

# NURSES' SATISFACTION WITH HOSPITAL INFORMATION SYSTEMS IN A PRIVATE TERTIARY HOSPITAL IN BACOLOD CITY: A STRATEGIC BASIS FOR ADMINISTRATIVE POLICY DEVELOPMENT FRAMEWORK

\*Lionel F. Geolingo

\*\*Jejomar D. Quiros

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## Abstract

Hospital Information Systems (HIS) have become essential components of healthcare institutions due to their ability to improve clinical workflows, enhance documentation accuracy, and support patient safety. Despite the increasing adoption of HIS in healthcare settings, nurses continue to encounter challenges related to system usability, technical support, accessibility, and workflow integration. This study aimed to assess nurses' satisfaction with Hospital Information System utilization in a tertiary private hospital in Bacolod City. Specifically, the study evaluated satisfaction across the dimensions of usability and task efficiency, support, training and accessibility, performance and system reliability, and impact on patient care and safety. The study employed a quantitative descriptive research design with regression analysis. A researcher-made 40-item questionnaire was utilized to collect data from 133 registered nurses selected through simple random sampling from a total population of 200 nurses. The instrument underwent content validity evaluation and reliability testing, yielding a Cronbach's alpha coefficient of 0.87, indicating high reliability. Statistical tools such as frequency count, percentage distribution, mean, standard deviation, t-test, ANOVA, correlation, and regression analyses were used in data analysis. The study concluded that while the Hospital Information System was generally effective and positively perceived by nurses, there remains a need to strengthen technical support services, continuous training programs, and accessibility initiatives to further enhance user satisfaction and optimize HIS utilization. The findings support the development of administration-led interventions and competency-based training programs aimed at improving nurses' confidence, efficiency, and patient care outcomes through effective HIS integration.

**Keywords:** Hospital Information System, Nurses' Satisfaction, Healthcare Technology, System Usability, Patient Safety, Hospital Management, Nursing Informatics, Healthcare Quality.

## Introduction

The integration of digital technologies in healthcare has significantly transformed the way hospitals manage clinical and administrative processes. One of the most important technological advancements in healthcare institutions is the implementation of Hospital Information Systems (HIS), which serve as centralized platforms for managing patient records, clinical documentation, billing, scheduling, and communication among healthcare professionals. HIS improves the efficiency of healthcare delivery by streamlining workflows, reducing manual documentation, and enhancing the accuracy and accessibility of patient information. Through real-time data management, healthcare providers are able to make informed clinical decisions, minimize medical errors, and improve coordination of care among multidisciplinary teams (Babu et al., 2023). Furthermore, HIS contributes to operational efficiency by reducing costs, improving resource utilization, and strengthening patient safety measures within healthcare organizations (Narsale, 2023).

Globally, healthcare systems continue to adopt HIS to address increasing demands for quality healthcare services and efficient patient management. In developed countries, HIS implementation has demonstrated positive outcomes in improving healthcare delivery, patient outcomes, and institutional productivity. Countries such as the United Kingdom have successfully integrated HIS through strategies emphasizing system interoperability, usability, and efficient data processing capabilities (Sheikh et al., 2021). Similarly, studies have shown that effective HIS implementation improves coordination among healthcare professionals and enhances clinical decision-making through immediate access to patient data (Walsham, 2020). These developments have strengthened evidence-based practice and supported healthcare institutions in achieving higher standards of patient care.

In the Philippines, the adoption of HIS has steadily increased among the public and private healthcare

\*Graduate Studies, Phinma - St. Jude College, Manila, Philippines.

institutions. However, despite the growing integration of digital systems, healthcare facilities continue to encounter challenges associated with training, infrastructure limitations, system usability, and user adaptation. Cortez et al. (2023) reported that although several rural health units in Bataan have implemented HIS, many healthcare workers still require additional training to maximize system utilization effectively. Likewise, Apao et al. (2019) emphasized that while healthcare institutions have developed patient information systems to improve healthcare delivery, the widespread implementation and optimization of these systems remain limited due to technical and organizational barriers. These findings indicate that successful HIS implementation depends not only on technological infrastructure but also on the preparedness, competence, and satisfaction of healthcare professionals who utilize these systems daily.

Among healthcare professionals, nurses are considered one of the primary users of HIS because they rely heavily on electronic systems for patient documentation, medication administration, care coordination, and communication with other healthcare providers. Consequently, nurses' satisfaction with HIS utilization plays a critical role in determining the effectiveness of healthcare information technologies within hospital settings. Previous studies have shown that nurses' experiences with HIS are influenced by factors such as system usability, technical support, accessibility, reliability, and the system's impact on workflow and patient care (Tolentino & Gephart, 2020). While many healthcare institutions focus on the technical performance of HIS, less attention has been given to understanding how nurses perceive and experience these systems in actual clinical practice.

Research also suggests that poor system usability, inadequate training, and limited technical support can negatively affect nurses' productivity and contribute to work-related stress and dissatisfaction. According to Kim et al. (2017), health information technologies may create unintended challenges such as workflow interruptions, increased documentation burden, and delays in patient care when systems are not aligned with user needs. Likewise, Sittig et al. (2016) highlighted that usability issues and incomplete information within electronic systems can negatively impact clinical efficiency and patient safety. Conversely, well-designed and reliable systems supported by effective training programs can enhance nurses' confidence, improve workflow efficiency, and strengthen patient care outcomes.

Despite the increasing implementation of HIS in healthcare institutions, there remains limited research focusing specifically on nurses' satisfaction with HIS utilization in tertiary private hospitals in

Bacolod City. Most existing studies emphasize technical performance and system implementation rather than examining the perspectives and experiences of nurses who directly interact with these systems daily. This gap in literature highlights the need to investigate how nurses perceive HIS in terms of usability, support, reliability, and its impact on patient care and safety. Understanding these factors is essential in identifying areas for system improvement and developing effective strategies that support nurses' adaptation to healthcare technologies.

Therefore, this study aimed to assess nurses' satisfaction with Hospital Information System utilization in a tertiary private hospital in Bacolod City. Specifically, it sought to evaluate satisfaction across key dimensions such as usability and task efficiency, support, training and accessibility, performance and system reliability, and impact on patient care and safety. The findings of this study are expected to provide valuable insights for hospital administrators, nursing leaders, and information technology departments in developing evidence-based interventions, training programs, and administrative policies that can enhance HIS utilization and improve healthcare delivery outcomes. Ultimately, the study contributes to the growing body of knowledge regarding healthcare information systems and supports the continuous improvement of digital healthcare practices in the Philippine healthcare setting.

## **Methods**

### **Research Design**

This study utilized a quantitative descriptive research design with regression analysis to determine nurses' satisfaction with the utilization of the Hospital Information System (HIS) in a tertiary private hospital in Bacolod City. Quantitative descriptive research is appropriate for studies that aim to systematically describe characteristics, behaviors, and relationships among variables through numerical data analysis. According to Creswell (2014), quantitative descriptive designs allow researchers to measure variables objectively and identify patterns without manipulating the study environment. In this study, the design enabled the researchers to assess the level of nurses' satisfaction across the dimensions of usability and task efficiency, support, training and accessibility, performance and system reliability, and impact on patient care and safety.

Regression analysis was incorporated to examine the predictive relationships among the identified dimensions of satisfaction. This statistical method determined how factors such as usability, support, accessibility, and reliability significantly influence nurses' overall satisfaction and perceptions

regarding patient care and safety. The findings served as the basis for proposing an administrative policy development framework intended to strengthen nurses' satisfaction and optimize HIS utilization within the hospital setting.

### Research Locale

The study was conducted in a tertiary private hospital located in Bacolod City. The hospital utilizes a Hospital Information System (HIS) to manage patient information, clinical documentation, medication administration, scheduling, and communication among healthcare professionals.

The institution was selected because of its active integration of HIS in nursing practice, making it an appropriate setting to evaluate nurses' satisfaction with system utilization.

### Respondents of the Study

The respondents of the study were registered nurses currently employed in the tertiary private hospital who actively utilized the HIS as part of their daily clinical responsibilities. These nurses came from different departments, including medical, surgical, emergency, and outpatient units, where the use of HIS forms an essential component of patient care management and healthcare delivery. Their direct experience with the system provided valuable insights regarding the effectiveness, usability, and impact of HIS on nursing workflow and patient care. The total population of nurses in the hospital was 200. To determine the appropriate sample size, Slovin's Formula was used with a 5% margin of error:

$$n = \frac{N}{1 + Ne^2}$$

Where:

- (n) = sample size
- (N) = population size
- (e) = margin of error

Using the formula, the computed sample size was 133 nurses. Simple random sampling was employed to ensure that each nurse had an equal opportunity to participate in the study, thereby minimizing selection bias and improving the representativeness of the sample.

### Research Instrument

The study utilized a researcher-made 40-item questionnaire designed to assess nurses' satisfaction with Hospital Information System utilization. The questionnaire was developed based on extensive review of related literature and previous studies, including works by Saghaeiannejad-Isfahani et al. (2014), Khalifa and Alswailem (2015), Lu et al. (2019), Fasbender et al. (2018), Bjørk et al. (2007), and Zadvinskis et al. (2018). The instrument covered

four major dimensions: (1) usability and task efficiency, (2) support, training, and accessibility, (3) performance and system reliability, and (4) impact on patient care and safety.

To establish content validity, the questionnaire underwent expert evaluation using Good and Scates validity testing. Three experts reviewed the instrument to determine the relevance, clarity, and appropriateness of each item. Necessary revisions were incorporated based on their recommendations. Reliability testing was conducted using Cronbach's alpha, which yielded a reliability coefficient of 0.87, indicating high internal consistency and reliability of the instrument.

### Data Gathering Procedure

Prior to data collection, the researchers secured approval from the hospital administration and ethics review board. After approval was granted, the researchers conducted an orientation among the nursing staff regarding the purpose, objectives, and procedures of the study. Respondents were informed that participation was voluntary and that all responses would remain confidential. An informed consent form was provided to participants before the administration of the questionnaire.

The validated questionnaire was distributed digitally through Google Forms to ensure convenience and accessibility for the respondents despite their varying schedules. Respondents were given adequate time to complete the survey. After data collection, all responses were tabulated, organized, and prepared for statistical analysis. Data security and confidentiality were strictly maintained throughout the study by limiting access to collected information only to authorized research personnel.

### Data Processing and Statistical Treatment

The collected data were analyzed using appropriate statistical tools. Frequency count and percentage distribution were utilized to describe the demographic profile of the respondents in terms of age, sex, length of service, and highest educational attainment. Mean and standard deviation were employed to determine the level of satisfaction of nurses toward HIS utilization across the identified dimensions.

To determine significant differences in satisfaction levels based on profile variables, t-test was used for sex, while Analysis of Variance (ANOVA) was employed for age, length of service, and highest educational attainment. Correlation and regression analyses were also utilized to examine the predictive relationships among the dimensions of satisfaction. These statistical treatments enabled the researchers to identify the significant factors influencing nurses' satisfaction with HIS utilization.

### Ethical Considerations

The study adhered to the ethical principles outlined by Bryman and Bell (2007), particularly informed consent, confidentiality, privacy, voluntary participation, and avoidance of harm. Approval to conduct the study was obtained from the hospital administration before data gathering commenced. Participants were informed about the objectives of the study, their rights as respondents, and their freedom to withdraw at any point without penalty.

To protect respondents' privacy, no identifying information such as names or employee numbers was collected. All responses were treated with strict confidentiality and were presented only in aggregate form. The researchers ensured that the study posed no physical, emotional, or professional harm to the respondents and that all gathered information was

securely stored and used solely for academic purposes.

### Results and Discussion

This chapter presents the findings of the study on nurses' satisfaction with the Hospital Information System (HIS) utilization in a tertiary private hospital in Bacolod City. The data are presented through tables and figures accompanied by corresponding interpretations and discussions anchored on related literature.

#### Statement of the Problem 1

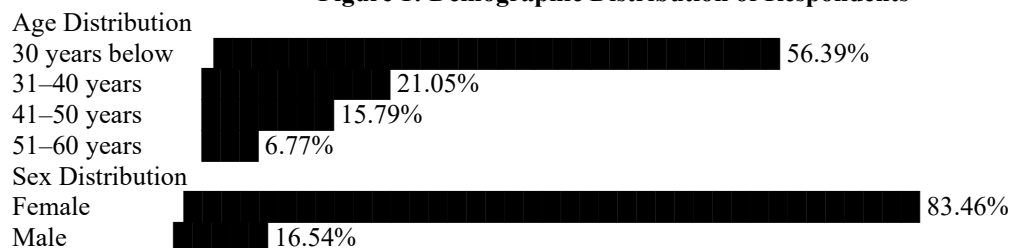
**What is the profile of the respondents in terms of age, sex, length of service, and highest educational attainment?**

**Table 1: Demographic Profile of the Respondents**

| Profile                        | Category                       | Frequency (f) | Percentage (%) |
|--------------------------------|--------------------------------|---------------|----------------|
| Age                            | 30 years old and below         | 75            | 56.39          |
|                                | 31–40 years old                | 28            | 21.05          |
|                                | 41–50 years old                | 21            | 15.79          |
|                                | 51–60 years old                | 9             | 6.77           |
|                                | <b>Total</b>                   | <b>133</b>    | <b>100.00</b>  |
| Sex                            | Male                           | 22            | 16.54          |
|                                | Female                         | 111           | 83.46          |
|                                | <b>Total</b>                   | <b>133</b>    | <b>100.00</b>  |
| Length of Service              | 3 years and below              | 80            | 60.15          |
|                                | 4–10 years                     | 23            | 17.29          |
|                                | More than 10 years             | 30            | 22.56          |
|                                | <b>Total</b>                   | <b>133</b>    | <b>100.00</b>  |
| Highest Educational Attainment | Bachelor's Degree              | 127           | 95.49          |
|                                | Master's Degree / Earned Units | 6             | 4.51           |
|                                | <b>Total</b>                   | <b>133</b>    | <b>100.00</b>  |

Source: Survey Data, 2026.

**Figure 1: Demographic Distribution of Respondents**



The findings reveal that most respondents were 30 years old and below (56.39%), indicating that the nursing workforce in the hospital is predominantly composed of young professionals. Female nurses comprised the majority of respondents (83.46%), reflecting the traditionally female-dominated nature of the nursing profession. Most respondents had three years and below length of service (60.15%), suggesting that many nurses are still relatively new in their clinical careers. In terms of educational attainment, almost all respondents possessed

bachelor's degrees (95.49%), while only a small proportion pursued graduate education.

These findings suggest that younger nurses may possess greater adaptability to digital systems due to increased exposure to technology. However, their limited experience may require continuous guidance and structured training to maximize the use of HIS effectively. According to Gagnon et al. (2021), younger healthcare professionals generally demonstrate higher willingness to adopt healthcare

technologies because of their familiarity with digital environments.

## Statement of the Problem 2

What is the level of satisfaction of the respondents toward HIS utilization?

**Table 2.1: Level of Satisfaction of the Respondents Toward HIS as a Whole and Across Components**

| Components of Satisfaction           | Mean        | Interpretation       |
|--------------------------------------|-------------|----------------------|
| Usability and Task Efficiency        | 3.66        | Satisfied            |
| Support, Training, and Accessibility | 3.43        | Moderately Satisfied |
| Performance and System Reliability   | 3.54        | Satisfied            |
| Impact on Patient Care and Safety    | 3.80        | Satisfied            |
| <b>Overall Mean</b>                  | <b>3.66</b> | <b>Satisfied</b>     |

Interpretation Scale:

4.50–5.00 = Strongly Satisfied

3.50–4.49 = Satisfied

2.50–3.49 = Moderately Satisfied

1.50–2.49 = Dissatisfied

1.00–1.49 = Strongly Dissatisfied

**Figure 2: Overall Level of Satisfaction Across Components**



The overall mean satisfaction score of 3.66 indicates that nurses were generally satisfied with the Hospital Information System. Among the dimensions, “Impact on Patient Care and Safety” obtained the highest mean score (3.80), implying that nurses perceive HIS as beneficial in improving patient outcomes, reducing clinical errors, and supporting safe healthcare delivery. “Usability and Task Efficiency” (3.66) and “Performance and System Reliability” (3.54) were also rated as satisfied, suggesting that nurses generally find the system reliable and useful in performing clinical tasks.

However, “Support, Training, and Accessibility” received the lowest mean score of 3.43, interpreted as moderately satisfied. This indicates that nurses may still experience limitations in training opportunities, technical assistance, and accessibility of support services. These findings emphasize the need for continuous professional development programs and technical support mechanisms to improve system utilization. Kalankesh et al. (2020) emphasized that user satisfaction significantly increases when healthcare institutions provide continuous training and responsive technical support systems.

**Table 2.2a: Level of Satisfaction in Terms of Usability and Task Efficiency Across Profile**

| Profile                | Category                       | Mean | Interpretation       |
|------------------------|--------------------------------|------|----------------------|
| Age                    | 30 years old and below         | 3.66 | Satisfied            |
|                        | 31–40 years old                | 3.53 | Satisfied            |
|                        | 41–50 years old                | 3.65 | Satisfied            |
|                        | 51–60 years old                | 4.11 | Satisfied            |
| Sex                    | Male                           | 3.72 | Satisfied            |
|                        | Female                         | 3.65 | Satisfied            |
| Length of Service      | 3 years and below              | 3.68 | Satisfied            |
|                        | 4–10 years                     | 3.46 | Moderately Satisfied |
|                        | More than 10 years             | 3.79 | Satisfied            |
| Educational Attainment | Bachelor’s Degree              | 3.69 | Satisfied            |
|                        | Master’s Degree / Earned Units | 3.20 | Moderately Satisfied |

**Figure 3: Satisfaction on Usability and Task Efficiency**



The findings demonstrate that respondents generally expressed satisfaction with the usability and efficiency of the HIS. Nurses aged 51–60 years obtained the highest mean score (4.11), indicating that experienced nurses appreciate the system's functionality and contribution to workflow efficiency. Nurses with longer years of service also showed higher satisfaction, which may be attributed to their familiarity with the system and adaptation over time.

Respondents with master's education reported lower satisfaction compared to bachelor's degree holders. This may suggest that nurses with advanced education possess higher expectations regarding system functionality, interface design, and efficiency. Rahayu and Wibowo (2021) explained that healthcare professionals with higher academic backgrounds tend to critically evaluate technological systems and expect more advanced features.

**Table 2.2b: Level of Satisfaction in Terms of Support, Training, and Accessibility Across Profile**

| Profile                | Category                       | Mean | Interpretation       |
|------------------------|--------------------------------|------|----------------------|
| Age                    | 30 years old and below         | 3.48 | Satisfied            |
|                        | 31–40 years old                | 3.31 | Moderately Satisfied |
|                        | 41–50 years old                | 3.42 | Satisfied            |
|                        | 51–60 years old                | 3.38 | Moderately Satisfied |
| Sex                    | Male                           | 3.57 | Satisfied            |
|                        | Female                         | 3.40 | Moderately Satisfied |
| Length of Service      | 3 years and below              | 3.45 | Satisfied            |
|                        | 4–10 years                     | 3.28 | Moderately Satisfied |
|                        | More than 10 years             | 3.46 | Satisfied            |
| Educational Attainment | Bachelor's Degree              | 3.45 | Satisfied            |
|                        | Master's Degree / Earned Units | 2.93 | Moderately Satisfied |

**Figure 4: Satisfaction on Support, Training, and Accessibility**



The findings reveal that nurses were moderately satisfied with the support, training, and accessibility associated with the HIS. Lower satisfaction ratings among nurses with master's degrees and those with 4–10 years of service suggest that these groups may expect more comprehensive training programs and responsive technical assistance.

These findings imply that hospitals should strengthen administration-led training programs, conduct refresher seminars, and ensure accessible technical support services. Kruse et al. (2018) emphasized that effective technical support and continuous training are essential in promoting positive user experiences and improving system adoption among healthcare professionals.

**Table 2.2c: Level of Satisfaction in Terms of Performance and System Reliability Across Profile**

| Profile                | Category                      | Mean | Interpretation |
|------------------------|-------------------------------|------|----------------|
| Age                    | 30 years old and below        | 3.56 | Satisfied      |
|                        | 31–40 years old               | 3.44 | Satisfied      |
|                        | 41–50 years old               | 3.57 | Satisfied      |
|                        | 51–60 years old               | 3.60 | Satisfied      |
| Sex                    | Male                          | 3.66 | Satisfied      |
|                        | Female                        | 3.51 | Satisfied      |
| Length of Service      | More than 10 years of service | 3.68 | Satisfied      |
| Educational Attainment | Master's Degree               | 3.65 | Satisfied      |

**Figure 5: Satisfaction on Performance and Reliability**



The findings demonstrate that nurses generally perceived the HIS as reliable and effective in supporting hospital operations. Experienced nurses and those with advanced educational attainment expressed higher satisfaction, possibly because they recognize the importance of system reliability in

ensuring efficient clinical workflows and safe patient care. Alam et al. (2017) noted that reliable information systems reduce workflow interruptions and improve user trust, leading to higher satisfaction levels among healthcare professionals.

**Table 2.2d: Level of Satisfaction in Terms of Impact on Patient Care and Safety Across Profile**

| Profile                | Category                   | Mean | Interpretation |
|------------------------|----------------------------|------|----------------|
| Age                    | 30 years old and below     | 3.76 | Satisfied      |
|                        | 31–40 years old            | 3.90 | Satisfied      |
|                        | 41–50 years old            | 3.77 | Satisfied      |
|                        | 51–60 years old            | 3.97 | Satisfied      |
| Sex                    | Male                       | 3.81 | Satisfied      |
|                        | Female                     | 3.80 | Satisfied      |
| Length of Service      | More than 10 years service | 3.87 | Satisfied      |
| Educational Attainment | Master's Degree            | 4.12 | Satisfied      |

**Figure 6: Impact of HIS on Patient Care and Safety**



The findings indicate that nurses strongly believe that HIS positively contributes to patient care and safety. Respondents perceived that the system improves access to patient information, minimizes documentation errors, and supports accurate clinical decision-making. Nurses with higher educational attainment demonstrated the highest satisfaction, possibly because of greater awareness regarding the benefits of digital healthcare systems in improving patient outcomes.

According to Alkharji et al. (2023), properly implemented HIS significantly improves patient safety by reducing medication errors, strengthening communication among healthcare teams, and facilitating evidence-based clinical decisions.

## Conclusion

Based on the findings of the study, it was concluded that nurses in the tertiary private hospital in Bacolod City were generally satisfied with the utilization of the Hospital Information System (HIS). The respondents perceived the system as beneficial in improving workflow efficiency, enhancing system reliability, and supporting patient care and safety. Among the dimensions assessed, the impact on patient care and safety obtained the highest level of satisfaction, indicating that nurses recognized the value of HIS in promoting accurate documentation,

timely access to patient information, and safer clinical decision-making.

The findings further revealed that usability and task efficiency, as well as performance and system reliability, positively contributed to nurses' satisfaction with the system. Nurses generally perceived the HIS as functional, dependable, and capable of assisting them in carrying out their clinical responsibilities effectively. However, the dimension on support, training, and accessibility received comparatively lower ratings, suggesting that there are still areas requiring improvement, particularly in terms of technical assistance, continuous training, and accessibility of system support services.

It was also concluded that demographic variables such as age, length of service, and educational attainment influenced nurses' satisfaction with HIS utilization. Older nurses and those with longer years of experience tended to express higher satisfaction levels, possibly due to familiarity and adaptation to the system over time. Conversely, respondents with higher educational attainment demonstrated slightly lower satisfaction in some dimensions, which may indicate higher expectations regarding system capabilities and support mechanisms.

Moreover, the study established that the dimensions of satisfaction were significantly interrelated, implying that improvements in usability, training, support, and system reliability collectively influence the effectiveness of HIS and its impact on patient care. These findings support the importance of strengthening administration-led interventions, including continuous professional development programs, technical support systems, and competency-based training initiatives to further improve nurses' satisfaction and optimize system utilization.

The study concludes that while the Hospital Information System is generally effective and well accepted among nurses, continuous enhancement of training programs, technical accessibility, and organizational support remains essential to maximize the benefits of HIS utilization. Strengthening these aspects will not only improve nurses' satisfaction and confidence in using the system but also contribute to better patient outcomes, safer healthcare delivery, and more efficient hospital operations.

### Conflicts of Interest

The authors declare that there is no conflict of interest in this manuscript. Results have been deduced objectively; nothing influenced this result by any individual, monetary, or institutional interests. In effect, utmost endeavors were in order to conduct a bias-free operation of gathering and analyzing the data into interpretation and producing a study based on merit, away from research inconsistencies.

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