

Nurses Beliefs, Attitudes, and Perception Related to Work in Inpatient Stroke Rehabilitation Unit, a qualitative Study

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ABSTRACT

Objective: This Study aims to explore Nurses beliefs, attitudes and perception related to work in inpatient stroke rehabilitation Unit.

Background: Role of the nurses in the rehabilitation process has increased dramatically for last two decades. Many attempts have been done to identify the role of the nurses in the Inpatient stroke rehabilitation units, they concluded that nurses are involved as an essential part of the rehabilitation process, however, their contribution to improving patient's outcomes is poorly understood and refined.

Design: hermeneutic phenomenology, qualitative approach.

Methods: The data were collected by using a semi-structured interview, using open-ended questions then the major themes Transcribed for thematic analysis.

Results: Two Main categories were identified; the experience of nurses in Stroke rehabilitation units and the challenges in nursing contribution in stroke units, and the recommended strategies to enhance the role of the nurses in stroke rehab units.

Conclusion/Relevance to clinical practice: The study provided an evidence that nurses believe in themselves as an effective team member in stroke rehabilitation, and they are enjoying while helping patients to recover to allow them to reintegrate and adapt to their new life situations. However, this study showed a lot of obstacles that minimize the contribution of nursing in stroke rehabilitation units. The future nursing rehab role should also be developed to meet the post-discharge needs and the emerging rehabilitation services and technologies, moreover, nurses have to clear and specify their specific bedside care and interventions. Nurses have to adopt new knowledge and competencies in collaboration with other disciplines such as occupational therapies, physical therapy, and speech therapy, to upgrade their assessment and intervention skills that enable the nurses to provide systematic and therapeutic feedback about the patient progress and the proper interventions that needed to reflects that on the functional abilities on discharge.

Keywords: Nursing rehabilitation; Stroke; Nursing role; Perception; Inpatient; Qualitative

INTRODUCTION

Nurses are the largest health care providers in dealing with inpatient stroke rehabilitation, they are playing a major role, and they are involved throughout the stroke pathway [1]. Nurses are considered the essential multidisciplinary team (MDT) members to achieve the outcomes of inpatients stroke rehabilitation [2].

Mostly Nurses provided a supportive environment for inpatient stroke rehabilitation and to collaborate with the rest of MDT to provide therapeutic and holistic care for them, however many studies have demonstrated that nurses rehabilitation role has been described by other MDT member is vague and unclear and even by most of the nurses themselves [3,4].

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BACKGROUND

Stroke is an acute health condition that affects patients and leaves long term disabilities, financial and economic impacts, causing many role changes. The main impact of the patients after may lead to changes in the quality of life due to the physical, social, spiritual, and psychological challenges that experience [5].

With the 15 million new stroke cases worldwide [6]. Stroke is the main leading cause of disability and death globally and particularly in low and middle-income countries, so stroke is becoming a priority for many health care systems in these countries, and this burden is increasing [7,8].

The incidence of stroke in developed countries have been declined dramatically despite an aging population, however, there are an increasing number of stroke patients in the young age group [9].

Rukan et al. (2019) conducted a 2-year prospective study of stroke characteristic in the middle east and North Africa, they found that patients are slightly younger, and they had a high rate of comorbidities such as diabetes mellitus and slightly more ischemic stroke severity, commonly of atherosclerotic or microvascular etiology, so there is a high demand to admit the patients to stroke units and rehabilitation units to be improved [7].

Stroke with younger patients has a long-lasting impact and profound effect comparing with elderly patients with stroke, which is due to the major physical impairment that alters their job during the most effective period in their lives. Moreover, Stroke with young patients is associated with a high risk of increased suicide attempts, anxiety, depression, lifelong cognitive impairment, and increased mortality as well [9].

Rehabilitation is extremely important hence the amount of people who are suffering and dying from the complication of stroke is increasing after a stroke has happened, there are many options are available to start rehabilitation such as is acute, post-acute, inpatient and outpatient [10]. Many factors affecting the choice of rehabilitation settings, but there are major differences among patients' outcomes after rehabilitation, whether socioeconomic status, ethnicity, and location of the residency will affect the patients and their families to choose the best rehabilitation settings [11].

Inpatient Stroke Rehabilitation is necessary needed for individuals to achieve maximal recovery for the associated defects after stroke. Inpatient stroke rehabilitation is the place of choice for patients who are at risk of chronic physical, psychological, functional, social disability [10]. Patients with stroke who will be treated as an Inpatient will receive comprehensive multidisciplinary care and patient-centered care that aim to maximize patients' abilities and make an individualized care plan to meet each patient's needs [12].

In the past 2 decades, researches related to nursing rehabilitation and especially stroke rehabilitation and the role of the nurse in the rehabilitation process has been increased dramatically. Those new studies have to change the perception, and gives new insight to the nature of the nurses in the stroke

rehabilitation units, and how we can expand and refine the role of the nurses in rehabilitation settings [4,13,14].

Many attempts have been done to identify the role of the nurses in the Inpatient stroke rehabilitation units, they concluded that nurses are involved as an essential part of the rehabilitation process, however, their contribution to improving patient's outcomes is poorly understood and refined [1,4,15].

Nurses have a major role in health care systems, especially in providing the evidence base care for stroke patients in rehabilitation settings. Nurses who are dealing with inpatient stroke rehabilitation units need to pass specific neurological competencies that cover the general neurologic knowledge and experience [16,17].

Nursing rehabilitation contribution with stroke patients has been studied by many researchers in the past [4,18,19] they have reported that the contribution of the nurses in that time was essential but unfortunately therapeutically not specific, and their input in the rehabilitation journey tend to be quiet passive and less important [20]. Moreover, nurses interventions in related to work with stroke patients require more investigation on the nature of these actions that performed by nurses individually in collaboration with other multidisciplinary team members, and how the nurses understand and deliver these interventions, other studies referred that nurses contribution in rehabilitation was not specifically related to organization and professional factors that limiting the nurse's interventions and collaborations with other multidisciplinary team members [3,15,21].

Despite that nurses express their intention to integrate therapy and its outcome on patients Daily activity living practices, but achieving that goal is a challenge for them in fact, these efforts which are taken by nurses should be empowered and encouraged by another multidisciplinary team to reflect that on patients functional recovery rather than physical recovery [12,17,22].

In 1997, Kirekevold concluded four main therapeutic roles of the rehabilitation nurses in addition to the coordination and management during hospitalization period for stroke patients. The therapeutic roles were; interpretative, consoling, conserving, and integrative function [4]. After decades of discussion about the four main therapeutic roles of the rehabilitation nurses in stroke units, [23] Kirekevold extended his theory, he concluded that the proposed four main therapeutic roles for nurses which were created on 1997 still adequate, however, the future nursing rehab role should also be developed to adapt with the post-discharge needs and the emerging rehabilitation services and technologies, moreover, nurses they have to clear and specify their specific bedside care and interventions [23].

Clark (2014), conducted a meta ethnographic and systematic review study to derive whether the theoretical framework which was invented by Kirevold in 1997 still adequate to describe the nurse's contribution in the stroke rehabilitation units and to find if there is any evolution in the nurse's rehab role since that date. Clark concluded that the four main tasks of nursing rehabilitation are still considered the central aspects of the nursing rehabilitation role, however many emerging issues

reflecting in the development of the nurse's contribution and responsibilities after stroke, he referred those changes are related to patient and family engagement in the rehabilitation, increasing the supporting the rehabilitation efforts which is conducted on the patient's environment and supporting the role of the interdisciplinary teamwork [4].

In another hand, Theofanidis (2016) studied the nursing interventions on patients in stroke rehabilitation units, he implemented many interventions to highlight the role of the nurse in stroke rehabilitation units, he concluded that nurses should be aware of the new modalities of stroke management, in which some have as advantages and some have disadvantages, that may enhance fast patients recovery and ensure faster reintegration to their communities. He reported that nurses' role in nursing rehabilitation is very important, and the nurses are considered as a key player in the big multidisciplinary rehabilitation team [24].

Loft et al. (2019) Conducted a study to describe patients experience after stroke rehabilitation and to explore the role of the nurses in the stroke rehabilitation unit, the result was showed that the patients were worried about their future, and they reported that they need more human support and contact from nurses, moreover they described nurses as helpful and polite, but their role in their rehabilitation was unclear, and they are not therapeutics as other MDT members, so nurses have to present themselves as a stakeholder and more therapeutics for patients, and nurses should have more training to know how to formulate meaningful and therapeutic goals for patients [22].

Despite extensive literature that addressed the role of the nursing in stroke rehabilitation units, still there are lack a of research studies that specify the contribution of nurses in stroke rehabilitation settings.

AIM

This study aims to explore Nurses beliefs, attitudes and perception related to work in inpatient stroke rehabilitation Unit.

METHODS

Design

The data were collected by using a semi-structured interview, and this study is an example of hermeneutic phenomenology, a qualitative approach that is concerned with the life world or human experience as it is lived. The focus is toward illuminating details and seemingly trivial aspects within the experience that may be taken for granted in our lives, to create meaning and achieve a sense of understanding by using open-ended questions to explore more the experience while working in stroke rehab units

The interview was recorded and started with major open-ended questions then the major themes will be transcribed for thematic analysis.

Major Question to have open-ended questions:

- Please share your experience with inpatient stroke rehabilitation patients??
- What are your major roles as a rehabilitation nurse with inpatient stroke rehabilitation patients??
- What are the main challenges to your job??
- How you can describe your role in comparing with other rehabilitation team members??
- What are your suggestions to improve the overall nursing rehabilitation role in-patient stroke Unit??

Settings

Qatar Rehabilitation Institute (QRI) - Hamad Medical Corporation in Doha, Qatar, is the region's largest tertiary rehabilitation hospital, providing world class integrated rehabilitation services and the most technologically advanced patient-centered care. QRI offers five main rehabilitation programs - Stroke, Spinal Cord Injury, Traumatic Brain Injury Pediatric Rehabilitation Pain Management. It is a tertiary care facility, which offers inpatient and outpatient rehabilitation services. The overall capacity of 193 beds [25].

Sampling

12 nurses met the including criteria and attended the Interview (5 Female, and 7 male). The average mean seniority is 10 years within the range of 8 to 21 years of experience and means the age of 33 years.

Inclusion criteria

1-Nurses with a minimum of 1-year experience with inpatient stroke rehabilitation.

2-Staff Nurses only.

Exclusion criteria

1-Less than 1-year experience with inpatient stroke rehabilitation.

2-Diploma Nurses will be excluded.

Data collection and ethical consideration

After getting the IRB from Medical Research Center. Approval No (01-19-148). Email sent to all staff Nurses who work in Inpatient stroke rehabilitation units in QRI. Information letters outlining the study have been mailed. Purposive sampling type (Experts) to explore valid experiences. 12 Nurses replied to the email, and Interview arranged on the morning shift in a private and quiet room to minimize interruptions. The interview time approximately not exceeded 90 minutes. The interview was semi-structured open-ended questions. The questions were arranged based on the literature reviews which are relevant to the nursing rehabilitation [3,14, 23].

Audio recorded used, and stored privately in a locked room and no one has access. Assurance of anonymity and confidentiality will be given. The records and the transcribing will be kept and saved according to the Hamad Medical Corporation policy.

Data analysis

Thematic and pattern analysis based on coding by using content analysis [26-28], both deductive and inductive approach has been used. The theory of Kirekevold (2010) has been used at the main reference for nursing rehabilitation in stroke units, and all new ideas and concepts are kept open [23].

RESULTS

Two main categories were identified; the experience of nurses in Stroke rehabilitation units and the challenges in nursing contribution in stroke units, and the recommended strategies to enhance the role of the nurses in stroke rehab units.

The Experience of Nurses in Inpatient Stroke Rehabilitation Unit

Nurses expressed their positive feelings regards receiving stroke patients after acute injury and start the rehabilitation journey, nurses are enjoying while helping the patients to restore their functional capabilities and do his daily activity level independently as can as possible, and to restore their routine life as usual with modifications, and to work with patient and families to facilitate reintegration to community and work as before.

"Happiness is to see acutely injured patients after stroke is getting well and being able to walk, and do his daily activity living independently as can as possible" Nurse 1.

"Putting a smile on patient's face is a reward of nurses in stroke rehabilitation units" Nurse 2

Nurses feel that their input in stroke rehabilitation is very crucial in inpatient stroke rehabilitation unit, regardless the challenges they are encountering, but they expressed their role is very effective .Nurses believe that they are the heart of the rehabilitation units, and they are the closest health care providers for patients and their families.

"I am proud to be a stork rehab nurse, I can make a changes on patients' lives" Nurse 1

"My role is to support patients day by day, to let them being able, and going home safe" Nurse 3

Nurses are dealing with each patient as a unique person with unique needs, so they are proving high-quality services that focus on individuality and patient and family engagement, patient-centered care, with an individualized care plan that addresses the holistic care approach and dealing with the patient as a whole, not only focusing on the physical aspects.

"More patient and family engagement, more outcomes, fast recovery, more satisfaction, less complication, fast discharge" Nurse 4

"I am treating each one, my patient, like a special person, special needs,

"I am trying my best to let him feel that he is special" Nurse 5

"Stroke rehabilitation is a way of life, so helping the patients to restore his body and soul together on same time" Nurse 1

The challenges of nurses in stroke rehabilitation unit

The diverted role of nurses in stroke rehab units from opacity to clarity

Nurses' perception of working in stroke units varied from vague to clear with no confusion or overlapping. However, they mostly referred their work in stroke rehabilitation as a complex job, multifactorial task, working with everyone, and dealing with everything.

The majority reported that their daily work is a routine work that encompasses which is not limited to daily assessment for patients, providing the basic care needs for patients, educating the patients and their families about their daily updates on their conditions, being an advocate for them, providing psychological and emotional support, marinating a normal and stable function, preventing complication and finally working with the patient and their families to reintegrate the learned new skills and on their daily activity living activities, and preparing them for a safe discharge from the first day of admission.

Some nurses reported that their role is not clear, and confusing, even the patient and their families they don't identify exactly what is the role of the nurses in comparing to other MDT members.

"Nurses have a deeper relationship with patients and their families, however, they trust and rely on them more" Nurse 11

"Our patients showed respect and appreciation for us, however, they give more recognition to physicians and therapies because they are directly managing their immediate disabilities with daily interventions and activities" Nurse 7

"Patients focus is mainly the physical concern, rather than the routine care needs" Nurse 8

Nurses work as a coordinator and collaborator with everyone and having in idea about everything, but some of them reported that their work in stroke rehabilitation is a conservative role rather than therapeutic role, they are following other MDT recommendations how to handle patents and how to feed them and how to rehabilitate their bowel and bladder, etc.

The role confusion with some nurses leads them to handle unnecessary tasks that burden their role as a therapeutic team member and add more stress and time consuming that limit patient contact time such as secretary, collecting data for quality departments, attending some meetings, preparing for some events and conferences, following the material with stores, keeping more time with the computer

"I am handling many extra tasks in my unit, and I am collecting data for such projects and that limit my patient contact time" Nurse 10

Inadequate staffing and lack of time

Inadequate staffing is a challenge for nurses everywhere, but nurses in stroke rehabilitation units showed more concern about staffing, hence they are giving patient-centered care which encompasses treating the person as a unique person with a special need, which need more time for patients especially for acutely ill patients who are transferred to a stroke rehabilitation

unit and need more medical management, or patients who are at high risk for fall or patients who are having some appointment in other clinics or hospitals, or patients who are having some procedures like Botox injection.

"Sometimes I am receiving difficult patient which affect my other patients care and result in a delay in their needs" Nurse 11

"When are having an admission and discharge at the same time, that makes our units busy, and that affects the patient contact time" Nurse 5

Lack of time for nurses in stroke unit especially on afternoon hours and evening hours, when the staff to patient ratio is decreased, which will impair the quality of care that nurses are offering, since the workload is a bit less on afternoon and evening, but still patients still need an immediate response for their needs.

Lack of adequate staffing and time for nurses who are working in stroke rehabilitation units will affect the professional development for nurses in the stroke rehabilitation unit, and explain why nurse's role is not clear and for nurses, patients, and other multidisciplinary team members.

Nurses' endorsement and assessment

Nurses' endorsement in stroke rehabilitation units is focusing more on the physical and medical concerns for the patients such as (Vital signs, medication new orders, fluid and electrolyte, falling risk assessment, pressure injury, dysphagia assessment, etc.) rather than the progress for patients from a rehabilitation perspective.

"My endorsement is mainly on the patients' daily updates, I am happy to endorse my patient quiet and all his needs are met" Nurse 12

There are limited communication and endorsement about rehabilitation and functional abilities between nurses and other disciplines updates due to limited time and patient overload "Nurse 7

There is a lack of nurse assessment scales in stroke rehabilitation units that incorporate more understanding of the holistic approach of the patients comparing with other therapies. Nurses are having a few scales that assess the patient if he is on risk for falls or developing pressure injury, pain assessment, and swallowing assessment. All of those both scales are valid and reliable for general nurse units, however, it's not enough to assess the complexity of patients in stroke rehabilitation units, while stroke rehabilitation unit is a specialized unit with the special patient and special needs, all of this will affect the quality of care for patients and professional development of nurses rehabilitation and minimize the role of the nurses in stroke rehabilitation units.

"Our assessment in stroke rehabilitation unit is mainly focusing on some aspects, but we lack an advanced assessment tool that reflects the complexity of patients in the stroke rehabilitation unit, and supporting the contribution of nurses in stroke rehabilitation units in comparing with other therapies assessment" Nurse 8

Lack of specific and advanced nursing rehabilitation education and competencies

Nurses reported that they have attended many educational activities during their work in stroke rehabilitation units such as Foundation course in rehabilitation and a lot of intensive in-service education, however, the majority stressed that their education is broad and not giving them a clear understanding of the specific role of the nurse in stroke rehabilitation units, and they miss the hands-on skills training to cover the patients' needs during their Journey in stroke rehabilitation units.

"We need hands-on skills rather than theoretical lectures that incorporates the clear role of nurses in a stroke rehabilitation unit" Nurse 1

"We are having a hard time with the new staffs, all new staffs should attend more specific and advanced courses to cover the complexity of patients in the unit" Nurse 7

However, Nurses are striving to provide the best care to meet the complexity of patients who are admitted in the stroke rehabilitation unit, nurses reported that were not confident enough to specify their roles in dealing with difficult patients and major complications after stroke such as cognitively impaired patients, patients with post-stroke depression, sexual dysfunction, spasticity management, contractures, global aphasia, and they referred that to the lack of specific and advanced education, competencies, skills to meet the complexity of patients in stroke rehab units.

To meet the evolving role of the nurses in stroke rehabilitation units, nurse educators and other stakeholders should review the curriculum and competencies in collaboration with academic institute, some accreditation and certification bodies and some experts people in the field to prepare specific and advances rehabilitation courses that expand and support the role of nurses and to find a strategy how to manage the evolving issues in stroke rehabilitation units and empower the nurses with the knowledge and competencies to strengthen the structure of the nursing rehabilitation contribution in the stroke rehabilitation units.

Lack of comprehensive nursing rehabilitation documentation toolkit

Many hospitals are using computerized health care systems and Qatar is one of the countries using health care systems in all their facilities. Nurses are providing a 24 hours bedside care for stroke rehabilitation units, Documentation is important for nurses, it works as evidence that their work and intervention, education was provided safely on time.

Nurses reported that despite having a computerized care system, but there is lack of standardized documentation toolkit that cover the main elements of comprehensive rehabilitation assessment, individualized care plans, patient and family engagement, functional improvement, patient and family education, patient compliance, challenges, queries, outcomes, a discharge planning updates, patient readiness for discharge, and patient and family satisfaction.

"Nursing documentation varies between nurses if there is a unified structure for the nurses that expands the role of the nurses in stroke rehabilitation units" Nurse 5

Nursing documentation in stroke rehabilitation units should define the quality of assessment and incorporate basic and advanced nursing care plans to cover the complexity of patients and, and reflect the findings on their documentation and find a strategy to specify the role of the nurse in this achievement, and do monitoring how to follow this achievement after discharge.

Technology and assistive devices and nurses

Nurses reported that much new advanced treatment is taking place in treating stroke rehabilitation. A combination of two or more new technologies may be beneficial such as using assistive devices, splints, orthotics, injection of Botulinum Toxin, Baclofen Injection pumps, participation in constrained induced training and virtual reality activities.

Nurse's interactions between the new technology and assistive devices add a challenge for nurses particularly in using and dealing with these new modalities and shaping their skills and providing evidence-based practices for their patients. Those new modalities will add more burden on the nurse's contribution in stroke rehabilitation management hence some of these modalities will be kept with the patient for the rest of day after finishing his exercise in the gym, which encompass that nurses have to be competent and qualified to educate and deal with this new equipment, and to reflect their efficiency on the functional level on daily use.

"A lot of new modalities has been used with patient nowadays, but I am not sure how to handle and manage and how to document the effect of those modalities on patient outcomes" Nurse 12

"There is a shared responsibility between therapies and nurses how to deal with the new equipment, but I didn't receive the training to handle this kind of equipment" Nurse 4

Nurses are happy about implementing new modalities in stroke rehabilitation units. Mostly they reported that implanting new modalities is a challenge for them and they are not actively involved in the decision how that new modalities are relevant to their conditions, and to how extent this new treatment is successful and beneficial for them.

Limited involvement in the decision making

Despite nurses have reported the importance of their job for the patient and other MDT members, however, they stressed that they had limited involvement in the decision making in Multidisciplinary meetings. They feel that their contribution to such meetings is limited in terms of planning, putting smart goals, and achieving outcomes, discharge order, referral, treatment modalities, and length of stay.

Multidisciplinary team members are addressing nurses with very basic care needs such as vital signs, abnormal findings, urine and bowel incontinence, psychological aspects, patient, and family needs. So, Nurses feel sometimes that their contribution is subordinate and other team members will devalue the role of the nurses in the management of stroke patients, and they

believe that nurses' role is secondary and treating them superior and they devalue the role of nurses comparing to their roles.

"I am doing a great job with my patient, but my contribution to the treatment plan is limited, they mainly focused on bowel and bladder incontinence and any abnormal findings on the patient" Nurse 1

"I feel devalued from another rehabilitation team about the contribution of nurses with patients" Nurse 7

"There is a poor endorsement from therapies about daily patients in terms of holistic rehabilitation approach, which limit my patient progress in my daily care" Nurse 3

"We are guided by doctors and therapies recommendations, we are like Puzzle" Nurse 3

Nurses reported that they have little communication with other team members about kind of treatment and exercise modalities and patient progress in terms of functional abilities, which will limit the nurse's skills to integrate the rehabilitation progress on their daily care.

DISCUSSION

The findings of this study showed more insight, more scientific and updated understanding about nurse's role in the stroke rehabilitation unit, with more focused on the experience of the nurses their challenges and their recommendations to highlight and support their role.

Nurses expressed their positive feeling in terms of working in the stroke rehabilitation unit, they are enjoying helping the patients being independent on themselves, and being discharged home with less pain and complications, and to be reintegrated to his community, social life as can as possible, however, all challenges in their work. The findings were in line with the all previous studies that address the nurse's role in stroke rehabilitation unit [17,23,29].

In contrast, nurses reported that their role is diverted from opacity to clarity, some nurses reported that there is no perceived conflict about their role, they mentioned that their role is adapting with the patient needs and they are doing their job as routine daily care for all patients with consideration to patient-centered care approach, while others reported that their role is confusing and not specific and they are just providing general nursing care, and working with everything and everywhere with no clear roles and responsibilities. These findings are already reported by previous studies that nurses are striving for visibility and to have a clear role and responsibility [3,14,30].

Nurses gave more focus on their challenges in stroke rehabilitation that burden their contribution in comparing with other rehabilitation team members, this study explored detailed challenges and some recommendations to improve the professionalism of nursing rehabilitation.

Inadequate staffing and lack of time is a major concern for all nurses worldwide, but nurses who are working in stroke rehabilitation units who are providing a patient-centered care interventions and managing the complexity of stroke patients will have the challenge to meet all patient's needs, some nurses

refereed that to the type of patients and their acuity and their level of participation and engagement with the rehabilitation team, following the practice guidelines, these findings are most relevant with other studies that [24,31,32].

Despite nurses are doing a 24 hours bedside care, collaborating with the team members in rehabilitation, however, they lack the advanced assessment scales to assess the holistic assessment and review the complexity of patients in stroke rehabilitation units and review the functional progress of the patient and how they will apply that in their daily practices. Nurses reported that their assessment is focused on the general patient needs while the other disciplines have specific tools to manage the complicity of stroke patients in stroke rehabilitation unit which will give in-depth understanding and contribution for their role while dealing with stroke patients in comparing with the nurses [24].

Nurses reported that their education and their competencies not reached the level that they are capable to manage the complexity of the patients in terms of hands-on skills and to manage the evolving issues in rehabilitation in comparison to other rehabilitation members. The acuity of patients in stroke rehabilitation units become more challenging, so nurses have to be educated and equipped to manage the complexity of stroke patients such in terms of cognitive rehabilitation, sexual rehabilitation, functional abilities, aqua therapy, spasticity management, post-stroke depression, contractures, aphasia, new medications, and their effect.

Nurses strive to become more specialized and competent in stroke rehabilitation units, nurses are trying to adopt a new model or framework to define their specific areas and to equip nurses to be competent and safe handling stroke patients [33]. Many trials have been conducted to describe the competencies for rehabilitation nursing, however, they found that nurses are not prepared and competent to manage the complexity of patients in rehabilitating settings, which will limit their role to provide high-quality services for their patients, and support the role of the nurses in stroke rehabilitation units [33-36].

Nurses reported that despite having a computerized care system that facilitates their documentation, but nurses who are working in stroke rehabilitation units referred that one of the factors that burden their role and minimize the contribution of nurses in stroke rehabilitation units is lack of standardized documentation toolkit that guide nurses to specify their role in many aspects such as psychological, social, mental, spiritual, sexual rehabilitation, aphasia management, and the cover the complexity of patients and their needs, and to help the nurses especially the new nurses to specify their role.

Nurses documentation in rehabilitation units is missing the evidence how nurses are providing care 24 hours a day and they are missing the ongoing monitoring, and patient responses, patient progress, patient engagement in the rehabilitation process, identifying the comorbidities and nurses lack the ongoing functional assessment for stroke rehabilitation patients, and lack the appropriate interventions that help nurses achieve the rehabilitation goals. No clear documentation adds more burden and a challenge on nursing rehabilitation contribution in stroke rehabilitation units [31,36,37].

Assistive devices in rehabilitation are widely used in stroke rehabilitation to maximize the patient's capabilities, improve quality of life, and reintegrate patients to their usual life as possible [38-40]. Many factors are affecting utilization of assistive devices in stroke rehabilitation, which are not limited to a budget of the health organizations and the need for patients for positive outcomes in terms of successful implementation and integration to their clinical environments [40-42].

Although assistive devices are widely used in stroke rehabilitation units by nurses, however, little research has been conducted to check the accurate comprehension of nurse's knowledge, skills, and attitudes related to proper implementation of those techniques and the impact of utilization on the functional outcomes of patients during their hospitalization in stroke rehabilitation units [32,43].

Kanaskie and Snyder conducted a qualitative study to investigate the decision making of nurses related to use assistive devices in handling and transfer of a patient in rehabilitation units, the results revealed many barriers for nurses to apply such these new technologies such as knowledge and skills how to apply those modalities in nursing care, plus the unit culture is a big barrier for implementation, also, perceived risk and harm to the patient and for nurses themselves as well, and they concluded that care needs more collaboration between rehabilitation team to proper implementation of new technology to ensure better outcomes in rehabilitation.

Our results were compatible with many studies that Nurses' involvement in the decision-making process for patients in stroke rehabilitation units is very poor, nurses are feeling subordinated and not valued, and they reported that their contribution to rehabilitation decisions is devalued compared to other roles. They feel that their contribution in such meetings is limited in terms of planning, putting smart goals, and achieving outcomes, discharge order, referral, treatment modalities, and length of stay [32,44,45].

Many studies have reported that nursing decision making in rehabilitation settings is a collaborative decision process, which means that patients, families, and the rest of rehabilitation teams have an equal contribution [46]. Nurses decision making in rehabilitation setting require strong expertise, high competencies, advanced knowledge, and the ability to adopt set of patients values and needs plus understand the risk behind taken some decisions, and the ability to manage in case the decisions were not effective and not valid [47].

Our results are in parallel with many studies to check nurses involved in the decision making in rehabilitation settings, Clarke 2014, conducted a systematic review to identify the framework for nursing rehabilitation in stroke rehabilitation units, she found that nursing involvement in management stroke in rehabilitation units was very limited, she found that nursing rehabilitation services contingent on the nursing time available plus the adequate of staffs in the shift. There is a separation between nursing staff and therapy work. She reported that nursing education and skills are not consistent or systematic manner to manage the complexity of patients which will affect the role of nurses in stroke rehabilitation units and add

confusion for patients' families and therapies about the core value of nursing contribution in stroke rehabilitation management [3].

Nurses in stroke rehabilitation units are working hard with patients and families to ensure the best care is provided. Nurses decision making in the stroke rehabilitation process is a dynamic process that includes incorporating all team recommendations to reflect that on patients outcomes, however, nurses need to restructure the decision making to make sound decisions and to be more independent and self-reflective to be more therapeutically effective to patients and their families to develop the contribution of nurses in the stroke rehabilitation units.

CONCLUSION

The study provided evidence that nurses believe in themselves as effective team members in stroke rehabilitation, and they are enjoying while helping patients to recover to allow them to reintegrate and adapt to their new life situations. However the study highlights the main nursing obstacles in stroke rehabilitation units that make nursing role is a challenge and affect the contribution of nurses in stroke rehabilitation units; nurses perception about their role varied from clarity to opacity, but the majority believe that their role is complex job since you have to do with everyone and doing everything. Inadequate staffing and lack of time is a challenge for nurses everywhere, but due to the special needs for patients in stroke rehabilitation units, this is adding more burden on the complexity of the nurse's load. Nurse's endorsement is focusing on the physical aspects only with little attention to a holistic approach and endorsement. Lack of specific and advanced educational activities to prepare nurses to meet the patient's needs in stroke rehabilitation units, all research studies which were done before have focused on the importance to modify and transform the educational activities for nurses to equip them to handle the complexity of patients. Lack of documentation toolkit to guide nurses on how to reflect their contribution to stroke rehabilitation units is one of the main challenges that reflect the disparities between nurses' documentation in a stroke rehabilitation unit. Nurses have to be more competent in handling the revolution in the assistive devices that have recently used to manage the complexity of patients' needs. Limited involvement of nurses in the decision making in stroke rehabilitation adds a lot of psychological impact on the nurse that lets them feel that their role is little sign in comparison with other disciplines.

RELEVANCE TO CLINICAL PRACTICE

Nursing rehabilitation still strives for visibility for many decades, all previous studies have failed to rearticulate the theoretical and practical framework to transform the nursing rehabilitation model in clinical practice. Nurses confront the same challenges which are found by other studies. Nursing contribution in stroke rehabilitation units should be clearer and stronger, nurse's role in stroke rehabilitation units should not be limited to meet the physical aspects of the patients, and nurses have to be more independent and confident in terms of assessment and planning and intervention evaluating and to reflect that on the patient functional outcomes. I believe that the current scope of

nursing rehabilitation is very limited and nurses have to create and adopt a new framework to transform the current theoretical and clinical scope of the role of the nurses in stroke rehabilitation units.

Nurses have to adopt new knowledge and competencies in collaboration with other disciplines such as occupational therapies, physical therapy, and speech therapy, to upgrade their assessment and intervention that enable the nurses to provide systematic and therapeutic feedback about the patient progress and the proper interventions that needed to reflect that on the functional abilities on discharge.

Nurses' leaders have to adopt new strategies to equip nurses who are working in rehabilitation settings to ensure that they are capable to handle the complexity of patients in stroke rehabilitation units. I do suggest that cross-training between nurses and other disciplines is very essential to orient the nurses about other disciplines' roles, assessment tools, intervention, and follow up plans. Providing specific and advanced training courses that address the hands-on skills will help the nurses to identify the importance of their role and let the other disciplines recognize that nurses' input is valid, and their involvement in clinical decision making is very essential.

Future nursing rehabilitation studies are recommended to articulate the evolving role of nursing rehabilitation in stroke units, and to be cope and adapt with the post-discharge needs and the emerging rehabilitation services and technologies, moreover, nurses they have to clear and specify their specific bedside care and interventions.

LIMITATIONS

This study was conducted in one place in Qatar, with a limited participant number. All study participants are bachelor's degrees so all Diploma nurses were exempted, so another study has to identify the diploma nurses' perceptions about working in stroke rehabilitation units and the difference between the role of Bachelor's degree nurse and diploma nurses. This study investigated the role of the nurses in inpatient stroke rehabilitation units only, however, nurses are working with stroke patients in acute hospitals, outpatients, daycare rehabilitation, nursing homes, and long-term facilities, and their role should be investigated to enrich the role of the nurses in stroke rehabilitation units in General. So, it is therefore important to acknowledge that all these limitations should be considered to draw a conclusion and generalize the study results.

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