

 Open Access

Article Information

Received: June 24, 2026

Accepted: September 11, 2026

Published: September 30, 2026

Authors' Contribution

DK conceived and designed the study; analysed the results; wrote and revised the paper.

Citation

Kilic, D., 2026. The Crucial Role of Empathy in Neuroscience Nursing for Healthcare Management. *Int. J. Nanotechnol. Allied Sci.*, 10(1): 85-96.

*Correspondence

Dilek Kilic

Email:

Prof.Dr.DilekKilic@gmx.com

Possible submissions

 [Submit your article](#)

The Crucial Role of Empathy in Neuroscience Nursing for Healthcare Management

Dilek Kilic*¹

¹Langgarten 3 / 69124 Heidelberg - Germany.

Abstract:

Neurological disorders can adversely affect the physical, emotional, and mental health of affected individuals. Neurological disorders, if not recognised and treated, can cause serious, even life-threatening, implications. Empathy, referring to understanding the individual experience of the patient without being bound to him/her, is an essential skill for communication by the health professional, which involves three elements: the emotional, the cognitive, and the behavioural. Empathy allows nurses to establish a trusting relationship with the patient. Nursing refers to actions based on clinical decisions by the nurse, to help people to enhance, sustain, or regain health, manage health problems, and attain the highest quality of life to the end of life, whatever their state of health or of the disease or disability. The expertise of nurses in neurological assessments, medication management, rehabilitation techniques and patient education can contribute positively to both patient care and outcomes. We review recent empirical findings in the literature on the neurobiological and psychological perspective to illustrate how empathy-based caring is related to health care management. This entails valuable implications for medical training and neuroscience education.

Keywords: Neurological disorders, empathy, neuroscience nursing, nursing process, health care.



Scan QR code to visit
this journal.

©2026 PSM Journals. This work at International Journal of Nanotechnology and Allied Sciences; ISSN (Online): 2523-9252, is an open-access article distributed under the terms and conditions of the Creative Commons Attribution-Non-commercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) licence. To view a copy of this licence, visit <https://creativecommons.org/licenses/by-nc-nd/4.0/>.

INTRODUCTION

Empathy is often viewed as a good and essential aspect of quality clinical care in psychology and medicine. Perceived demonstration of empathy may enable patients to leave feeling their doctor cares for them, that they have been validated and understood (Inzlicht *et al.*, 2024). Good communication relies on the therapist being sure he or she has indeed been able to help the healthcare user to express their needs so that they can be given specific individual treatment. Those giving healthcare have to be able to gauge people's feelings, opinions and experiences in order to determine what their real needs are, and to tailor their response (Kahriman *et al.*, 2016). The idea of empathy represents a shared value for many health care practitioners, like nurses, physicians, social workers and psychologists (Ouzouni and Nakakis, 2012). The person-centred approach to unconditional acceptance of the health care user and empathy has been the core value in training and practice of clinical social work for many years (Deligianni *et al.*, 2017).

Nursing care has traditionally been described as a scientific, systematic approach to quality care. Nursing care could be anything from a complex technical procedure to simply holding the hand of the patient. The focus of nursing care has always been the person receiving the care, and every element of that person - physical, emotional, social and spiritual - is engaged. We can therefore describe nursing care as caring for other people (Pentecost *et al.*, 2020). The nursing process is an effective and efficient means of organizing nursing knowledge and clinical decision-making for the delivery of planned client care. It is an interactive way of practicing nursing, with each of its components linked in a continuous pattern of thinking and doing (Doenges and Moorhouse, 2012). The practice of nursing includes such diverse actions as the specialized, technical execution to satisfy patients' needs for a normal lifestyle to a sensitivity to recognize the patient's physical, psychological, mental, and spiritual needs (Šip *et al.*, 2023; Tayyib and Alsolami, 2026).

Empathy

Empathy means the ability to understand the thoughts and feelings of another person, including the body and mind, as if they were one's own, while maintaining the key element of 'as if' (Rogers, 1957). Nonetheless, it is only half-hearted when everything that happens after understanding and acknowledging the person's experiences and emotions will be recognized and responded to. The effect of empathy also extends to increased diagnosis. The careful listening and understanding that is aided by empathy enables the caregiver to have increased knowledge, which can be used in an improved diagnosis and treatment (Hojat *et al.*, 2011). In addition, having empathy is helpful to the ethical operation of medicine and the treatment of patients as human beings in a dignified way, based on medical ethics (Halpern, 2001). Empathy also helps to combat burnout by building relationships, cultivating satisfaction with one's work, and providing emotional resilience. Experiencing emotional exhaustion, depersonalization, and reduced personal accomplishment, burnout is very prevalent in the medical field. An empathetic nurse shows compassion, which has the potential to reinforce nurses' feelings of meaning, thus protecting them against burnout (Ramollari and Kontodimopoulos, 2025).

Nursing

Nurses are an integral member of any healthcare team. WHO states that nearly 60% of the world's health care workforce, at any given time, are nurses, so nurses are an essential factor in the improvement of patient outcomes. The role of a nurse within a hospital setting is noteworthy because they are with patients more than any other healthcare team member. Their proximity to patient care requires less time to be spent assessing a patient, and puts nurses in a preeminent role to be the healthcare team member to first notice that a patient is experiencing a problem (Butler *et al.*, 2018; World Health Organisation, 2020).

Nurses are the most numerous health professionals in all countries. Quality of nursing care has a direct relation with the quality of the health care system. For having quality health care services, quality of nursing care is the foundation, and for fulfilling this prerequisite, application of the nursing process is a crucial tool, but practically application of the nursing process is yet not so well established (Hagos *et al.*, 2014).

Embracing empathy in healthcare

Empathy plays a key role in the medical field because it creates patient-centred care - which is all about a patient's individual experience and requirements. In addition to this, healthcare professionals are able to build good therapeutic relationships through open communication and trust. Patients will not hesitate to tell healthcare professionals important health information, stick to treatment plans, or engage actively in their health (Stewart *et al.*, 2024). Empathetic behaviour by healthcare professionals has been associated with increased patient satisfaction and improved patient health outcomes. However, empathy has also been shown to diminish, particularly during training and in the clinical setting (Yu *et al.*, 2022). The person working empathetically understands the needs of the health care users, as they feel relaxed to say and discuss the thoughts and issues that stress them. In spite of the fact that the significance of empathy is quite often acknowledged, a very high percentage of the health care professionals appear to have a hard time maintaining a model of empathetic communication in their day-to-day work (Watson *et al.*, 2026).

Emotional empathy is when you actually, viscerally feel and see the emotions of another. For example, if a patient starts crying when you give them their diagnosis, the crying may make you sad, and you start to cry too. You feel the feeling with them. Cognitive empathy is the cognitive control of the feeling that you experience. Using the above example, the moment you realize that the patient is in pain,

you are practicing cognitive empathy when you see their grief for being diagnosed with stage IV cancer, and you understand it (Hardee, 2003).

Levels of nursing

Nursing is at present one of the most sought-after careers and pursued by many. Of course, the practice has existed since the times of old, but being recognized as a "profession" has only been very recent and only in the past few decades. Nursing, as a science and an art, based on evidence, is still gaining ground within the health and biomedical field. The development of the profession is correlated with progress in science, technology, and research, which were later practiced within the healthcare system. Providing an undergraduate and postgraduate nursing program, the responsibility of nurses increases, but it remains unregulated, and there is still a lack of systematization and recognition of training qualifications within the healthcare system (Salihu, 2024).

The nursing profession in the healthcare industry is structured into distinct educational levels and specialized clinical roles that dictate a nurse's scope of practice and responsibility. Nursing tiers are defined by training length, licensure exams, and degree requirements (Dingwall and Allen, 2001; Lucas *et al.*, 2021):

Certified Nursing Assistant (CNA): Entry-level role requiring a short state-approved certificate program; focuses on basic daily patient care like bathing, feeding, and vital signs.

Licensed Practical Nurse (LPN / LVN): Requires roughly one year of practical nursing education and passing the NCLEX-PN; handles basic medical tasks like administering oral medications and dressing changes under supervision.

Registered Nurse (RN): Requires an Associate Degree in Nursing (ADN, 2 years) or a Bachelor of Science in Nursing (BSN, 4 years) and passing the NCLEX-RN; responsible for care coordination, treatments, and patient assessments.

Advanced Practice Registered Nurse (APRN): Graduate-level degree (Master's [MSN] or Doctorate [DNP]); includes high-autonomy roles like nurse practitioners, clinical nurse specialists, and nurse anesthetists who can diagnose and prescribe.

Kinds of nursing specialties

Nurses branch into dozens of specialized fields depending on the patient population or care environment (Dingwall and Allen, 2001; Lucas *et al.*, 2021):

Medical-Surgical Nurse: The largest specialty, providing holistic care to adult patients with general medical issues or pre/post-surgical recovery.

Critical Care / ICU Nurse: Manages patients with severe, life-threatening conditions requiring intensive, continuous bedside monitoring.

Nurse Anesthetist (CRNA): An advanced practice role administering anesthesia and managing pain during surgical or diagnostic procedures.

Psychiatric / Mental Health Nurse: Specializes in supporting individuals dealing with psychological or mental health conditions like depression, anxiety, or schizophrenia.

Nurse Educator: Combines clinical expertise with instruction to train future nursing students or update hospital staff on medical best practices.

Certified Nurse-Midwife (CNM): Focuses on women's reproductive health, prenatal care, and delivering babies.

Nursing process and patient care

Nursing process refers to the scientific problem-solving method of assessment, diagnosis, planning, intervention, and evaluation of care to the clients, in any condition of health or illness. The process starts with an assessment in which nurses gather relevant information by having a detailed understanding of the patient's needs and health. It is followed by the stage of

diagnosis, where the professional, through a precise formulation of the diagnosis, formulates a care plan directed towards the patient's needs. In the final stage, the nurse puts into practice a care plan: implements it and provides direct attention and care, using the different interventions at their disposal to meet the needs of the body, mind, and spirit (Mousavinasab *et al.*, 2020; Semachew, 2018). The nursing process is usually understood to flow linearly from the assessment to diagnosis, outcomes identification, planning, implementation, and evaluation, but these steps are often interconnected, as one step is helpful in understanding another (Figure 1) (Müller-Staub, 2015).

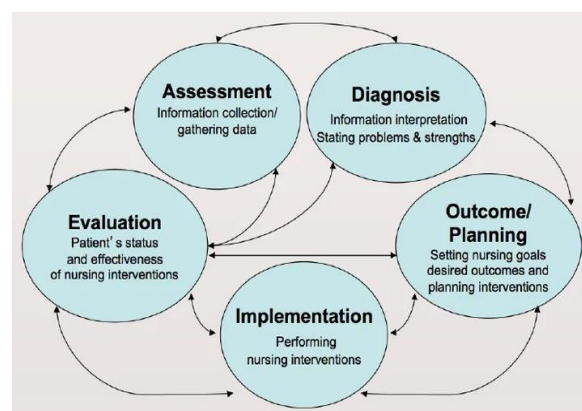


Fig. 1. The Relationship of the Nursing Process to Practice Standards (Müller-Staub, 2015).

The nursing profession has an important place in health care provision, with high-level contact with patients and their families and engagement in the majority of health care activities (Alomari *et al.*, 2020). Evidence-based practice is and should continue to be the basis of the delivery of quality patient care, which is dictated by research. One would assume that with the creation of a professional, educated workforce, research is being conducted and the evidence of its application in clinical nursing practice is advancing (Robichaud-Ekstrand, 2016).

The nursing process is considered the backbone of the health care delivery system because it is a systematic, dynamic, and evidence-based approach that enables the delivery of high-quality care through a systematic method of assessment, diagnosis, planning, application, and appraisal of care (Zamanzadeh *et al.*, 2015). Although it is widely acknowledged as the benchmark for quality healthcare, in practice, its application in clinical settings is inconsistent. Nurses often state that the process is too time-consuming, not supported enough by administration, or the staffing ratio is not healthy enough to effectively implement the process. The American Nurses Association (ANA) standards offer authoritative declarations about what all registered nurses, regardless of practice, area of patient care, specialty, or work environment, are expected to proficiently perform (Ernstmeyer and Christman, 2021). Furthermore, this practice includes a sequence of interrelated steps to aid the nurses in providing holistic and individualized services (Lotfi *et al.*, 2021). Moreover, the nursing process is an interactive process, not a fixed plan, which may need to be repeatedly followed, requiring a healthcare worker to use critical thinking, assessment skills, and be flexible (Owusu-Ansah and Agyeman-Yeboah, 2022).

The process of nursing was a modified version of problem-solving skills that was grounded in theory, which nurses utilized as a mechanism every day to help improve health for their patients and to assist the physicians as well. The main purpose of the process is to identify the health problems and status of customers, which may be evident or probable. It consists of a sequence of phases that are employed to fulfill the goal- the health promotion of the patient. The application of a nursing process may be terminated at any level as it seems fit, or can be reiterated if necessary. It takes account of not just the physical aspects of the patient's health but also the emotional health. Nursing knowledge is used throughout the process in order to decide at what point to alter the approach to the ailment (Adeyemo and Olaogun, 2013).

Despite acknowledgement of its value, the nursing process is still underused, and various researchers have identified deficiencies in its implementation (Alsadaan *et al.*, 2021; Shahzeydi *et al.*, 2024; Zamanzadeh *et al.*, 2015). Even though the nursing process has been rolled out as a standard of care in most of the developed countries, practically it has faced many problems. There is no substantial support for the nursing process in many hospitals. Several studies have been done that mentioned various phenomena for the implementation of the nursing process.

Implementation of nursing process

The nursing process is a systematic approach to problems or a patient's situation which is based on the nursing spirit, scientific foundation, technology, major role, and humanist norms that promote critical thinking, identifying preferences, innovativeness, and help them to solve problems in the field of nursing (Ledesma-Delgado and Mendes, 2009). The nursing process is regarded as an approach for problem-solving that has been proposed as a scientific way of guiding practice and improving the quality of nursing. It is, therefore, a methodical way of collecting data, determining the patient's problems, formulating a plan of action, and executing the plan, and evaluating the success of the plan in problem resolution (Pokorski *et al.*, 2009). The steps are assessment, diagnosis, planning, implementation, and appraisal. The nursing practice reduces patient hospital stay and improves patient satisfaction (Adejumo and Olaogun, 2009).

The nursing process helps the nurse to give quality nursing care by following a systematic, goal-oriented approach. Nursing care is poor if anything is missed in the implementation of any of the phases of the nursing process (Reppetto and Souza, 2005). Impaired application of the nursing process can reduce nursing care quality, poor organization of health services, role conflicts among nurses, medication errors, impaired disease diagnosis, displeasure among care recipients, increased number of days spent

in hospital, and death (Adejumo and Olaogun, 2009; Ledesma-Delgado and Mendes, 2009).

The nursing process is a dynamic, creative process. The steps of the nursing process are always the same, but the way they are applied and the results will vary from client to client. The nursing process can be implemented with the client through the entire life span in any site where a nurse cares for clients (DeLaune, 2011). The nurse is always using their critical thinking skills and identifying what stage of the process is being used. They use knowledge from many fields of study to provide holistic care, caring for the total needs of the patient. They can apply the nursing process with a client of any age and any developmental stage (Carpenito-Moyet, 2006).

The demands of excellent nursing are increasing every day. The requirement of high-quality care is going to be met by adopting the nursing process that is considered the most valid method to utilize knowledge in practice. Consequently, every nurse has to use the process, and its degree of implementation has to be considered because nothing has yet been studied with regard to its application in the nursing process (Yilak *et al.*, 2022). A few authors have now used the investments made in the use of the nursing process in their clinical practice, which has produced information on what nurses know, accept, and the principles they put into practice in various challenging situations faced within the hospital setting. These investigations reveal the potential of investments in practice in the way of approaching the practice of nursing, health, education, and research (Revisalid, 2002).

From these points, we reaffirm to the researchers that the nursing process is a significant act to be used by nurses in practice. As a care method, the Nursing Process, it brings difficulties in practice and in teaching, so that its use becomes reliable in the hospital environment, subject to what the nurses who work there think, interpret their doubts, their questions, and establish a means of implementation (Ledesma-Delgado and Mendes,

2009). Overall, the nursing process has not been implemented in a well-organized and developed manner by nursing practitioners at any other health care setting in Pakistan. At present, there are many health care settings that require the use of the nursing process in clinical practice. Hence, the study is conducted to explore the implementation of the nursing process as well as its influencing factors.

Factors affecting the nursing process

The nursing process includes cognitive, interpersonal, ethical, and legal skills. It consists of related steps that offer a systematic and encouraging way of thinking about patient care as well as a way to organize and standardize nursing care (Agyeman-Yeboah *et al.*, 2017). The findings indicate that, when nursing care is structured on the basic nursing process, the quality of provided care and its effectiveness is enhanced, and the service delivery time is shortened (Akbari Kaji and Farmahini Farahani, 2011). However, hospitals face issues around nurse participation, such as shortages of nursing resources; the ability to involve nurses at all levels from bedside to management; and increasing expectations for involvement in additional, often redundant, quality improvement initiatives (de Moraes Lopes *et al.*, 2010).

Nurses, as hospitals' primary caregivers, have a major impact on the quality of care and, subsequently, treatment and patient outcomes. Therefore, the quest for high-quality care at hospitals is at least in part contingent upon how well they can attract, employ, and retain their nursing resources. And this will become increasingly difficult as those resources continue to be under pressure (Revisalid, 2002). The nurse shortage is a great challenge to any hospital. This is because the shortage affects not only their ability to ensure coverage for patient care but also to deliver enough nursing resources for other tasks such as quality improvement. Nurses have several patients, and to ensure that each one of their physiological and emotional needs is being met can be daunting, if not impossible. Nurses constantly

keep assessing priorities to meet changes in the patients' needs (de Moraes Lopes *et al.*, 2010).

Behavioural differences break or flaws in the nursing care delivery system, repeated nursing care, and lack of focus on the need for caring from the patient, these are just a few examples of professional nurses' experiences that can be termed as a serious problem in the field of nursing. It is universally agreed between the nurses of experts to replace the existing practice of nursing care with a patient-centered care practice focusing on protecting the integrity of the patient and to identify the individual needs of the patient through a proprietary nursing process (Ahmadi *et al.*, 2011). Evaluation is the criterion used to see if the goals were met. Clearly stated, specific, and measurable goals make it easy to see if goals were met and to what extent. In evaluation, it is possible to evaluate guidelines such as: giving of it, learning and understanding of the client, the therapeutic drug response, and/or whether side effects have occurred. The evaluation step allows the provider to see whether goals have actually been met, and it also provides a sign of what went in the way of providing the nursing care (Rossi *et al.*, 2023).

Clinicians have a relatively moderate knowledge of the use of the nursing process, and it is also reported that adopting the nursing process to arm the students was not advantageous; only their formalities and the copy of the textbook were used to escape elimination (Heidari and Hamooleh, 2016). One of the great problems in the way of teaching the nursing process is the failure to equip the student efficiently with the elements with which s/he can work under real-life circumstances and should bear the responsibilities of a specialized job. Therefore, in order to use the nursing process as a normative method of care, more effective methods of teaching should be applied, and the involvement of students should be increased (Moghadas and Sedaghati, 2020).

Although they were familiar with the nursing process, some things such as lack of time, high flow of patients, and many changes in patients would prevent nurses from applying the process

in practice. Nevertheless, the day-to-day use of the nursing process was supported by a scientific foundation, since this requires the knowledge and care of each human being (Clarke and Aiken, 2003). Implementation of the nursing diagnosis continues to be a barrier to the expansion of a nursing process (Lee, 2005).

Integrating empathy into healthcare practice

Empathy refers to understanding the subjective world of the patient and thinking from the perspective of the patient, deeply understanding the inner world of the patient and providing the patient with targeted nursing (Wang and Shan, 2021). At present, it is proven that empathetic nursing can improve the rehabilitation effect, mood, and compliance of patients with neurological diseases, but there is no research on the effect of empathetic nursing on the quality of life, sleep quality, and nursing satisfaction of core care family members of patients with neurological diseases (Wang and Shan, 2021).

Comprehensive training: Provide training on the importance of communication and empathy for all staff. Promote training on active listening, building empathy, and cultural awareness.

Promote interdisciplinary collaboration: Promote cooperation among healthcare professionals to offer comprehensive health care that attends to all patients' physical, emotional, and psychosocial needs.

Utilize technology as an enabler: Focus on the use of technology to augment human connection, not replace it. Virtual support groups, telehealth solutions with integrated communication features, and patient portals that enable continuous communication are a few of many ways to help build and deepen connections.

Encourage self-care: Focus on your staff as individuals by taking good care of them. Encourage them to get in touch with the things they do to feel better. Compassionate care requires treating oneself with compassion.

The role of empathy in neuroscience nursing practice

Neuroscience nursing is defined as a nursing specialty focusing on the needs and care of people who have biological, psychological, social, and spiritual alterations due to a nervous system dysfunction. This definition includes all aspects of the human condition, from the most basic to the most complex of human functioning, and describes the care of all levels of biological organization, from the basic cellular functioning of the body to higher functions of the human brain. The neuroscience nurse recognizes and manages the human responses to actual or potential health problems resulting from phenomena responsive to dysfunction of the nervous system. Phenomena responsive to neuroscience nursing practice include consciousness and cognition, communication, affiliate relationships, mobility, rest and sleep, sensation, elimination, sexuality, self-care, and integrated regulation (Stewart-Amidei *et al.*, 2010; Woodward and Waterhouse, 2021).

Empathy and its function are generally related to signs of negative states, for example, distress, pain, or grief in the other person. The emphasis in present-day palliative care is that health care workers perceive threats not only physical but emotional and psychological as well; and the answer is provided through empathy for the other to become emotionally stable. The function of empathy as a part of nursing practice is supported by the standard for practice and behaviour that the general nurses should possess the skill of providing compassion - an empathic response to the suffering of the patient (Council, 2018; Perez-Bret *et al.*, 2016). Despite the common use of empathy in general practice and further discussion of this in the literature (Barnett and Mann, 2013; Goleman, 2011), empathy has still not received sufficient consensus of definition in general practice and, specifically, in nurse practice.

The scope of practice that shares one specialty of neuroscience nursing represents a broad spectrum of nursing practice and specialty areas

of practice. A neuroscience nurse is a registered nurse who specializes in the care of persons experiencing or at risk for problems associated with neurologic dysfunction, their families, and the community. Neuroscience nurses care for patients throughout the lifespan, from birth to death. Conditions that can cause a disruption of normal neurological function and for which neuroscience nurses care are categorized as degenerative diseases (e.g., multiple sclerosis, Alzheimer disease), tumors of the nervous system, neuromuscular diseases (e.g., myasthenia gravis), traumatic injury (to the brain and spine), stroke and other cerebrovascular diseases, seizures, pain, problems affecting the spine, movement disorders (e.g., Parkinson disease, dystonia), and problems involving the developmental process (e.g., cerebral palsy). Neuroscience nurses also work in the areas of prevention of neurologic dysfunction through health promotion, community education, and research (Carlisle *et al.*, 2026).

There is no other specialty that provides dedicated service to persons with neurologic dysfunction. The extent and extent to which individual neuroscience nurses participate in the full range of neuroscience practice depends on their education, experience, role, and work setting and will be covered in more detail in this document. Neuroscience is a nursing specialty that requires a specialization of knowledge built upon the Science and Art of neuroscience nursing (Hinkle *et al.*, 2022).

CONCLUSION

Although nurses are well-trained and hospitals require the nursing process, nurse clinicians are often stuck with theory versus real implementation as far as the process and procedure are concerned. The inability to properly adopt the nursing process leads to disjointed patient care, medication errors, increased duration of stay, and decreased nurse satisfaction. Empathy nursing for patients with neural diseases can alleviate depression and

anxiety, improve quality of life and compliance of patients, sleep quality of patients, and nursing satisfaction of core family members. It is worthy of clinical promotion and application.

CONFLICT OF INTEREST

The author of this article declares that there is no potential conflict of interest.

GENERATIVE AI STATEMENT

The author(s) declare that no Generative AI was used in the creation of this manuscript.

PUBLISHER'S NOTE

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors, and the reviewers. The publisher does not guarantee or endorse any product that may be reviewed in this article or any claim made by its manufacturer.

REFERENCES

Adejumo, P., Olaogun, A., 2009. Nursing Process: a tool for holistic approach to nursing care. *West Afr. J. Nurs.*, 20(1): 34-39.

Adeyemo, F.O., Olaogun, A., 2013. Factors affecting the use of nursing process in health institutions in Ogbomoso Town, Oyo State. *Int. J. Med. Pharm. Sci.*, 3(1): 91-98.

Agyeman-Yeboah, J., Korsah, K.A., Okrah, J., 2017. Factors that influence the clinical utilization of the nursing process at a hospital in Accra, Ghana. *BMC Nurs.*, 16(1): 30.

Ahmadi, F., Nobahar, M., Alhani, F., Khoshknab, M.F., 2011. Perspectives of retired nurses on factors that affect quality of nursing care. *Hayat/Hayāt*, 17(1): 80.

Akbari Kaji, M., Farmahini Farahani, B., 2011. The effect of nursing process education on nursing care quality of schizophrenic patients. *Feyz Med. Sci. J.*, 15(1): 32-37.

Alomari, A., Wilson, V., Lewis, J., 2020. Action research: A mechanism for active engagement of clinical nurses in a program of research. *Nurs. Health Sci.*, 22(3): 539-547.

Alsadaan, N., Jones, L.K., Kimpton, A., DaCosta, C., 2021. Challenges facing the nursing profession in Saudi Arabia: an integrative review. *Nurs. Rep.*, 11(2): 395-403.

Barnett, G., Mann, R.E., 2013. Empathy deficits and sexual offending: A model of obstacles to empathy. *Aggress. Violent Behav.*, 18(2): 228-239.

Butler, R., Monsalve, M., Thomas, G.W., Herman, T., Segre, A.M., Polgreen, P.M., Suneja, M., 2018. Estimating time physicians and other health care workers spend with patients in an intensive care unit using a sensor network. *Am. J. Med.*, 131(8): 972. e9-972. e15.

Carlisle, B.A., Alexander, S.A., Alvarado, V., Barker, K.D., Bashir, M.M., Bosse, P.D., Cardenas, A., Chepkevich, A., Conley, Y., Cruz, E., 2026. The 2026 International Neuroscience Nursing Research Symposium Abstracts. *J. Neurosci. Nurs.*, 58(2): 86-93.

Carpenito-Moyet, L.J., 2006. Nursing diagnosis: Application to clinical practice. Lippincott Williams & Wilkins.

Clarke, S.P., Aiken, L.H., 2003. Failure to Rescue: Needless deaths are prime examples of the need for more nurses at the bedside. *Am. J. Med.*, 103(1): 42-47.

Council, M., 2018. Future nurse: Standards of proficiency for registered nurses. Accessed on, 10: 05-19.

de Moraes Lopes, M.H.B., Higa, R., Dos Reis, M.J., De Oliveira, N.R., Christóforo, F.F.M., 2010. Evaluation of the nursing process used at a Brazilian teaching

- hospital. *Int. J. Nurs. Terminol. Classif.*, 21(3): 116-123.
- DeLaune, S.C., 2011. *Fundamentals of nursing standards & practice*. Delmar, Cengage Learning.
- Deligianni, A., Kyriakidou, M., Kaba, E., Kelesi, M., Rovithis, M., Fasoi, G., Rikos, N., Stavropoulou, A., 2017. Empathy equals match": The meaning of empathy as it is perceived by greek nurse students-A qualitative study. *Glob. J. Health Sci.*, 9(1): 171-171.
- Dingwall, R., Allen, D., 2001. The implications of healthcare reforms for the profession of nursing. *Nurs. Inq.*, 8(2): 64-74.
- Doenges, M.E., Moorhouse, M.F., 2012. *Application of nursing process and nursing diagnosis: an interactive text for diagnostic reasoning*. FA Davis.
- Ernstmeyer, K., Christman, E., 2021. *Scope of Practice, Nursing Fundamentals* [Internet]. Chippewa Valley Technical College.
- Goleman, D., 2011. *The brain and emotional intelligence: New insights. More than sound*.
- Hagos, F., Alemseged, F., Balcha, F., Berhe, S., Aregay, A., 2014. Application of nursing process and its affecting factors among nurses working in mekelle zone hospitals, Northern Ethiopia. *Nurs. Res. Pract.*, 2014(1): 675212.
- Halpern, J., 2001. *From detached concern to empathy: Humanizing medical practice*. Oxford University Press.
- Hardee, J.T., 2003. An overview of empathy. *Perm. J.*, 7(4): 51.
- Heidari, H., Hamooleh, M.M., 2016. Nursing students' experiences regarding nursing process: a qualitative study. *Res. Dev. Med. Educ.*, 5(2): 101-104.
- Hinkle, J.L., Alexander, S., Avanecean, D., Batten, J., Bautista, C., Hundt, B., Rhudy, L., 2022. Research priority setting: the current landscape of neuroscience nursing research. *J. Neurosci. Nurs.*, 54(2): 55-60.
- Hojat, M., Louis, D.Z., Markham, F.W., Wender, R., Rabinowitz, C., Gonnella, J.S., 2011. Physicians' empathy and clinical outcomes for diabetic patients. *Acad. Med.*, 86(3): 359-364.
- Inzlicht, M., Cameron, C.D., D'Cruz, J., Bloom, P., 2024. In praise of empathic AI. *Trends in Cogn. Sci.*, 28(2): 89-91.
- Kahrman, I., Nural, N., Arslan, U., Topbas, M., Can, G., Kasim, S., 2016. The effect of empathy training on the empathic skills of nurses. *Iran. Red Crescent Med. J.*, 18(6): e24847.
- Ledesma-Delgado, M.E., Mendes, M.M.R., 2009. The nursing process presented as routine care actions: building its meaning in clinical nurses' perspective. *Rev. Lat. Am. Enfermagem.*, 17(3): 328-334.
- Lee, T.T., 2005. Nursing diagnoses: factors affecting their use in charting standardized care plans. *J. Clin. Nurs.*, 14(5): 640-647.
- Lotfi, M., Zamanzadeh, V., Khodayari-Zarnaq, R., Mobasser, K., 2021. Nursing process from theory to practice: Evidence from the implementation of "Coming back to existence caring model" in burn wards. *Nurs. Open.*, 8(5): 2794-2800.
- Lucas, G., Daniel, D., Thomas, T., Brook, J., Brown, J., Salmon, D., 2021. Healthcare professionals' perspectives on enrolled nurses, practical nurses and other second-level nursing roles: A systematic review and thematic synthesis. *Int. J. Nurs. Stud.*, 115: 103844.
- Moghadas, T., Sedaghati, K.M., 2020. Factors influencing implementation of nursing process by nursing students: a qualitative study.
- Mousavinasab, E.S., Kalhori, S.R.N., Zarifasanaiey, N., Rakhshan, M., Ghazisaeedi, M., 2020. Nursing process education: A review of methods and characteristics. *Nurse Educ. Pract.*, 48: 102886.
- Müller-Staub, M., 2015. *Expert Report on the Responsibility of Nursing*.
- Ouzouni, C., Nakakis, K., 2012. An exploratory study of student nurses' empathy. *Health Sci. J.*, 6(3): 534-552.
- Owusu-Ansah, Y.A., Agyeman-Yeboah, J., 2022. Barriers to effective implementation of the nursing process among emergency ward nurses at a tertiary hospital, Accra; a cross sectional survey. *Int. J. Afr. Nurs. Sci.*, 16: 100425.

- Pentecost, C., Frost, J., Sugg, H.V., Hilli, A., Goodwin, V.A., Richards, D.A., 2020. Patients' and nurses' experiences of fundamental nursing care: A systematic review and qualitative synthesis. *J. Clin. Nurs.*, 29(11-12): 1858-1882.
- Perez-Bret, E., Altisent, R., Rocafort, J., 2016. Definition of compassion in healthcare: a systematic literature review. *Int. J. Palliat. Nurs.*, 22(12): 599-606.
- Pokorski, S., Moraes, M.A., Chiarelli, R., Costanzi, A.P., Rabelo, E.R., 2009. Processo de enfermagem: da literatura à prática. O quê de fato nós estamos fazendo? *Rev. Lat. Am. Enfermagem.*, 17: 302-307.
- Ramollari, K., Kontodimopoulos, N., 2025. Empathy in Future Nurses: Insights for Healthcare Management from a Greek Student Sample. *Healthc.*, 13(16): 2054.
- Repetto, M.Â., Souza, M.F.d., 2005. Evaluation of nursing care systematization through the phases of nursing process performance and registration in a teaching hospital. *Rev. Bras. Enferm.*, 58: 325-329.
- Revisalid, A., 2002. Applying Nursing Process collaborative care. New York.
- Robichaud-Ekstrand, S., 2016. New Brunswick nurses' views on nursing research, and factors influencing their research activities in clinical practice. *Nurs. Health Sci.*, 18(2): 246-255.
- Rogers, C.R., 1957. The necessary and sufficient conditions of therapeutic personality change. *J. Consult. Psychol.*, 21(2): 95.
- Rossi, L., Butler, S., Coakley, A., Flanagan, J., 2023. Nursing knowledge captured in electronic health records. *Int. J. Nurs. Knowl.*, 34(1): 72-84.
- Salihu, K., 2024. The evolution of nursing as a profession in healthcare. *MEDIS Int. J. Med. Sci. Res.*, 3(2): 7-11.
- Semachew, A., 2018. Implementation of nursing process in clinical settings: the case of three governmental hospitals in Ethiopia, 2017. *BMC Res. Notes.*, 11(1): 173.
- Shahzeydi, A., Jazi, Z.H., Babaei, S., 2024. Exploring the perceptions of nursing internship students and their faculty mentors regarding the complexities and hindrances associated with implementing the nursing process within the clinical setting: An in-depth qualitative investigation. *Heliyon.*, 10(11).
- Šip, M., Kuzyšin, B., Sabolik, M., Valčo, M., 2023. Human dignity in inpatient care: fragments of religious and social grounds. *Religions.*, 14(6): 757.
- Stewart-Amidei, C., Villanueva, N., Schwartz, R.R., Delemos, C., West, T., Tocco, S., Cartwright, C., Jones, R., Blank-Reid, C., Haymore, J., 2010. American Association of Neuroscience Nurses scope and standards of practice for neuroscience advanced practice nurses. *J. Neurosci. Nurs.*, 42(3): E1-E8.
- Stewart, M., Brown, J.B., Weston, W.W., Freeman, T., Ryan, B.L., McWilliam, C.L., McWhinney, I.R., 2024. Patient-centered medicine: transforming the clinical method. CRC press.
- Tayyib, N.A., Alsolami, F.J., 2026. Factors affecting the implementation of the nursing process in tertiary hospitals: a cross-sectional study. *J. Liaquat Univ. Med. Health Sci.*, 25(01): 64-72.
- Wang, L., Shan, M., 2021. Effects of empathy nursing on the quality of life and treatment compliance of elderly patients with cerebral infarction. *Am. J. Transl. Res.*, 13(10): 12051.
- Watson, T., Waters, R., Watts, L., Hodgson, D., 2026. Exploring the challenges of empathy in a therapeutic context: An interpretative phenomenological analysis. *Qual. Health Res.*, 36(8): 896-909.
- Woodward, S., Waterhouse, C., 2021. Oxford handbook of neuroscience nursing. Oxford University Press.
- World Health Organisation, W., 2020. State of the World's Nursing Report-2020. World Health Organisation Geneva.
- Yilak, G., Getie, A., Fitwi, A., Wondmienenh, A., Gebremeskel, T., 2022. Implementation of nursing process and its associated factor among nurses at Woldia comprehensive specialized hospital, Northern Ethiopia: an institution-based cross-sectional study. *Nurs.: Res. Rev.*, 111-119.

Yu, C.C., Tan, L., Le, M.K., Tang, B., Liaw, S.Y., Tierney, T., Ho, Y.Y., Lim, B.E.E., Lim, D., Ng, R., Chia, S.C., Low, J.A., 2022. The development of empathy in the healthcare setting: a qualitative approach. BMC Med. Educ., 22(1): 245.

Zamanzadeh, V., Valizadeh, L., Tabrizi, F.J., Behshid, M., Lotfi, M., 2015. Challenges associated with the implementation of the nursing process: A systematic review. Iran. J. Nurs. Midwifery Res., 20(4): 411.