solution to solve this problem has been a challenge; however, understanding the different variables of why students in this program are not successful may assist the faculty in planning an individualized intervention that may reduce attrition (Pence & Suerth, 2020; Peruski, 2019). According to Eudy and Brooks (2022), attrition rates are not exclusively for academic reasons. Chan et al. found that students' personality traits, self-efficacy, coping, and stress management skills affect their success in the program.

Purpose Statement

The purpose of this study is to decrease the attrition rates of the pre-licensure diploma-nursing students in their first clinical nursing course by 10% using the Jeffrey's Success Model.

Definition of Concept (s)

Attrition

According to Glossop (2002), attrition is the difference between the number of students beginning each cohort

and the number who completed that cohort. Attrition occurs when students realize they are not meeting the course requirements due to poor exam results. As a result, they either withdraw or fail the course.

Non-traditional students

Non-traditional students are students aged 25 years or older who commute to school, are enrolled part-time, are male, are a racial-ethnic group member, have English as a non-native language, have dependent children, and hold a general equivalency diploma (Bednarz et al., 2010; Jeffreys, 2007; Rudel, 2006). Non-traditional students have higher stressors, such as financial and employment constraints and familial responsibilities, directly affecting their success in the nursing program (Harris et al., 2014).

Diploma nursing program

The American Association of Colleges of Nursing (2019) defines a diploma-nursing program as a three-year hospital-based program. It is the oldest and most traditional nursing education available in the United States. Students who graduate from this program receive a diploma in nursing. However, most diploma nursing programs are affiliated with colleges or universities that allow students to earn an associate science degree.

Literature Review

Attrition in nursing programs has been a decade-long problem worldwide (Glossop, 2001; Ten Hoeve et al., 2017). According to Glossop (2002), attrition occurs as the difference between the number of students entering the cohort and the number of students progressing. However, the complexity of attrition remains a significant challenge to nursing educators in finding the right solutions.

The student's academic preparation is only one factor affecting attrition, and

success in nursing programs requires skills in three main areas: reading and comprehension, health science, and mathematics (Elder et al., 2015). Students with poor academic readiness often result in dropping or leaving the program. According to Elder (2015), up to 60% of community college students lack college readiness in at least one area. In addition, Chan (2019) states that grade inflation gives a student a false belief in their academic preparation, especially in programs requiring higher competencies, such as nurses and other healthcare providers who provide life-saving services (p. 36).

According to Jeffreys (2015), success can be described differently: students successfully progress from one course to another, complete the nursing program, or pass the licensing exam for the first time. However, success in nursing programs has been very challenging for many students to achieve. Therefore, carefully reviewing factors affecting the students' success is critical to achieving positive outcomes. Jeffreys' Nursing Universal Retention and Success (NURS) model examines the various variables affecting undergraduates and nursing retention (Jeffreys, 2015) Fig. 1.

The NURS model supports actions that are effective in decreasing attrition. It addresses eight factors:

1. Student profile characteristics include age, ethnicity, race, heritage, gender, gender identity, first language, prior education experience, family educational background, work experience, and enrollment status.

2. Student affective factors address the students' attitudes, values, and beliefs about learning, motivation, self-efficacy in being successful in the program, and cultural values and beliefs (CVB).

3. Academic factors are the student's study skills, study hours, attendance, class schedule, and the use of other general academic services such as

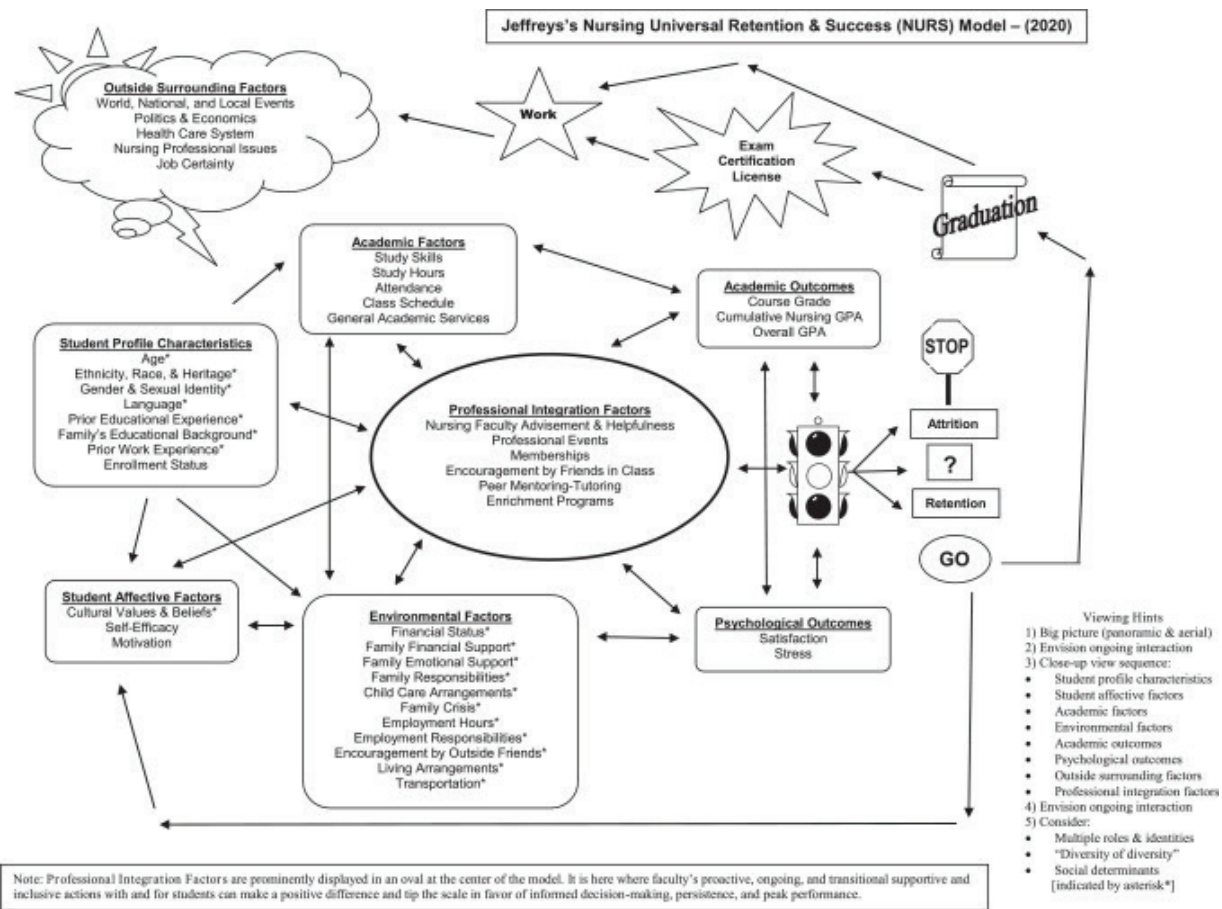


Figure 1. Jeffreys's Nursing Universal Retention & Success (NURS) Model

college libraries, counseling services, support services, etc. Personal skills are also included in this factor, such as reading, writing, note-taking, studying strategies, listening, communicating, critical thinking, creative thinking, and clinical decision-making. In addition, the student's attitude toward their responsibilities to be proactive in their learning, time management, and organization contribute to their success.

4. Environmental factors that affect students' success are familial and employment responsibilities. This funnels down to financial needs and support, including social support.

5. Outside surrounding factors influence the student's personal environment and outside the academic settings. These are national and local events, politics, economics, and changes in the healthcare system.

6. Academic outcomes relate to the student's nursing course grade, cumulative grade point average (GPA), and other necessary components to pass

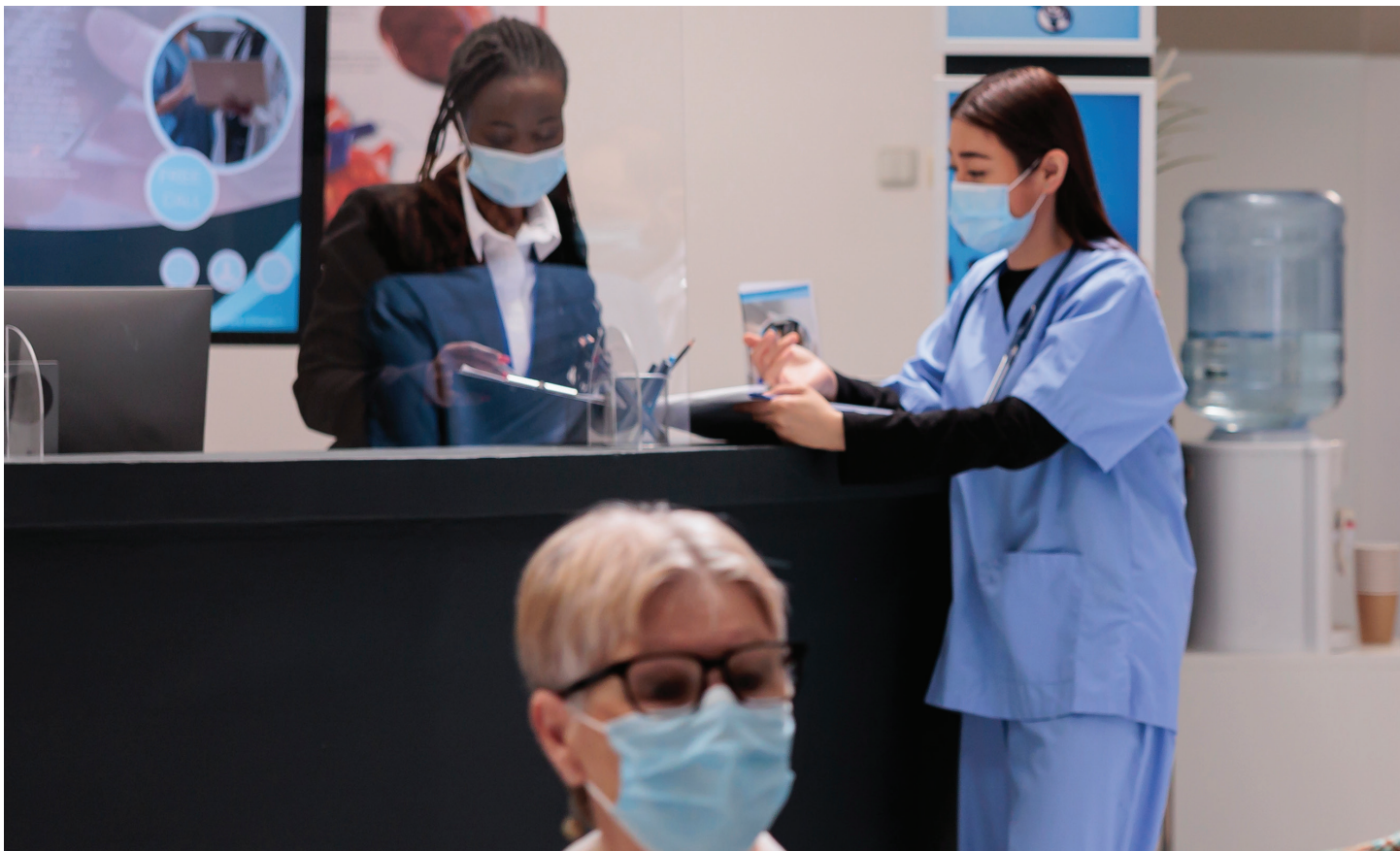
the course.

7. Psychological outcomes address satisfaction and stress levels. Relating to good academic performance creates a positive psychological outcome.

Professional integration factors influenced by exposure to professional socialization and career development. They can achieve this by advisement from nursing faculty, exposure to professional events, and membership in pre-professional organizations, peer mentoring, and other professional enhancement programs.

Eudy and Brooks (2022) retrospective study reviewed student files to identify factors associated with successfully completing the fundamentals nursing course. The cohort study gathered data from a fundamental nursing course for the three years, Fall 2015 through Fall 2018. This study has seven cohorts and 351 students in three years. The primary purpose of this study was to identify factors associated with the successful completion of students from

the fundamental nursing course using Jeffreys NURS model as their theoretical framework. The factors primarily used in this study are the student changing their major to nursing, a second attempt in the course, gender, ethnicity, age, demographic living location, concurrently taking other general education courses and the number of credit hours in the semester. The student's academic preparation using scores received from SAT/ACT, focusing on related sciences, math, reading, and comprehension skills. According to Eudy & Brooks' study, there is a solid relationship between race and student success ($\chi^2 = 10.84, p = 0.01$); being Caucasian demonstrates more success than being African American students. Other factors like the change of major to nursing, the student's second attempt in the course, gender, demographic living location, and concurrently taking general education courses were not associated with the student's success in the fundamental course. However,



there is a positive correlation between high scores on the ACT/SAT with the student's success.

Peruski (2019) conducted a non-experimental ex-facto research design using a non-randomized of 453 students. This study focuses on program readiness, determined by the student's reading, writing, and math scores from a standardized examination. The cohorts were classified by program ready and not program ready as the independent variable; students who met the required standardized scores were considered program ready, and those who did not were considered not program ready. Gender and race were dependent variables used in this study. Because the study has a large sample size, the Z-test was used to compare the two groups. As a result, 71.30% of students who were program ready completed the nursing program compared to 49.13% who were not program ready. In their study, gender and race did not show statistical differences in students' success in the program.

Prato and Bankert (2020) studied the literature on academic grading practices and grade inflation in nursing education. The systematic review examined various studies with different designs: qualitative, quantitative, and mixed-method study designs from other countries—five from the United States, one from Australia, and one from Canada. Factors identified contributing to grade inflation in an academic setting are institutional characteristics/constraints, external standards, team conformity, conflictual influences, lack of confidence, and student incivility. According to Docherty and Diekmann (2015), 16.5 percent of faculty reported not receiving administrative support when failing students who did not meet academic requirements (as cited in Prato & Bankert, 2020). In addition, faculty uses grade inflation to avoid grievances and poor evaluations. The investigators reported two main strategies to mitigate grade inflation in their studies grading practices and pedagogical interventions. First, the recommendation is that faculty have an annual discussion about teaching strategies, the validity and reliability of strategy, and the weight of the assignments throughout the course. In addition to their findings, very few works of literature evaluated the effectiveness

of the recommended resolution.

Chan et al. (2019) conducted a study to review the relationship between curriculum design and attrition of undergraduate nursing students. The investigators used the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) to guide this systematic review. The checklist comprises 27 items addressing a systematic review report's introduction, methods, results, and discussion section: 16 studies were reviewed, two quantitative studies, nine qualitative studies, and five mixed-method studies. Their literature reviews identified four main factors related to attrition and program design: pre-enrollment criteria in nursing, curriculum content, policies related to clinical placements, and available student support services. According to Farahani et al. (2017), attrition can be prevented through proper screening of applicants. Because of students' poor understanding of the program's rigor, they demonstrate little or no commitment to their learning. The investigators also reported that students' characteristics increase the risk of attrition. The factors identified are being less mature, being in a minority group, being male, and having lower qualifications. After the investigator reviewed qualitative studies, students who left the program reported they were not program ready. Their expectation of the curriculum is much different than they were accustomed to. Related policies to clinical placements were said to be a factor in attrition. The investigator reports that the unbalanced mentor-student ratios, late notification of placement-related information, inadequate facilities and heavy workloads during placement, and lack of communication contribute to students leaving the program. The results also identified that support services for first-year students are critical due to heavy academic workload and stress. Based on the evidence, institutional factors such as insufficient support systems, the gap in the students' expectations, and unsatisfactory clinical experience were significant factors of high attrition in the undergraduate program. The investigators recommended amending the nursing school's admission requirements to include health-related experiences and health science as pre-requisite.

Ten Hoeve et al. (2017) conducted a

study to examine the factors that affect the nursing student's decision to leave or complete the nursing program. The descriptive and qualitative study used a small sample size of student nurses (n=17) who were at the beginning of their third and fourth year bachelor's program. The study also examines the reason the students chose a career. In this study, to better understand the students' valid reasons that affect their decisions, the investigators used four graduating students as the interviewers. The interviewers received training from an expert. The result of the investigation led to the reasons for choosing nursing care; the participants reported that nursing career is not their first choice. However, once they have experience providing care to patients, they feel that the nursing profession suits them. The participants reported that the reasons for leaving the program were negative experiences with the training program and classroom and clinical placement.

William et al.'s (2022) study focused on identifying high-risk students early in the program to provide appropriate referrals to support their success. The qualitative study used the Student Perception Appraisal – Revised 1 and 2 (SPA-R1 and SPA-R2) surveys and Jeffreys' NURS model. The investigators used a sample of 161 students enrolled in the Seminar on Professional Nursing course. The institution in this study shows to have a diverse population. The study used Jeffreys's model to identify factors affecting student retention and identify at-risk students early in the program. The model identifies eight factors that contribute to student's success: (1) interaction of student profile characteristics; (2) student affective factors; (3) academic factors; (4) environmental factors; (5) academic outcomes; (6) psychological outcomes; (7) outside surrounding factors; and (8) professional integration. These factors include the SPA-R1 as the pretest survey and SPA-R2 as the posttest survey. To measure and evaluate the student's perception of academic support, their environment, and professional integration in the program, the investigators used 27-item questionnaires. They found that 65.2% were not at-risk and 34.3% were at risk. The investigators' findings were consistent with four subscales: (1) low personal/college support; (2) financial

Table 2: Attrition Rates of Students in First Nursing Course Using the Jeffery’s Model

| Diploma Program First Clinical Course | FA2020 | SP2021 | FA2021 | May 2022 |
|--|--------|--------|--------|----------|
| Total # students registered | 123 | 76 | 95 | 78 |
| The total # of students who passed | 93 | 52 | 74 | 56 |
| # students failed | 30 | 24 | 21 | 20 |
| Attrition rate (# failed / # registered) | 24% | 32% | 22% | 26% |

challenges; (3) excessive work hours; (4) substantial family obligation. Although the investigators successfully identified high-risk students, they admitted that the study lacks vital student information: students’ ethnicity, gender, and other identifying characteristics to reflect Jeffreys’s NURS model.

Methodology and Implementation

After IRB approval, the multiple initiatives identified to support students’ success were implemented in a pre-licensure diploma nursing program in a highly diverse urban community. i Creating a supportive environment is the initial change made. A student support coordinator was appointed to facilitate the initiatives and provide mentoring to identify at-risk students. The student support team consisted of full-time nurse educators and administration. The full-time nurse educators are faculty of the foundation course (first non-clinical nursing course), senior faculty (last clinical nursing course), and the institution’s dean.

The diploma program has 81% minority students from different ethnic backgrounds and has a wide variety of educational backgrounds, from GED high school diplomas to master’s degrees. The demographic profile of the school showed that: 37% were African American, 7% Asian, 13% Caucasian, and 33% Hispanic. Eighty-seven percent (87%) of the students are identified as female and 13% as male (Enrollment data, Spring 2021).

In developing a student success plan, partnership with faculty, administration, and students is vital (Jeffreys, 2015). Assessing the student’s risk early in the program is critical (Eudy & Brooks, 2022). Data collection includes academic status if the student has one nursing failure, the number of work hours, family responsibilities such as the number and age of children or

primary caregiver of parents or ill family member, and if the student is taking other courses aside from nursing (ten Heove et al., 2017; Jeffreys, 2015; Jeffreys, 2022). The diploma program starts with a non-clinical nursing course with only weekly didactic classes. The first clinical course is a combination of didactic and clinical learning. The Success Program developed various initiatives to support students’ needs to assist them in transitioning from a four-credit course to an eight-credit course program with a clinical component. The initiatives will include pre-program orientation, pre-semester, and during-the-semester interventions.

Pre-program orientation

Peruski (2019) states that offering pre-program orientation allows the students and the nursing program to build a trusting relationship. It shows that the nursing school is invested in the student’s success in the program (p. 195). The pre-program orientation offers a vast amount of information to students interested in registering for the nursing program. The information session provides the curriculum map, requirements, financial obligations, and resources available for students.

Pre-semester

During the first semester, a transition session at the end of the Foundation course is added to the schedule. While all students moving to the Fundamental semester are present as a captured audience, students are given information by Fundamental course faculty. Communication during this session includes clinical and in-class schedules, exam days, expectations, and course requirements. This will allow students to plan, especially those who are working and have familial obligations (ten Heove et al., 2017). In addition, a “Jump Start” session is available for students to attend during the semester break. Because this session is out of

the academic calendar, attendance in this seminar is voluntary. The four-hour seminar focuses on managing stress, basic test-taking strategies, how to read nursing textbooks, clinical calculations, and concepts discussed during the first couple of lectures in the Fundamental course. Attendance is collected at the beginning of the session.

During the Semester

During the semester intervention, students identified as having a higher risk will be recommended to meet with the success coordinator for advisement, especially if the student scores less than the passing grade in their exams (Chan et al., 2019; Donell et al., 2018; Eudy & Brooks, 2022)

A series of seminars addressing various areas needed for student success include (1) how to study in nursing school, (2) basic and (3) advanced test-taking strategies, (4) developing clinical judgment, and (5) thinking like a nurse clinical judgment, reasoning, and decision making. These multi-layers of student success seminars are offered throughout the semester to assist students with planning and preparation for their learning. Attendance at these seminars is recorded and maintained by the student support coordinator.

In assessing the outcomes, a correlational analysis of students’ attendance at these sessions will determine the student’s success in the course. In addition, students’ grades, the number of seminars attended, and meetings with the student success coordinator will be collected and review the relationship to student success.

Data collection and Analysis

Data on students’ profiles, demographic and academic status were collected from the institution’s administrative office. In addition, the student support coordinator kept the

attendance at the seminars.

The diploma program has 81% minority students from different ethnic backgrounds and has a wide variety of educational backgrounds, from GED high school diplomas to master's degrees. The demographic profile of the school showed that: 37% were African American, 7% Asian, 13% Caucasian, and 33% Hispanic. Eighty-seven percent (87%) of the students are identified as female and 13% as male (Enrollment data, Spring 2021).

Results of the Study

The study was implemented for 3 semesters and the results showed that the attrition rate of the students before the Jeffrey's Model of Success framework was used in the curriculum was 22-32%. The attrition rate in Spring 2022, the semester when the Jeffrey's Model of Success was implemented to support the students at risk of failing was 26% which was slightly higher than the attrition rate of 22% Fall 2021.

Discussion

There are many factors identified affecting student success. These include the type of students, program, and faculty challenges in implementing successful programs. Decreasing the attrition rate of nursing students in the first clinical course using Jeffrey's success model was one of the initiatives implemented in this institution. All faculty and members of the administration, including the Dean of the School of Nursing, participated in the implementation of the success program. Each member of the team has clear roles and expectations. Recognizing the experts within the institution were utilized to deliver the seminars and resulted in improving the completion rate and decreasing the attrition rates of the first clinical course of the program. The students' participation in the success program is also vital and they reported in evaluations of the course that it assisted them in achieving their goal to pass the first clinical course and complete the program. Records have shown that the success program assisted the institution's goal to increase the course completion rate and the program completion rate. The institution continues to utilize Jeffrey's Success Model in assisting their students to succeed.

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President

JOBAL Healthcare Resource, Inc.

Office: (949) 831-3580 Fax: (949) 831-8360

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