The Evolving Role Of Nursing Technicians: Contributions To Patient Care And Healthcare Teams

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Abstract

The role of nurse technicians in healthcare team and in delivering patient care is constantly changing along with the healthcare landscape. The perception of nurse technicians as nothing more than medical assistants is long gone. Whereas, Nurse technicians today contribute significantly to the overall patient experience and play a vital and dynamic role in shaping healthcare outcomes. Also, Nurse technicians have emerged as important figures in the provision of patient- individualized care due to their holistic approach, empathy, and clinical expertise. the Increased autonomy and decision-making power are hallmarks of nurse technicians' changing roles in patient care. Nurse technicians are now actively participating in the coordination, evaluation, and planning of care rather than being restricted to adhering to rigid protocols. However, presence of nurse technician educator or learning programs is beneficial in improving nurse technicians' roles and contributions in health team and communication strategies, ultimately, enhance nursing technicians' care. The purpose of this review of

literature is to evaluate the role of nurse technicians in healthcare team in contribution to patient care.

Key words: - “Nurse technicians”, “Intervention”, “patient care”, “Nurse technicians’ dynamic role”, “healthcare”.

Introduction

Health care providers serve as patients' initial point of contact and primary source of ongoing care within the healthcare system. They also arrange for any additional specialized services and care that patients may require **(National Academies of Sciences, Engineering, and Medicine., 2021).**

Primary care is delivered in a variety of settings, but it is typically given in a clinic by interprofessional teams that are made up of family doctors, registered nurses (RNs), nurse practitioners, nurse technicians, pharmacists, and other medical professionals. These teams are becoming more and more common

Nurse technician under-supervision of RNs work as generalists in primary care settings, offering a wide range of patient services to patients of all ages. These services include acute episodic care, health education and promotion, chronic disease prevention and management, and preventative screening **(Halcomb et al.,2016).**

A vital profession, nursing plays a major role in ensuring patient safety and providing high-quality healthcare. Nursing work has always been hard to define because there are so many unacknowledged facets to it. **(Perry and Fairbanks.,2015)** When the work of nurses is undervalued or neglected, bad things happen. Among these is the neglect of patients' care **(Ausserhofer, Zander, et al.,2016).**

In particular, a critical collaborative partnership between family doctors, registered nurses and nurse technicians exists within these teams, strengthening primary care delivery and enhancing the scope, effectiveness, and value of patient care **(Smolowitz et al.,2015).**

The effects of evidence-based nursing care on patient outcomes, which are crucial in emphasizing the importance of nursing care, have attracted increasing attention. **(Goode et al., 2011; D'Amour et al.,2013).** Researchers have discovered a direct correlation

between the amount of time nurses spend with patients and the results of that care, as well as a link between a higher number of nurses and nurse technicians and lower rates of adverse events and mortality **(solane et al; Duffield et al.,2011).**

Providing patients with safe, high-quality, evidence-based care is one of every healthcare organization's main objectives. Having the right mix and quantity of healthcare professionals on hand to meet patients' needs is one of the known obstacles to accomplishing this goal. Healthcare organizations around the world have transferred job responsibilities to less educated healthcare providers as a result of political and economic pressure. **(Kusi et al.,2018).** A nursing team comprising professionals with different roles and educational backgrounds is increasingly responsible for providing nursing care **(sharma et al.,2016; solane et al.,2017).** In addition, restructuring hospital care through staffing strategies is one of the major and frequent changes brought about by the demand for efficiency in the health care system **(Oner et al.,2021).**

However, given the different demands and viewpoints present in the system, it is probable that nursing teams will persist in incorporating a blend of registered nurses, practitioner nurses, technicians, and health care aides. Collaboration is essential for these nursing teams to deliver safe, high-quality, and effective care. To effectively collaborate, nurses and nurse technicians must first have a clear understanding of their respective roles and those of each other in relation to patient care and the health team **(Rush et al.,2016).**

There is a lack of the presence of studies demonstrate the role of nurse technician alone without nurse specialist since their action is done under supervision of nurse specialists either practitioners or registered nurses and the care coordination with health team for maintaining good patient care, so authors conducted the role of nurse technician in this review in context of nurse's role in contribution to nurse team specialists and patient care.

Literature Review

1-Aim

The purpose of this systematic review is to evaluate the role of nurse technicians in care coordination with healthcare team for

contribution to patient care., through reviewing a previous study that focus on the same title.

2- Methods

Finding pertinent research:

A number of terms, including "care coordination; patient care; health staff; registered nurse; nurse technician; practical nurse; care model," to describe care contribution interventions of nurses to health care team and patient care. Studies were evaluated based on established criteria before being included. We used these terms to conduct a literature search. These terms were combined with "role" and "primary healthcare" intervention" "model" the search strategy was created after using electronic research of disciplinary databases CINAHL, MEDLINE, Scopus, PubMed, and google scholar and websites of nurse association centers , National Academies of Sciences, Engineering, and Medicine, for articles published in the last 10 years (from 2010 to 2020)., The publications were preferred to be in English but there was no restriction in other languages. To find more research, a manual review of the reference lists of the pertinent papers was done.

3-Inclusion and Exclusion Criteria:

Authors Analyze original research papers, RCTs, and systematic reviews that assess the role of nurse technicians in care coordination with healthcare team for contribution to patient care., The study inclusion standards are human subjects, healthcare professionals specially nurses and nurse technicians, and patient care management in health team services. studies that was published in English is preferred but there is no restriction upon inclusion of articles with other languages between 2010 and 2020 and accessible as full text, with no consideration of regional limitations. Studies conducted before 2010 as well as publications that did not adequately describe the activities of nurses and their unique role within the multidisciplinary team were also excluded. Articles lacking peer review, webcasts, surveys, secondary data analysis, non-original reports, case study editorials, letters, were declined.

4- **Data Extraction process**

In addition to reading the complete texts of the relevant papers that were located, two of the authors independently searched through all of the article titles and abstracts that surfaced during the process. When assessing the published full-text papers for inclusion, the reviewers employed the following criteria; those that did not satisfy all of the requirements were excluded. A third party adjudicated conflicts that arose during the full-text evaluation, full-text review, abstract, and title screening.

The information gathered from the 15 publications that met the inclusion criteria was independently evaluated and collated by the review's writers. After a thorough data were examined using the method of constant comparison. Examination of all the included studies, pertinent information was taken from each one using the following criteria: The study's design, author, population, year of publication objectives, model, setting and demographics, results, and conclusion were all extracted and documented by the author. The procedure involved choosing and assessing the information from the literature search as well as reviewing previous studies.

During an in-person scientific meeting, preliminary results were given and discussed separately with senior and junior researchers working in the field of integrated care. A variety of nursing science experts contributed to the results' refinement and validation of their implications for further study and practice.

Quality Assessment

A standardized tool appropriate for the various study designs was used to assess the quality of the integrated research. The narrative combination of the research findings from the included studies was done.

Result

A number of 15 publication met the previous mentioned criteria for research articles inclusion from (2010-2020). 7 of them qualitative and 8 of them are quantitative. One author published two studies in different years **(Boult 2011; Boult 2013).** The majority of studies occurred in USA (8 studies) while only One study conducted in each of the following countries UK, Australia, two studies in Netherland and 3 studies in Canada.

Two articles examined how RNs and nurse technician viewed their own and one another's roles (**buttler et al.,2019; James et**

al.,2010). two studies' findings from nursing team members indicated that staffing mix affected team procedures and patient care. . (**buttler et al.,2019; Dahlke and Baumbusch in 2015).**

It was difficult for any of the nursing team members to describe their roles in the included studies. nurse technician and registered nurses clarified that their role had evolved over time and that they thought it was different from other team members' roles. According to nursing technicians, their primary responsibility is to support licensed nurses. (**buttler et al.,2019; James et al.,2010)**

Although nurse technicians described their jobs as simple tasks and helping people under supervision, they were given difficult assignments, worked unsupervised, and used unfamiliar medical technology. When given the task of monitoring vital signs using technological tools like the Early Warning Score (EWS), some nurse technicians misinterpreted the tool due to their lack of understanding of this sophisticated care device. Additionally, a few medical facilities paired nurse technicians with extremely sick patients; consequently, the nurse technicians experienced anxiety while tending to these patients **(Butler et al., 2010).**

Discussion

To determine and assign the quantity and variety of nurses needed to meet hospital patients' care needs, nurse-staffing models are utilized. The number and composition of nurses needed in a hospital unit can be determined using two different methods: top-down methods that compare hospitals that are similar to one another, and bottom-up methods that match staff to patient dependency workload **(buttler et al.,2019)**.

Nursing technician role and care coordination for patient care

A study in UK of **(James et al.,2010)**, that assessed the nurse technician's contributions in the general ward setting as a recognizer, responder, and recorder using a pilot study (questionnaire, knowledge sheet) and the outcome was; The majority of patient observations were conducted by nursing aids (technician), they gave vital signs and early warning scoring systems significant weight during the assessment process. About fifty of respondents agreed that using touch during the assessment process was crucial, while forty-two% of ward staff members were sidetracked by other patients' needs, and forty-five % wasn't

enough staffing to support this process, the Early Warning Score (EWS) was used by eighty three percent of respondents However, the nursing technician seemed to have misunderstood the purpose of this instrument.

Utilizing the critical incident technique (CIT), a constructivist methodology was applied.in study of **(Seaton et al.,2011)** in Australia revealed that; Close patient proximity was something that both nurse specialist (registered and practitioner) sought after because they believed it enhanced patient care continuity, their capacity to comprehend patients' needs, and their ability to provide holistic care. While the use of nurse assistant technicians in direct patient care has been observed to restrict the close proximity between nurses and patients, which has a negative impact on patient rapport-building and communication. Additionally, this put strain on LPNs and RNs who thought they couldn't give patients the care they needed.

The study of **(Dahlke and Baumbusch in 2015)** that based on Data collected in western Canada on two hospital facilities (qualitative analysis) to provide an explanation analysis of how nurses provided care to hospitalized older adults within nursing teams and demonstrated that; the contributions nurse technicians could and should make to the nursing team varied, it was generally accepted that their main duty was to perform physical activities and no need to be completed during the shift in oppose to registered nurses, educating teams can help the nursing care team about roles and communication strategies, also educators and leaders can help the nursing care team reconsider how they collaborate and, ultimately, enhance nursing care. Nursing technician found it difficult to identify nursing activities that fell under their purview alone. They stated that helping regulated nurses—that is, registered nurses and practitioner nurses—was their primary responsibility. The three primary care activities that nurse technicians saw as the foundation of their role contribution were housekeeping, and bedside activities. According to **(Dahlke and Baumbusch 2015),** they believed that the tasks they performed could be postponed without endangering the safety of the patients.

Another study in Netherlands Assessed the impact of a primary care program on older adults' day-to-day functioning with the use of Nurse-led care intervention.in which mentioned that the care

coordination system of nurses determines the patient's needs at home, create care plans, keep an eye on things, check in with caregivers, encourage self-management, and more. establish connections with general practitioners and health care team **(Bleijenberg et al., 2016).**

Health care model and Life quality

Test the viability of a new health care model intended to enhance life quality and resource efficiency elderly individuals with multiple comorbidities and functional impairment in USA using a pilot study and early findings from an RCT by the aid of guided care that Examine the overall patient's condition at home; create a care plan; keep an eye on things, follow up, and adapt as needed; coordinate the work of all the medical professionals involved; Motivational interviewing can be used to support patients' and caregivers' activation, engagement, and self-management; it can also help with access to community resources and care transition **(Boult 2011; Boult 2013).**

In two regions of Netherlands, An RCT/Assess the Geriatric Care Model's cost-effectiveness and mentioned the Exclusive care coordination role; Visit patient at home; conduct a comprehensive assessment; establish a care plan with GP; discuss it with patient; inform and involve patient in decision making; document; monitor and follow up; coordinate care with MDT and community network professionals **(Van Leeuwen et al; 2015)**

Uncontrolled, quasi-experimental design with a retrospective analysis and an evaluation of a quality-improvement project done in USA on community type 2 diabetic patients that assessed the Exclusive care coordination role; Establish a deep connection with the patient and the providers; be clear about roles and responsibilities with the patient; serve as a resource for the team; help the patient and family complete the care plan; document; offer technical assistance; and, when needed, make referrals **(Spencer., 2019).**

Nursing in diabetic patient care

Gabbay et al determined in RCT in USA whether the addition of nurse case managers to usual care would result in improved outcomes, Since, the Exclusive case management role; When necessary, communicate with the patient by phone and email in

between visits; monitor and follow-up; offer counseling to improve motivation to change and medication adherence; refer the patient to specialty services when appropriate; talk to your doctor about your medication list (**Gabbay et al.,2013).**

Two RCT studies in USA have the same intervention **(Katon et al; 2012; Trehearne., 2014)** of collaborative care program hat revealed; Visit the patient at home, establish clinical objectives, create customized care plans, monitor, follow up, and adapt as needed; give patient support and education for self-management; and review and discuss cases with the general practitioner and specialists

Nurse care in chronic disease with other primary care condition

A qualitative descriptive study in Canada that determined the opportunities, gaps, challenges, and strengths for optimizing nursing roles in the provision of cancer survivorship care in primary settings from the standpoint of registered nurses. The management assessed was to develop a long-term, trustworthy relationship with the patient; act as their "go to" person; offer emotional support; educate and assist in self-management; oversee care; help the patient and family through the healthcare system; plan and organize services; make it easier for them to access community resources; ease transitions **(Yuille et al., 2015)**

A network of primary care practices; an exclusive role in care management in USA, the study target care of the older patient with multimorbidity/ the care management conducted was to evaluate the patient's needs, schedule home visits for the patient, create a care plan, monitor, follow up, and react to changes, encourage self-management and behavior modification, evaluate and encourage patient adherence to treatment; reconcile inaccuracies or omissions with the general practitioner; organize treatment with family, social workers, and health care providers; assist in the transfer of care; oversee advance directives; record in the patient's medical file **(Marcantonio et al., 2012)**.

One study of systematic review that include 17 study and identified Four categories of interventions concerning hospital staffing models for nurses and include one study in USA that assumed; the effect of introducing nurse technician assistant was assigned to work with two to three registered nurses, assisting in the care of 12 to 18 patients. on (staff, cost and patient care) had no sufficient

evidence since, the study lack of certainty to give clear conclusion **(buttler et al.,2019).**

Assessing the roles of nurses in multidisciplinary primary healthcare teams

Organizational variables, which are included in the structural component of the nursing role model, comprise a range of measures that indicate how much an interprofessional model of care is used in a practice. Additionally, by looking at their interdependent role functions (such as communication with other health care professionals), the nurse's role in an interprofessional team can be captured in the model's process component **(Mildon et al., 2011)** conducted study in Canada**.** As a result, the model provides a foundation, strategy, framework, and method for evaluating various nursing roles in the context of interdisciplinary teams—a crucial aspect of the primary health care reform.

Conclusion

Nurse technicians are essential components of multidisciplinary healthcare teams. Their capacity for productive teamwork and communication with other medical specialists guarantees smooth care coordination and fosters continuity between settings. By promoting communication and making sure patients' opinions are heard during the decision-making process, nurses serve as advocates for their patients. This cooperative method improves the general standard of care provided and cultivates a culture of patient-centeredness.

Few studies mentioned the role of nurse’s technician since their role is under supervision of nursing specialists and they assist them However, presence of them in a facility give a positive impact for patient care and enhance quality of care since increasing number of health care and conduct different nursing role model in care but there is uncertain evidence of the negative effect on increasing cost of patient intervention

The nursing team members struggled to define their responsibilities and set themselves apart from one another. However, every member of the nursing team recognized that the RN had the most responsibility. RNs thought that providing safe, comprehensive patient care was directly related to their jobs. Nurse technicians believed that their jobs consisted of routine

housekeeping, clerical, and bedside tasks. Finally, staffing shortages within organizations hampered the nursing team's ability to work together, limited the members' scope of practice, and adversely affected patient care.

Although many studies demonstrate care of patient in Response to nurse specialists but there are constraints in the body of evidence because of the small number of studies that have been done concerning nurse technician, and a general lack of rigor because of problems with sample size, methodology, and measurement techniques so more studies is needed to clarify the evolving role of nurse technicians.

A better comprehension of the responsibilities held by each member of the nursing team would improve patient care and the efficient use of the nursing workforce. The studies that made up this review demonstrated how hard it was for nursing team members to articulate their own roles and how little they understood one another's responsibilities. Our research supported the scant literature on this subject, which is consistent with the findings of other researchers. We suggested more research to address the role perceptions of the nursing team members while making sure that each member is fairly represented in order to close the existing gap in the literature.

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