

Data Analysis and Evidence-Based Recommendations Assignment

The issue of focus in this project is nursing staff shortages in the institution. There are various factors supported by evidence from the literature that cause the problem, including internal and external factors. These factors include unfavorable working conditions and environment for the nurses (Boamah et al., 2021), increased nursing staff turn-over (Tamata & Mohammadnezhad, 2023), increased patient care demands (Chevroni-Knapp, 2022), unsafe nurse: patient ratios (Pocel-Galvez et al., 2021), and the retirement of nursing staff (Haddaad et al., 2023). These factors are measured using different metrics. The unfavorable working environment and conditions are measured using staff satisfaction survey scores, turnover is measured by the staff turnover rates, and patient care demand is measured by the number of patients requiring care versus the number of nurses available. In addition, nursing staff levels are measured by the nurse-patient ratios, while the retirement of nursing staff is measured by the percentage of the elderly nursing staff retiring annually.

Furthermore, both workplace and public data sets will be used in this analysis. The private workplace data sets retrieved from St. Vincent Medical Center are the nursing staff turnover rates, workload indicators, and nursing staff satisfaction survey results. These data sets have been authorized for use by Regina Carpenter, an administrator in the institution. The public data sets that will be analyzed to understand the issue are quality indicators related to nurse staffing from the CMS quality reporting programs and the AHRQ healthcare utilization and outcomes data on hospital staffing levels.

PROBLEM STATEMENT

Copy and paste the one-sentence problem statement and citation from your previous assignment.

The scarcity of nurses/shortages results in an increased workload for existing nurses (Feeney, 2024).

FACTORS AND METRICS

Copy and paste all Factors and Metrics tables from your previous assignment below. A minimum of two factors that contribute to the problem statement are required.

Path 1: Workplace Data Sets for Analysis

Factor #1 Examined	Nursing Staff Turnover rates
Precise Unit of Measurement (days, dollars, %...)	% of nursing positions vacant in the institution over a specified period
Type of Graphic Data Summary Structure (pie chart, bar graph, other)	Bar graph
Organization Name	St. Vincent's Medical Center
Employee Name who Authorized Data Sharing	Regina Carpenter
Employee Name who approved using organizations name in the report.	
Employee Name who directed learner to redact the organization's name in the report.	

Factor #2 Examined	Workload indicators
Precise Unit of Measurement (days, dollars, %...)	Nurse: patient ratios
Type of Graphic Data Summary Structure (pie chart, bar graph, other)	Pie chart
Organization Name	St. Vincent's Medical Center
Employee Name who Authorized Data Sharing	Regina Carpenter
Employee Name who approved using organizations name in the report.	
Employee Name who directed learner to redact the organization's name in the report.	

(Factor #3 Examined...)	Nursing staff satisfaction and burnout
Precise Unit of Measurement (days, dollars, %...)	Nursing satisfaction scores and survey responses
Type of Graphic Data Summary Structure (pie chart, bar graph, other)	Bar graph
Organization Name	St. Vincent's Medical Center
Employee Name who Authorized Data Sharing	Regina Carpenter
Employee Name who approved using organizations name in the report.	
Employee Name who directed learner to redact the organization's name in the report.	

Path 2:

Factor #1 Examined	CMS Quality Reporting Programs
Precise Unit of Measurement (days, dollars, %...)	Quality indicators related to nurse staffing
Type of Graphic Data Summary (pie chart, bar graph, other)	Table
Source of Data (APA Format)	Hospital Quality Initiative Public Reporting (n.d.). <i>Hospital Care Compare and Provider Data Catalog</i> Accessed April 14, 2024 https://www.cms.gov/medicare/quality/initiatives/hospital-quality-initiative/hospital-compare

Factor #2 Examined	AHRQ Healthcare Cost and Utilization Project
Precise Unit of Measurement (days, dollars, %...)	Healthcare utilization and outcomes data (hospital staffing levels)

Type of Graphic Data Summary (pie chart, bar graph, other)	Line Graph
Source of Data (APA Format)	Agency for Healthcare Research and Quality (AHRQ) (n.d.). <i>Healthcare Cost Utilization Project</i>. accessed April 14, 2024 https://www.ahrq.gov/data/hcup/index.html

Include the graphic you have constructed for each factor in the space below.

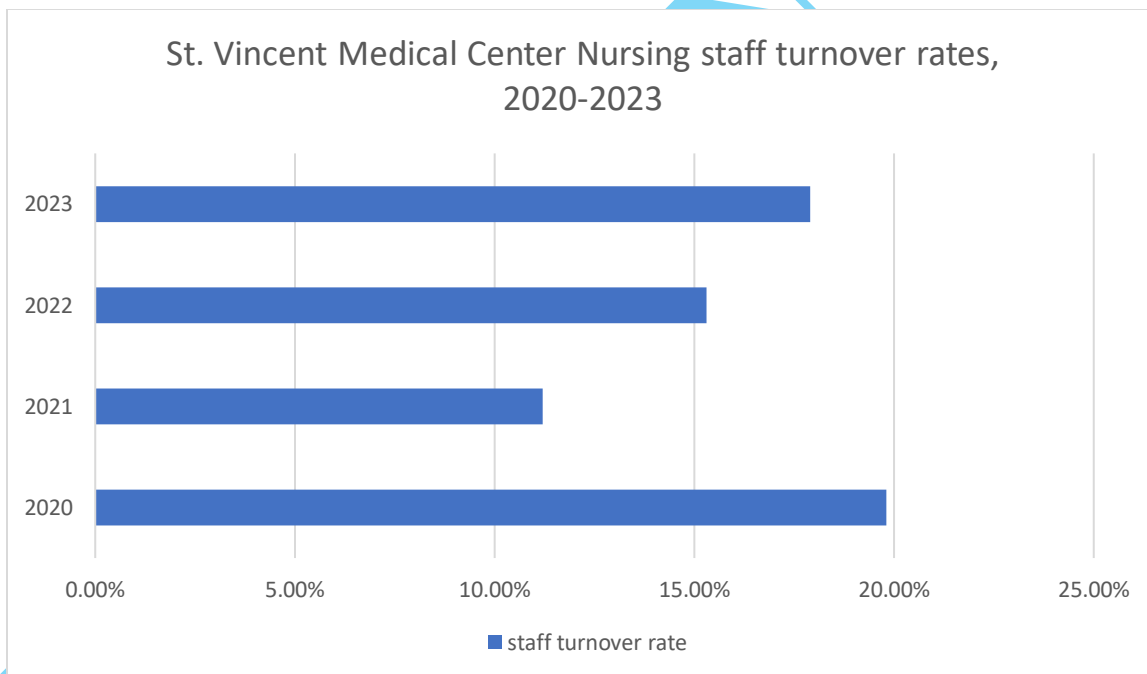
Factor #1 Graphic Structure

Create a title that includes the organization or region represented, the factor examined, and the year or time frame.

Construct a data summary graphic and insert it below. Make sure that all axes or sections are clearly labeled and that the unit of measurement is clearly identified. (e.g., percent, total number, other).

Cite the source for the data.

St. Vincent Medical Center Nursing Staff Turnover Rates, 2020-2023



St. Vincent Medical Center

Explain how the Factor 1 graphic relates to the problem: Insights, observations... (a succinct summary in a few sentences).

Factor 1 Graphic Observation or Insight

- A. A high nursing staff turnover rate translates to a significant reduction in the number of nurses available in the institution, thus exacerbating staffing shortages.

- B. Increased turnover rates may require the institution to constantly seek to recruit new staff, making it difficult to attract suitable candidates and increasing the shortage.
- C. Nursing turnover rates often result in increased workload for the remaining nursing staff, hence affecting care quality and efficiency.
- D. Based on the graphical representation above, the turnover rate has been ranging from 10-20%, which is relatively high. The high turnover rates translate to the above-mentioned issues.

Factor #2 Graphic Structure

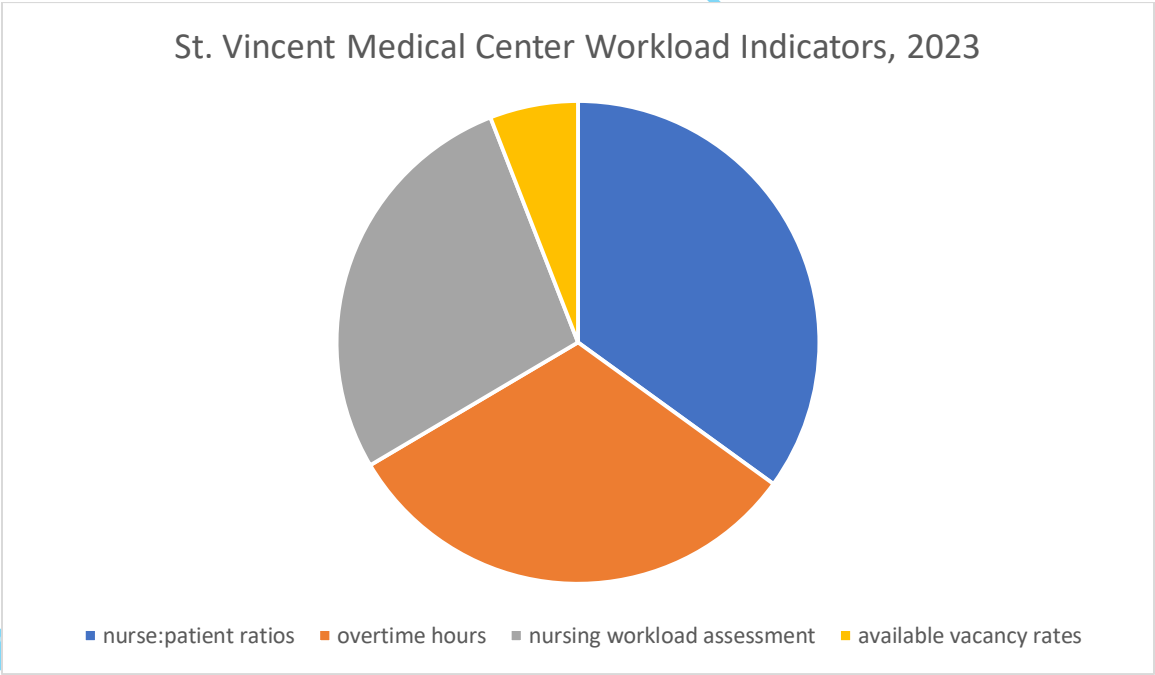
Create a title that includes the organization or region represented, the factor examined, and the year or time frame.

Construct a data summary graphic and insert it below. Make sure that all axes or sections are clearly labeled and that the unit of measurement is clearly identified. (e.g., percent, total number, other).

Cite the source for the data.

Example: Histogram

St. Vincent's Medical Center, Workload Indicators, 2023



St. Vincent Medical Center

Explain how the Factor 2 graphic relates to the problem: Insights, observations... (a succinct summary in a few sentences).

- Factor 2 Graphic Observation or Insight**
- A. The workload indicators affecting St Vincent Medical Center are unfavorable nurse-patient ratios, overtime hours, nursing workload assessment and the available vacancies.

- B. Nurse: Patient ratios are the most affected workload indicator, showing a shortage of nursing staff.
- C. Low nurse-patient ratios strain the nurses' ability to provide safe and effective care.
- D. Other indicators, such as high vacancy rates, show a mismatch between staffing needs and the available resources, increasing nursing staff shortage.

FACTOR #3 GRAPHIC STRUCTURE

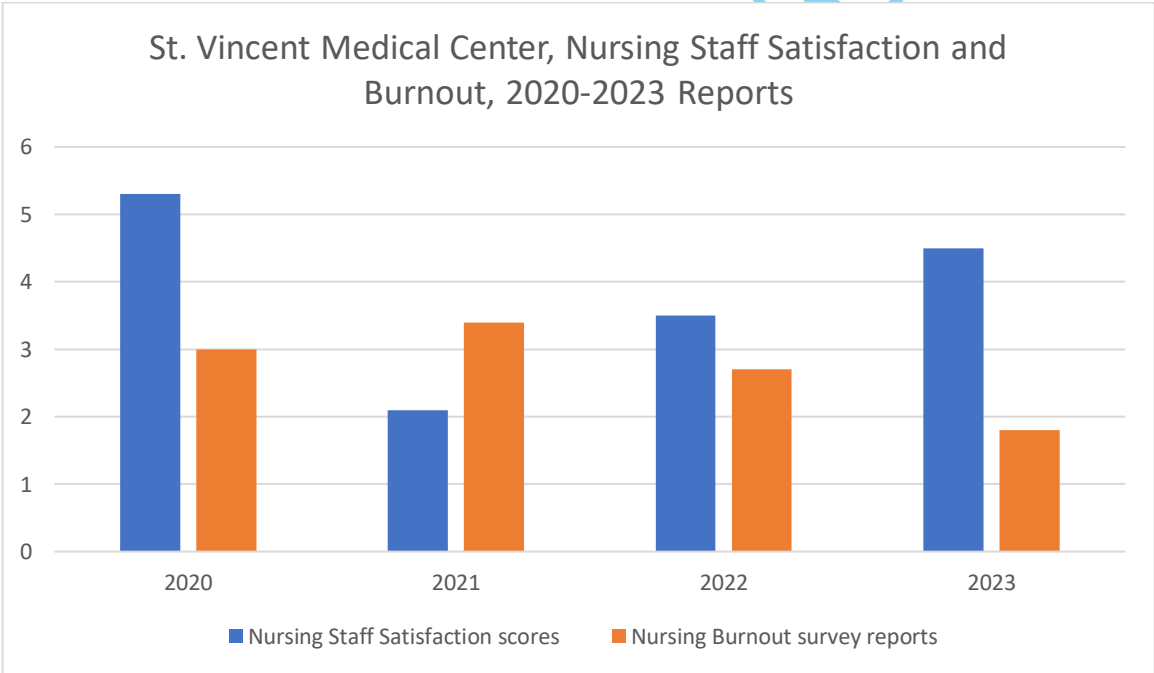
Create a title that includes the organization or region represented, the factor examined, and the year or time frame.

Construct a data summary graphic and insert it below. Make sure that all axes or sections are clearly labeled and that the unit of measurement is clearly identified. (e.g., percent, total number, other).

Cite the source for the data.

Example: Variance analysis

St. Vincent Medical Center Nursing Staff Satisfaction and Burnout, 2023, reports



St. Vincent Medical Center

Explain how the Factor 3 graphic relates to the problem: Insights, observations... (a succinct summary in a few sentences).

- Factor 3 Graphic Observation or Insight**
- A. Although the nursing staff burnout reports have been decreasing in the last three years, the satisfaction survey results have been increasing within the same period.
 - B. However, the nursing staff burnout and satisfaction survey shows high levels of burnout and low satisfaction.

C. These states may result in nursing staff getting discouraged from working in the institution, thus leaving for a better working environment and conditions.
D. Therefore, these factors are among the primary contributors to nursing staff shortages.

[FACTOR #4 GRAPHIC STRUCTURE...]

Create a title that includes the organization or region represented, the factor examined, and the year or time frame.

Construct a data summary graphic and insert it below. Make sure that all axes or sections are clearly labeled and that the unit of measurement is clearly identified. (e.g., percent, total number, other).

Cite the source for the data.

St. Vincent Medical Center Timely and Effective Care Quality Indicator

Department	Measure Name	score
Electronic Clinical Quality Measure	Admit Decision Time to ED Departure Time for Admitted Patients - non-psychiatric/mental health disorders	Not Available
Electronic Clinical Quality Measure	Admit Decision Time to ED Departure Time for Admitted Patients - psychiatric/mental health disorders.	Not Available
Healthcare Personnel Vaccination	Percentage of healthcare personnel who completed COVID-19 primary vaccination series	78.9
Healthcare Personnel Vaccination	Healthcare workers given influenza vaccination	76
Emergency Department	Average (median) time patients spent in the emergency department before leaving from the visit A lower number of minutes is better	236
Emergency Department	Average (median) time patients spent in the emergency department before leaving from the visit- Psychiatric/Mental Health Patients. A lower number of minutes is better	Not Available
Emergency Department	Left before being seen	7
Emergency Department	Head CT results	44
Colonoscopy care	Endoscopy/polyp surveillance: appropriate follow-up interval for normal colonoscopy in average-risk patients	92
Cataract surgery outcome	Improvement in Patient's Visual Function within 90 Days Following Cataract Surgery	Not Available
Electronic Clinical Quality Measure	Safe Use of Opioids - Concurrent Prescribing	13
Sepsis Care	Appropriate care for severe sepsis and septic shock	47
Sepsis Care	Septic Shock 3-Hour Bundle	50
Sepsis Care	Septic Shock 6-Hour Bundle	89

Sepsis Care	Severe Sepsis 3-Hour Bundle	69
Sepsis Care	Severe Sepsis 6-Hour Bundle	91
Electronic Clinical Quality Measure	Discharged on Antithrombotic Therapy	95
Electronic Clinical Quality Measure	Anticoagulation Therapy for Atrial Fibrillation/Flutter	Not Available
Electronic Clinical Quality Measure	Antithrombotic Therapy by End of Hospital Day 2	Not Available
Electronic Clinical Quality Measure	Discharged on Statin Medication	Not Available
Electronic Clinical Quality Measure	Venous Thromboembolism Prophylaxis	93
Electronic Clinical Quality Measure	Intensive Care Unit Venous Thromboembolism Prophylaxis	95

Hospital Quality Initiative Public Reporting (n.d.). Hospital Care Compare and Provider Data Catalog Accessed May 4, 2024 <https://www.cms.gov/medicare/quality/initiatives/hospital-quality-initiative/hospital-compare>

Explain how the Factor 4 graphic relates to the problem: Insights, observations... (a succinct summary in a few sentences).

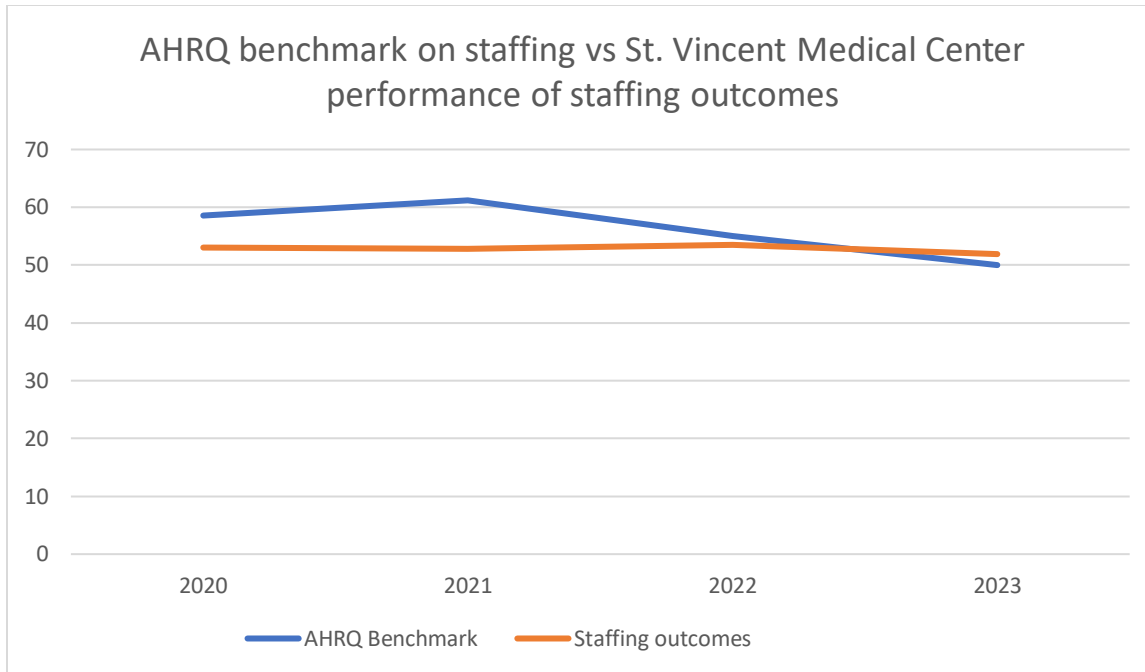
Factor 4 Graphic Observation or Insight
A. Nursing staff shortage has various implications on care quality since it impacts the nurses' ability to provide effective care.
B. The above table shows the different departments in the institution and the measures of care quality indicators related to nursing staff shortage.
C. Some of the care quality score measures are not available, showing flaws in data reporting in the institution, which may have been caused by staff shortage.
D. Based on the above scores, issues such as hospital-acquired infections, which are high in the institution, may have been caused by the nursing staff shortage and increased workload.

[FACTOR #5 GRAPHIC STRUCTURE...]

Create a title that includes the organization or region represented, the factor examined, and the year or time frame.

Construct a data summary graphic and insert it below. Make sure that all axes or sections are clearly labeled and that the unit of measurement is clearly identified. (e.g., percent, total number, other).

Cite the source for the data.



Agency for Healthcare Research and Quality (AHRQ) (n.d.). *Healthcare Cost Utilization Project*. Accessed May 4, 2024 from <https://www.ahrq.gov/data/hcup/index.html>

Explain how the Factor 5 graphic relates to the problem: Insights, observations... (a succinct summary in a few sentences.

Factor 5 Graphic Observation or Insight
A. The above graph compares the Agency for Healthcare Research and Quality AHRQ benchmarks to the current staffing outcomes at St. Vincent Medical Center.
B. The institution has been performing below the benchmark for the last three years due to nursing staff shortages.
C. However, the last year had performed slightly over the AHRQ benchmark, thus an improvement.
D. Nursing staff shortages cause poor performance on staffing outcomes in an institution.

EVIDENCE-BASED RECOMMENDATIONS

Please list a minimum of three evidence-based recommendations which directly address the problem. State the recommendations in the form of action step sentences. Each recommendation must be supported by a different authoritative, peer-reviewed source or sources.

Examples:

- Implement best practice initiative X to address problem Z (Agency for Best Practices, 202x).
- Have all patient care navigators successfully complete cultural competence best-practice training program C (DEI Institute, 202x).
- Conduct a quarterly audit to assess compliance with regulatory standard R (CMS, 202x).

EVIDENCE-BASED RECOMMENDATIONS:

Recommendation:	Source
1. Gain the support of nursing organizations and scientific associations due to their role in changing nursing-related policies.	Shamsi, A., & Peyravi, H. (2020). Nursing shortage, a different challenge in Iran: A systematic review. <i>Medical Journal of the Islamic Republic of Iran</i> , 34, 8. https://doi.org/10.34171/mjiri.34.8
2. Address the organizational factors such as institutional working environment to support nurses' professional growth, job satisfaction, and work-life balance.	Winter, V., Schreyögg, J., & Thiel, A. (2020). Hospital staff shortages: Environmental and organizational determinants and implications for patient satisfaction. <i>Health Policy (Amsterdam, Netherlands)</i> , 124(4), 380–388. https://doi.org/10.1016/j.healthpol.2020.01.001
3. Evaluate the current workforce strategies to mitigate the impact of nurse turnover and the related factors associated with increased nursing staff shortage.	Marufu, T. C., Collins, A., Vargas, L., Gillespie, L., & Almghairbi, D. (2021). Factors influencing retention among hospital nurses: systematic review. <i>British Journal of Nursing</i> , 30(5), 302-308. https://doi.org/10.12968/bjon.2021.30.5.302
4. Use patient demand to guide the flexible nursing staff deployment. Employ nursing staff based on the patient demand to avoid shortages caused by the unavailability of temporary staff.	Griffiths, P., Saville, C., Ball, J. E., Jones, J., Monks, T., & Safer Nursing Care Tool study team (2021). Beyond ratios - flexible and resilient nurse staffing options to deliver cost-effective hospital care and address staff shortages: A simulation and economic modelling study. <i>International Journal of Nursing Studies</i> , 117, 103901. https://doi.org/10.1016/j.ijnurstu.2021.103901

OPTIONAL: MY ORIGINAL RECOMMENDATIONS:

Share any new insights which represent your original recommendations which are not found in literature.

Recommendation:	Rationale
1. Continuously evaluate the effectiveness of interventions implemented to address the staffing shortage issue.	Evaluating current interventions will determine whether progress is being met in addressing the issue and identify whether changes should be made in these interventions.
2. Empower nursing staff through education, training and professional development.	One of the factors contributing to high nursing staff turnover is the lack of professional development opportunities in the institution. Providing these opportunities will empower the nurses and encourage them not to leave the institution.

REFERENCES

Agency for Healthcare Research and Quality (AHRQ) (n.d.). *Healthcare Cost Utilization Project*. Accessed May 4, 2024 from <https://www.ahrq.gov/data/hcup/index.html>

Boamah, S. A., Callen, M., & Cruz, E. (2021). Nursing faculty shortage in Canada: A scoping review of contributing factors. *Nursing Outlook*, 69(4), 574–588. <https://doi.org/10.1016/j.outlook.2021.01.018>

Chervoni-Knapp T. (2022). The Staffing Shortage Pandemic. *Journal of Radiology Nursing*, 41(2), 74–75. <https://doi.org/10.1016/j.jradnu.2022.02.007>

Griffiths, P., Saville, C., Ball, J. E., Jones, J., Monks, T., & Safer Nursing Care Tool study team (2021). Beyond ratios - flexible and resilient nurse staffing options to deliver cost-effective hospital care and address staff shortages: A simulation and economic modelling study. *International Journal of Nursing Studies*, 117, 103901. <https://doi.org/10.1016/j.ijnurstu.2021.103901>

Haddad, L.M., Annamaraju, P. & Toney-Butler, T.J. (2023). Nursing Shortage. In: StatPearls [Internet]. Retrieved from: <https://www.ncbi.nlm.nih.gov/books/NBK493175/>

Hospital Quality Initiative Public Reporting (n.d.). *Hospital Care Compare and Provider Data Catalog*. Accessed May 4, 2024 <https://www.cms.gov/medicare/quality/initiatives/hospital-quality-initiative/hospital-compare>

Marufu, T. C., Collins, A., Vargas, L., Gillespie, L., & Almghairbi, D. (2021). Factors influencing retention among hospital nurses: systematic review. *British Journal of Nursing*, 30(5), 302–308. <https://doi.org/10.12968/bjon.2021.30.5.302>

Porcel-Gálvez, A. M., Fernández-García, E., Rafferty, A. M., Gil-García, E., Romero-Sánchez, J. M., & Barrientos-Trigo, S. (2021). Factors That Influence Nurse Staffing Levels in Acute Care Hospital Settings. *Journal of Nursing Scholarship: An Official Publication of Sigma Theta Tau International Honor Society of Nursing*, 53(4), 468–478. <https://doi.org/10.1111/jnu.12649>

Shamsi, A., & Peyravi, H. (2020). Nursing shortage, a different challenge in Iran: A systematic review. *Medical Journal of the Islamic Republic of Iran*, 34, 8. <https://doi.org/10.34171/mjiri.34.8>

Tamata, A. T., & Mohammadnezhad, M. (2023). A systematic review study on the factors affecting shortage of nursing workforce in the hospitals. *Nursing Open*, 10(3), 1247–1257. <https://doi.org/10.1002/nop2.1434>

Winter, V., Schreyögg, J., & Thiel, A. (2020). Hospital staff shortages: Environmental and organizational determinants and implications for patient satisfaction. *Health Policy (Amsterdam, Netherlands)*, 124(4), 380–388. <https://doi.org/10.1016/j.healthpol.2020.01.001>

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