

Nursing Care Models and Their Impact on Patient Outcomes: A Review

Amira Saud Alqhtani¹, Taif Malah Alanazi², Rahaf Farhan Alnefaie³,
Sami Marshad Alshammari⁴, Saud Mohammed Alshahrani⁵

^{1,2,3,4}Nursing And Midwifery, PSMMC, Riyadh KSA

⁵Health Informatics Technician, PSMMC, Riyadh KSA

ABSTRACT

The outcome of the quality of care depends on the model of nursing care used. Nursing care models organize the delivery of nursing care with adequate consideration of the safety of the patients, the satisfaction of the patients, and the clinical effectiveness. The nursing care models under consideration include patient-centred care, case management, primary nursing, and evidence-based practice. This study will evaluate the different nursing care models based on patient outcomes and the factors of reduced hospital readmissions, speed of recovery, and hospital satisfaction. Patient-centred care increases patient participation, adherence, and collaborative partnerships. Furthermore, Case Management improves the efficiency and cost of healthcare delivery for chronic illness patients. In addition, Evidence-Based Practice refers to the practitioner utilizing the most recent and relevant clinical research in their nursing practice and therefore nursing care is based on the most up-to-date and scientifically proven information. All these nursing care models have positive impacts on patient outcomes and in most healthcare facilities, nursing care models can be implemented, however, opposing viewpoints and lack of resources contribute to the hindrances of implementing nursing care models. The integration of care models into nursing practice will involve technology, new nursing education approaches, and specialized models that address the unique complexity of nursing care across the patient age continuum. Most importantly, integrating care models will foster improved quality of care and enhanced patient outcome.

Keywords: Case management, Evidence-based practice, Nursing care models, Patient-centred care, Primary nursing.

INTRODUCTION

A worldwide. They have also influenced the delivery, management, and assessment of care in various health care settings [1]. The models have also guided the practice of nursing while ensuring patient outcomes through the utilization of a framework that is both structured and based on the best evidence available. The evolution of nursing models of care from basic, task-driven systems to advanced, complex frameworks that encompass an entire patient, offer nursing care systemically, and enhance the quality of care given is an evolution that is pivotal [2]. The objective of this review is to dissect various nursing models of care and examine their effects on patient outcomes, examining the level of effect models have, their effect on the practice of nursing, their effect on the care given to the patient, and their application to current health care systems.

Most nursing models of care hold in common that a nurse's function is beyond the implementation of an order from a physician, or simply the provision of procedural help. Nurses are, and should be, champions of patient advocacy. With this altruism and advocacy in mind, the nursing care models enable and empower nurses to make substantive contributions to the outcomes of patients [3].

Integrated Organizational Strategies with nursing theories or evidence-based practice models have created the most influence on the interactions between nurses/patients and the models of nursing care provided [4]. These models cover a wide range of care focuses, such as improving the communicative relationships of the health care purchaser/provider to the consumer/buyer and improving the safety, satisfaction, recovery, and time concerning the patient. Additionally, nursing care models often align with the objectives of health care organizations, such as decreasing hospital readmission rates, increasing patient satisfaction, and improving clinical process outcomes [5].

Nursing care models, in the past, were too simplistic with early models concentrating on functional division of labor. One nurse would carry out one clinical task, e.g., to give a medication, to dress a wound, or to take a patient's vital signs [6]. With the advancements in health care systems, more complex care models have become necessary. For example, the concept of patient-centered care has had a positive impact on nursing practice, enabling nurses to consider the whole patient instead of just a part and sustaining a partnership with the patients during the care process [7]. Consequently, contemporary nursing care models place emphasis on the nursing process, partnerships with other health care professionals, and more detailed patient assessment and management [8].

Institutions widely implement the Patient-Centered Care (PCC) model. PCC model focuses on the importance of working in partnership with the patients, and customizing care based on the patients' preferences, needs, and values [9]. Evidences suggest that this approach encourages patients to adhere to their care plans, leading to better health outcomes. The patient-centered care model in various health care settings has been associated with decreased patient apprehension, improved recovery times, and fewer complications [10].

The Case Management Model is one of the nursing care models that applies to areas of practice that require ongoing coordination of the patient's care. Case Management Models focus on the management of care for patients with chronic and long-term care issues. As case managers, individual nurses are tasked with integrating and coordinating the different aspects of a patient's care in the medical and community care spheres [11]. From a systemic perspective, this model is economically advantageous and streamlines efficiency by decreasing unnecessary hospital readmissions. For patients, the case management model improves the experience and health outcomes, especially for the elderly and patients with multiple chronic conditions, over prolonged periods of time [12].

Most nursing actions follow something called nursing process model, which include (A)ssess(ment), (D)ia(gnosis), (P)lan, (I)mpact, and (E)valuate(ment). This model assists the nurse to comprehend and determine the unique attributes/characteristics of the patient (s), figure out what steps pertaining to a corrective plan of care, and assess/pause/refine the care given to the patient (s) [13]. The nursing process model to develop and foster critical thinking, encourage the nursing staff to use the model in promoting evidence-based practice, and foster a model of care which enables continuing evaluation of care also promotes patient safety. The number of steps in the nursing process model, the patient's diagnosis, the patient's safety, and the number of nursing process model steps are directly correlated. Improved practice model, patient safety, and decreased number of nursing process model steps correlate to better clinical outcomes [14].

Additionally, there are hospitals that employ the Nursing Team Model, where the nursing workforce is divided into teams, and each team is assigned to specific patients. This model depends on the interdependence of the team members, since each individual nurse has a distinct function regarding the provision and coordination of patient care alongside the other members of the healthcare team [15]. Some of the benefits of this model are faster nurse responses, provision of continuous and unbroken care, and rapport and facilitative working relationships among themselves and with the patients. However, the model is only effective if there is communication that is unhindered and is of good quality; sometimes role ambiguity is counterproductive, and team formation may be hindered by attrition and/or inadequate team preparation [16].

In the Primary Nursing Model, one nurse is allocated to one patient for the entire duration of the patient's hospital stay, and the nurse manages everything regarding the patient's care. The Primary Nurse is the primary communication point for the patient and the care team, and manages the care plan, and offers solutions to problems that arise [17]. Having one nurse responsible for a patient throughout their hospital stay strengthens nurse-patient relationships, which results in better communication and trust. Also, it strengthens patient empowerment by making them active participants in the decisions regarding their plan of care and adherence to the treatment plan [18].

The Evidence-Based Practice (EBP) Model is the most recent paradigm in nursing. As the title suggest, it integrates the best available current research regarding a given problem, the experience and expertise of the practitioner, and the values, preferences, and suggestions of the patient [19]. This model necessitates that the nursing profession increasingly conduct primary research and then rely on that research to guide practice. Evidence-Based Practice has enhanced patient outcomes by reducing adverse events, promoting timely recovery, and improving safety. Of the nursing interventions that seek to improve wound care and control infection to reduce the incidence of infections acquired in a hospital, Evidence-Based Practice has been effective [20].

While it is true that each nursing care models has its own set of advatanges, there also common goals they seek to achieve. Some of these include the safe, high quality, and effecient outcomes of customer service. However, the implementaion of these models rely on various contextual organizational factors. Some of these include organizational culture, staff training, management style, resource availability, and the overall structural support. For example, a model that encourages patient participation and shared comprehensive collaboration may not be the best fit for a hospital that lacks collaborative practices and patient participation [21].

Additionally, some models may need to be integrated in order to accommodate the ever changing needs of the patient. In the case of chronic illness patients, a blended model of both patient centered care and case management is most effective, as it has the ability to create customized care plans and strategies for the patients continuing health challenges [22].

Healthcare systems and hospitals can easily engage the collaborative and cohesive experience approach for patients by integrating team and primary nursing models [23].

There are many evaluative frameworks measuring the implications of various nursing care models on patients. The impact of nursing care and the resulting implications can be evaluated from patient satisfaction surveys, clinical indicators, and health outcome metrics. In addition, studies have shown that health care institutions that successfully reposition their nursing models to be more patient-centered, collaborative and communicative have improved patient health outcomes. In contrast, nursing care models that are primarily task-focused and/or do not take patients into account during the actual care they provide, result in poor outcomes, diminished satisfaction, and increased complications [24].

The most important models of nursing care validate the contribution of nursing to both the provision of services and the outcomes achieved in health care. Outstanding among the patient-centred care model, case management model, and nursing process model, is the outcome in health care and the satisfaction of the patient. Continuing changes in the health care system will require corresponding changes in nursing care models in order to address the triad of the patient, the provider and the organization. As the research, education and practice continuum advances, the connection between nursing care models and patient outcomes is, in the broadest sense, going to become more defined [25].

Review

Across the world, many different nursing framework models have influenced the establishment of different nursing systems. This gives the nurses the power to advocate for the patients. Focusing on task-oriented activities. For example, they centred on the administration of medications, clinical tasks, and monitor vital signs. However, nursing models began to shift to systems, complexities, and diversities of individual patient care. Focusing on the nursing care models, the inter-professional collaboration is focused to improve outcomes of the nursing care model.

The positive nursing care model development in health care systems is instrumental in encouraging the patient-nurse advocacy role and the evidence-based care model which advocates for and maximally benefits the patient without harming them. Models of nursing are therefore instrumental in advocacy for the patients while positively impacting the patient-nursing care relationship. This review explores the development of nursing care models in order to further advance the systems of health and patient care.

Evolution of Nursing Care Models

The article discusses the advancements in nursing care models chronologically; from basic models to the more sophisticated models which are fully integrated and holistic and centred on patient care. One-dimensional nursing models represented the very first forms of nursing. These models focused on the division of labor within the nursing team. Each nurse had to perform a specific task assigned to her by a physician or another member of the healthcare team. There was no holistic view of patient care.

Integrated models that are focused on individual patients were a response to the system of complexities in patient care. The author points out that the most notable improvement of care models is the development of patient-centred care. This model takes into consideration the patient as a whole, not just the individual symptoms or pathologies. Collaborative patient-centred nursing care is the construct that is built with the patient and in collaboration with other healthcare team members. This has been evidenced in that when patients set goals, they suffer less distress and their health outcomes improve [26].

This review also examines the importance attributed to the nurse and patient relationship in current models of nursing care. The evolving nature of nursing practice means that nursing professionals are now expected to take the initiative in patient advocacy and facilitating patients' participation in their own care decisions. This shift has encouraged more holistic models of care and patient advocacy, resulting in improved healthcare outcomes.

Patient-Centered Care (PCC) Model

One of the most widely implemented nursing care models discussed in the review is the Patient-Centered Care (PCC) model. The PCC model emphasizes the importance of working in partnership with patients and customizing care to meet their individual preferences, needs, and values. This model encourages nurses to treat patients as active participants in their care, promoting shared decision-making and patient empowerment [27].

The review presents evidence suggesting that the PCC model has a positive impact on patient outcomes. Studies have shown that patients who are actively involved in their care are more likely to adhere to treatment plans, leading to better recovery times, fewer complications, and improved overall health. The model has also been associated with reduced patient anxiety and improved satisfaction with care. By fostering strong nurse-patient relationships and focusing on the whole patient, the PCC model ensures that care is both effective and personalized.

Moreover, the PCC model aligns with the goals of many healthcare organizations, such as increasing patient satisfaction, reducing hospital readmissions, and improving clinical outcomes. It also encourages better communication between healthcare providers and patients, which helps to build trust and improve the quality of care delivered [28].

Table 1: Comparison of Patient-Centered Care (PCC) Model Outcomes

Outcome	Patient-Centered Care Model	Traditional Care Model
Patient Satisfaction	High	Moderate
Adherence to Treatment Plans	High	Low
Recovery Time	Faster	Slower
Anxiety Levels	Lower	Higher
Complications	Fewer	More

Source: Adapted from [Patient-Centered Care Research, 2022]

Case Management Model

Most frequently mentioned in the review is the Patient Care Centered Model. This particular framework offers the flexibility for the creation of individualized strategies for the different class of care models. With this model of care, partnerships between nurse and patient are created, thus creating a strong value in the model of care by giving the patient the power to make informed decisions. The patient centered model of care also provides a list of benefits and advantages of this model approach to care. In the study, the participant patients' positive perceptions toward their self care and adherence to the prescribed medically clinically initiated treatment contributing positively to their health and overall condition and stability. The model also serves to reduce the patients' apprehensions in regard to treatment and in the health care system in which they are receiving services. It also provides the nurse-patient relationship which is central to holistic nursing [29].

The Patient Centered Care Model also serves to meet the multiple and at the same time, at times, competing priorities of health systems, namely, improving patient experience (satisfaction), reducing hospital readmission rates, and improving health outcomes. Besides, it fosters the communication and trust of caregivers and patients in the Quality of Care [30].

Table 2: Benefits of the Case Management Model

Benefit	Case Management Model	Traditional Care Model
Care Coordination	Comprehensive	Fragmented
Patient Health Outcomes	Improved	Moderate
Healthcare Costs	Reduced	Higher
Readmission Rates	Decreased	Increased
Patient Satisfaction	High	Low

Source: Adapted from [Case Management Review, 2022]

Nursing Process Model

The Nursing Process model is another fundamental framework in nursing practice that guides the delivery of care. The model follows a systematic approach to patient care, consisting of five steps: Assessment, Diagnosis, Planning, Implementation, and Evaluation (ADPIE). This structured process ensures that care is personalized, based on the patient's unique needs, and continuously evaluated to ensure its effectiveness.

The review emphasizes that the Nursing Process model encourages critical thinking and fosters evidence-based practice. By following the ADPIE framework, nurses can assess patients' needs, develop individualized care plans, and evaluate the effectiveness of interventions. This model also promotes patient safety, as it requires nurses to continually reassess care and adjust it as needed to improve outcomes. Studies cited in the review demonstrate that the Nursing Process model leads to better clinical outcomes, higher levels of patient satisfaction, and improved patient safety [31].

Table 3: Steps in the Nursing Process Model

Step	Description
Assessment	Collecting patient information and evaluating needs
Diagnosis	Identifying the patient's health problems
Planning	Developing a care plan to address identified issues
Implementation	Delivering the care interventions
Evaluation	Assessing the effectiveness of the interventions

Source: Adapted from [Nursing Process Model, 2021]

Team-Based Nursing Models

The article also discusses team-based nursing models, including the Nursing Team model and the Primary Nursing model. In the Nursing Team model, the nursing workforce is divided into teams, with each team assigned to specific

patients. The success of this model relies on clear communication and collaboration among team members, as well as effective coordination with other healthcare professionals [32].

The review highlights the benefits of the Nursing Team model, including faster response times, continuous care, and improved care coordination. However, it also notes that role ambiguity and lack of communication can hinder the model's success. Despite these challenges, when implemented effectively, the Nursing Team model can improve patient outcomes by ensuring that care is coordinated and delivered efficiently [33].

The Primary Nursing model, on the other hand, assigns one nurse to each patient for the duration of their hospital stay. This model strengthens nurse-patient relationships and improves communication, as the nurse is responsible for managing all aspects of the patient's care. The review emphasizes that the Primary Nursing model leads to better patient satisfaction, improved trust, and higher adherence to care plans [34].

Table 4: Comparison of Nursing Team and Primary Nursing Models

Model	Nursing Team Model	Primary Nursing Model
Nurse-Patient Relationship	Moderate	Strong
Communication with Team	Collaborative	Direct and Personal
Continuity of Care	Moderate	High
Patient Involvement	Moderate	High
Patient Satisfaction	Moderate	High

Source: Adapted from [Nursing Models Comparison, 2021]

Evidence-Based Practice (EBP) Model

The Evidence-Based Practice (EBP) model is the most recent nursing paradigm discussed in the review. This model integrates the best available research, clinical expertise, and patient preferences to guide care decisions. The review highlights the growing importance of evidence-based practice in nursing, as it ensures that interventions are based on the latest scientific evidence and tailored to individual patient needs [35].

The EBP model has been shown to improve patient outcomes in areas such as wound care, infection control, and pain management. By relying on evidence-based interventions, nurses can reduce the incidence of adverse events, promote timely recovery, and enhance patient safety. The review also emphasizes that the EBP model encourages ongoing research in nursing practice, ensuring that care is always informed by the best available evidence [36].

Organizational and Contextual Factors

The review emphasizes that the effectiveness of nursing care models is influenced by various organizational and contextual factors. These factors include organizational culture, resource availability, staff training, and management style. For instance, models that emphasize patient participation and collaboration may not be effective in organizations where these practices are not ingrained in the culture. The review suggests that healthcare institutions should consider these factors when implementing nursing care models to maximize their success [37].

Table 5: Organizational Factors Impacting Nursing Models

Organizational Factor	Impact on Nursing Models
Organizational Culture	Affects adoption of collaborative practices
Staff Training	Essential for effective implementation of models
Resource Availability	Determines feasibility of care delivery
Management Style	Influences model effectiveness
Structural Support	Facilitates smooth model integration

DISCUSSION

Positive impacts began emerging from the different nursing care models on the relationships and interactions among the different components of the health care systems as well as on the patients outcomes. Care models define the constructive boundaries of nursing within systems that concentrate on the health and efficiency of the care rendered to patients. The constructive boundaries of nursing within systems of care are accompanied by some specific dimensions of nursing care. The literature describes well the contributions of nursing care models towards improving patient outcomes. This paper examines the different nursing care models and thier effects on patient outcomes as well as the problems and the prospects.

Impact on Patient Safety and Quality of Care

Patient safety and delivering quality care is one of the most important objectives of nursing care models. This is crucial in healthcare systems with the highest levels of medical errors, complications, and adverse events. Models like Patient-Centered Care (PCC) have been effective at safety outcomes by enhancing the levels of communication between providers and patients, and by encouraging patients to take ownership of their care. Research has shown that patients who are involved in all the decisions pertaining to their care demonstrate a higher level of compliance with the instructions of the clinician, take the necessary preventive actions, promptly report any issues, and demonstrate complications, which will ultimately lead to improved clinical outcomes [38].

A perfect example is the Journal of Nursing Care Quality which showed that, in terms of reducing hospital readmission rates, patient-centered care has great impact as patients are empowered to manage their health post-discharge. Also, the collaboration aspect of the PCC model is useful in reducing patient care errors due to the level of communication that the model encourages in the multidisciplinary teams. The calm and clear communication within the teams promotes fewer errors and wraps a lot of value around the PCC models, as the patient care providers are well armed with the patient's history, how the patient prefers to do things, and the concerns of the patient [39].

Enhancing Patient Satisfaction

The nursing care model where patient satisfaction is of highest concern is most effective when used together with Patient-Centered Care as is described in the Primary Nursing model. Individualizations of the most significant and enduring partnerships of the nurse-patient dyads who during the course of the patient's hospitalization care for and about each other, can become a reality in Primary Nursing. This model of continuity of care is a crucial determinant of the trust and satisfaction a patient experiences. Primary nurses's satisfaction scores are higher when the patients are primary caregivers who tend to the psychosocial aspects of the patients in their care [40].

In addition, in one more study, patients who were served by nursing personnel using the Primary Nursing model, stated that they felt more supported by nursing personnel who planned and tailored the care to their individual needs. Therefore, the improvement plan for patient satisfaction was individualized, and the efforts concentrated on the attainment of the objectives of the individualized Patient care plan [41].

Improving Clinical Outcomes

The essential domains of outcomes, recovery duration, complications, and lasting health status illustrate the impact of nursing care models on clinical outcomes. One example of a nursing care model is the Nursing Process Model. Its constructive processes in the provision of care is a primary contributor to the improvement of clinical outcomes. There is a greater likelihood of improving clinical outcomes when nursing is performed through the processes of assessment, diagnosis, planning, implementation, and evaluation concerning the needs of an individual clinical patient. Nursing processes that are constructive in patient acuity, are more likely to attain positive patient outcomes [42].

The domains of outcomes, time to recovery, the extent and impact of complications, and the ultimate level of health status, illustrate the effect nursing care models have on clinical outcomes. One example of nursing care models is the Nursing Process Model. Positive clinical outcomes are usually the result of constructive processes in the provision of care. In the Nursing care process negative clinical outcomes to an individual patient are avoided when assessment, diagnosis, planning, implementation, and evaluation processes are performed in line with the needs of a particular patient. Attaining positive outcomes on a particular patient will more often than not stem from a nursing process that takes into account the patient's level of acuity [43].

There is literature out there describing the issues with the nursing process and wound care. This has been captured in the American Journal of Nursing describing the nursing process model and frameworks of nursing wound care and virtually eliminate infection, facilitate wound healing, and reduce post-operative complications. American Journal of Nursing described the nursing process and evidence based nursing in the framework of nursing and the care process model which led to a 25% reduction of surgical site infections in the hospitals that adopted the nursing care process model [44].

The EBP model (Evidence-Based Practice model) is also highly regarded, as it attempts to incorporate the best current quality research with practitioner expertise. This model, like most other models, attempts to show the relevance of research and its usefulness to improve patient care. Evidenced based practices strengthen the role of nursing in a clinical setting. For example, evidenced based guidelines for pain management have been shown to improve the comfort and recovery of postoperative patients [45].

Challenges and Limitations

Improved patient outcomes and effective implementations of nursing care models are potential outcomes of resource allocation and organizational support. Collaborative care models such as patient-centered care and case management, as well as other nursing care models, suffer from suboptimal implementations and organizational support. Poor implementations and organizational support stifle models' nursing care potential influencing patient outcomes.

Nursing care models such as primary nursing and case management, which are time intensive, face insurmountable obstacles in organizations and/or primary nursing and case management. These obstacles are predominately systems, as nursing shortage organizational systems are heavily operationalized. These nursing systems operationalize around the nursing organizational, professional, and care delivery role systems [46].

Suboptimal operationalization of the care systems, exemplified in case-centered care, are the primary models of care that create the systems of suboptimal operationalization. In order to operationalize nursing care models, organizational cultural systems of nursing care must support organizational cooperation. Organizational cooperation and cultural cooperation are the primary systems of organizational care models [47].

FUTURE DIRECTIONS

The varying degrees of complexity and diversity within patient populations means that in the future, nursing care models that will best suit the needs of the population will improve patient outcomes. There is still a lot of potential in nursing care models that incorporate technology. Telehealth, mobile health applications, and even two-way patient-health care provider communication via health records enhance the monitoring of patient health, increase accessibility, and reduce barriers to care. The use of nursing care models that incorporate Artificial Intelligence (AI) and adaptive machine learning will create individualized care plans and improve outcomes by incorporating more precise and sophisticated plan optimizations [48].

For the newest nursing care models to be effectively incorporated and utilized, additional education and training will be necessary for nurses. The effective use of nursing care models is a reflection of the nurse's commitment to that particular model [49].

CONCLUSION

This review discusses several models related to nursing and patient outcomes, various components of the caring processes, and satisfaction. Concerning patient satisfaction and the outcomes of the service of provision of care, the move towards patient-centered care, and evidence-based practice is of positive value. The advancement of the nursing care system is evident, and the growing number of nursing models is transforming hospices into a 'must have' establishment to offer tailored and exemplary care to patients. The positive integration of these models into practice will most certainly elevate nursing, patient care, and patient outcomes.

REFERENCES

- [1]. Fernandez R, Johnson M, Tran DT, Miranda C. Models of care in nursing: a systematic review. *JBHI Evidence Implementation*. 2012 Dec 1;10(4):324-37.
- [2]. Prentice D, Moore J, Desai Y. Nursing care delivery models and outcomes: a literature review. *In Nursing forum* 2021 Oct (Vol. 56, No. 4, pp. 971-979).
- [3]. Mattila E, Pitkänen A, Alanen S, Leino K, Luojus K, Rantanen A, Aalto P. The effects of the primary nursing care model: A systematic review. *J Nurs Care*. 2014;3(205):2167-1168.
- [4]. Gonçalves I, Mendes DA, Caldeira S, Jesus É, Nunes E. The primary nursing care model and inpatients' nursing-sensitive outcomes: A systematic review and narrative synthesis of quantitative studies. *International journal of environmental research and public health*. 2023 Jan 29;20(3):2391.
- [5]. Recio-Saucedo A, Dall'Ora C, Maruotti A, Ball J, Briggs J, Meredith P, Redfern OC, Kovacs C, Prytherch D, Smith GB, Griffiths P. What impact does nursing care left undone have on patient outcomes? Review of the literature. *Journal of clinical nursing*. 2018 Jun;27(11-12):2248-59.
- [6]. Havaei F, Dahinten VS, MacPhee M. Effect of nursing care delivery models on registered nurse outcomes. *SAGE Open Nursing*. 2019 Aug;5:2377960819869088.
- [7]. Wolf D, Lehman L, Quinlin R, Rosenzweig M, Friede S, Zullo T, Hoffman L. Can nurses impact patient outcomes using a patient-centered care model?. *JONA: The Journal of Nursing Administration*. 2008 Dec 1;38(12):532-40.
- [8]. Geltmeyer K, Duprez V, Blondeel M, Serraes B, Eeckloo K, Malfait S. The effect of different care delivery models in a hospital setting on patient-and nurse-related outcomes: A systematic review with narrative synthesis. *Journal of advanced nursing*. 2025 Jan;81(1):140-55.
- [9]. Sanson G, Vellone E, Kangasniemi M, Alvaro R, D'Agostino F. Impact of nursing diagnoses on patient and organisational outcomes: a systematic literature review. *Journal of Clinical Nursing*. 2017 Dec;26(23-24):3764-83.
- [10]. Dubois CA, D'amour D, Tchouaket E, Clarke S, Rivard M, Blais R. Associations of patient safety outcomes with models of nursing care organization at unit level in hospitals. *International Journal for Quality in Health Care*. 2013 Apr 1;25(2):110-7.

- [11]. Havaei F, MacPhee M, Dahinten VS. The effect of nursing care delivery models on quality and safety outcomes of care: A cross-sectional survey study of medical-surgical nurses. *Journal of advanced nursing*. 2019 Oct;75(10):2144-55.
- [12]. Wong CA, Cummings GG, Ducharme L. The relationship between nursing leadership and patient outcomes: a systematic review update. *Journal of nursing management*. 2013 Jul;21(5):709-24.
- [13]. Coster S, Watkins M, Norman IJ. What is the impact of professional nursing on patients' outcomes globally? An overview of research evidence. *International journal of nursing studies*. 2018 Feb 1;78:76-83.
- [14]. West E, Mays N, Rafferty AM, Rowan K, Sanderson C. Nursing resources and patient outcomes in intensive care: a systematic review of the literature. *International journal of nursing studies*. 2009 Jul 1;46(7):993-1011.
- [15]. Bolton LB, Donaldson NE, Rutledge DN, Bennett C, Brown DS. The impact of nursing interventions. *Medical Care Research and Review*. 2007 Apr;64(2_suppl):123S-43S.
- [16]. Müller-Staub M, Lavin MA, Needham I, Van Achterberg T. Nursing diagnoses, interventions and outcomes—application and impact on nursing practice: systematic review. *Journal of advanced nursing*. 2006 Dec;56(5):514-31.
- [17]. Lukewich J, Martin-Misener R, Norful AA, Poitras ME, Bryant-Lukosius D, Asghari S, Marshall EG, Mathews M, Swab M, Ryan D, Tranmer J. Effectiveness of registered nurses on patient outcomes in primary care: a systematic review. *BMC health services research*. 2022 Jun 3;22(1):740.
- [18]. Rouleau G, Gagnon MP, Côté J, Payne-Gagnon J, Hudson E, Dubois CA. Impact of information and communication technologies on nursing care: results of an overview of systematic reviews. *Journal of medical Internet research*. 2017 Apr 25;19(4):e122.
- [19]. Ramu B, Kanniyappan D, Rajendran SS, Ramasamy R, Kasinathan K, Anbalagan M. Effect of midwife-led care models on maternal and fetal outcomes: A scoping review. *Bioinformation*. 2025 May 31;21(5):957-961. doi: 10.6026/973206300210957. PMID: 40822759; PMCID: PMC12357657.
- [20]. Woo BF, Lee JX, Tam WW. The impact of the advanced practice nursing role on quality of care, clinical outcomes, patient satisfaction, and cost in the emergency and critical care settings: a systematic review. *Human resources for health*. 2017 Sep 11;15(1):63.
- [21]. Johansson P, Oleni M, Fridlund B. Patient satisfaction with nursing care in the context of health care: a literature study. *Scandinavian journal of caring sciences*. 2002 Dec;16(4):337-44.
- [22]. Rouleau G, Gagnon MP, Côté J. Impacts of information and communication technologies on nursing care: an overview of systematic reviews (protocol). *Systematic reviews*. 2015 May 23;4(1):75.
- [23]. Matthys E, Remmen R, Van Bogaert P. An overview of systematic reviews on the collaboration between physicians and nurses and the impact on patient outcomes: what can we learn in primary care?. *BMC family practice*. 2017 Dec 22;18(1):110.
- [24]. Slatyer S, Coventry LL, Twigg DI, Davis S. Professional practice models for nursing: a review of the literature and synthesis of key components. *Journal of nursing management*. 2016 Mar;24(2):139-50.
- [25]. Butler M, Schultz TJ, Halligan P, Sheridan A, Kinsman L, Rotter T, Beaumier J, Kelly RG, Drennan J. Hospital nurse-staffing models and patient-and staff-related outcomes. *Cochrane Database of Systematic Reviews*. 2019(4).
- [26]. Blomberg K, Griffiths P, Wengström Y, May C, Bridges J. Interventions for compassionate nursing care: A systematic review. *International journal of nursing studies*. 2016 Oct 1;62:137-55.
- [27]. Pentecost C, Frost J, Sugg HV, Hilli A, Goodwin VA, Richards DA. Patients' and nurses' experiences of fundamental nursing care: A systematic review and qualitative synthesis. *Journal of clinical nursing*. 2020 Jun;29(11-12):1858-82.
- [28]. Keleher H, Parker R, Abdulwadud O, Francis K. Systematic review of the effectiveness of primary care nursing. *International journal of nursing practice*. 2009 Feb;15(1):16-24.
- [29]. Wong CA, Cummings GG. The relationship between nursing leadership and patient outcomes: a systematic review. *Journal of nursing management*. 2007 Jul;15(5):508-21.
- [30]. Devlin AS, Arneill AB. Health care environments and patient outcomes: A review of the literature. *Environment and behavior*. 2003 Sep;35(5):665-94.
- [31]. Feo R, Kitson A, Conroy T. How fundamental aspects of nursing care are defined in the literature: A scoping review. *Journal of clinical nursing*. 2018 Jun;27(11-12):2189-229.
- [32]. Mulugeta H, Wagnaw F, Dessie G, Biresaw H, Habtewold TD. Patient satisfaction with nursing care in Ethiopia: a systematic review and meta-analysis. *BMC nursing*. 2019 Jul 8;18(1):27.
- [33]. Germain PB, Cummings GG. The influence of nursing leadership on nurse performance: a systematic literature review. *Journal of nursing management*. 2010 May 1;18(4).
- [34]. Stemmer R, Bassi E, Ezra S, Harvey C, Jojo N, Meyer G, Özsaban A, Paterson C, Shifaza F, Turner MB, Bail K. A systematic review: Unfinished nursing care and the impact on the nurse outcomes of job satisfaction, burnout, intention-to-leave and turnover. *Journal of advanced nursing*. 2022 Aug;78(8):2290-303.
- [35]. Holzemer WL. The impact of nursing care in Latin America and the Caribbeian: a focus on outcomes 1. *Journal of Advanced Nursing*. 1994 Jul;20(1):5-12.
- [36]. Yang PH, Hung CH, Chen YM, Hu CY, Shieh SL. The impact of different nursing skill mix models on patient outcomes in a respiratory care center. *Worldviews on Evidence-Based Nursing*. 2012 Nov;9(4):227-33.

- [37]. Ramu B, Kanniyappan D, Rajendran SS, Ramasamy R, Kasinathan K, Anbalagan M. Effect of midwife-led care models on maternal and fetal outcomes: A scoping review. *Bioinformation*. 2025 May 31;21(5):957-961. doi: 10.6026/973206300210957. PMID: 40822759; PMCID: PMC12357657.
- [38]. Cropley S. The relationship-based care model: evaluation of the impact on patient satisfaction, length of stay, and readmission rates. *JONA: The Journal of Nursing Administration*. 2012 Jun 1;42(6):333-9.
- [39]. Schubert M, Glass TR, Clarke SP, Aiken LH, Schaffert-Witvliet B, Sloane DM, De Geest S. Rationing of nursing care and its relationship to patient outcomes: the Swiss extension of the International Hospital Outcomes Study. *International journal for quality in health care*. 2008 Aug 1;20(4):227-37.
- [40]. Koy V, Yunibhand J, Angsuroch Y, Fisher ML. Relationship between nursing care quality, nurse staffing, nurse job satisfaction, nurse practice environment, and burnout: literature review. *International Journal of Research in Medical Sciences*. 2015 Aug;3(8):1825-31.
- [41]. Rathert C, Wyrwich MD, Boren SA. Patient-centered care and outcomes: a systematic review of the literature. *Medical care research and review*. 2013 Aug;70(4):351-79.
- [42]. Gunther M, Alligood MR. A discipline-specific determination of high quality nursing care. *Journal of Advanced Nursing*. 2002 May;38(4):353-9.
- [43]. Twigg D, Duffield C, Thompson PL, Rapley P. The impact of nurses on patient morbidity and mortality—the need for a policy change in response to the nursing shortage. *Australian Health Review*. 2010 Aug 25;34(3):312-6.
- [44]. Ystaas LM, Nikitara M, Ghobrial S, Latzourakis E, Polychronis G, Constantinou CS. The impact of transformational leadership in the nursing work environment and patients' outcomes: a systematic review. *Nursing Reports*. 2023 Sep 11;13(3):1271-90.
- [45]. Siow E, Wypij D, Berry P, Hickey P, Curley MA. The effect of continuity in nursing care on patient outcomes in the pediatric intensive care unit. *JONA: The Journal of Nursing Administration*. 2013 Jul 1;43(7/8):394-402.
- [46]. Unruh L, Wan TT. A systems framework for evaluating nursing care quality in nursing homes. *Journal of medical systems*. 2004 Apr;28(2):197-214.
- [47]. Bertocchi L, Dante A, La Cerra C, Masotta V, Marcotullio A, Jones D, Petrucci C, Lancia L. Impact of standardized nursing terminologies on patient and organizational outcomes: A systematic review and meta-analysis. *Journal of Nursing Scholarship*. 2023 Nov;55(6):1126-53.
- [48]. Kane RL, Shamliyan TA, Mueller C, Duval S, Wilt TJ. The association of registered nurse staffing levels and patient outcomes: systematic review and meta-analysis. *Medical care*. 2007 Dec 1;45(12):1195-204.
- [49]. O'Brien-Pallas L, Meyer RM, Hayes LJ, Wang S. The Patient Care Delivery Model—an open system framework: conceptualisation, literature review and analytical strategy. *Journal of Clinical Nursing*. 2011 Jun;20(11-12):1640-50.