

The Role of Ventricular Assist Device Coordinator Nurse in Saudi Arabia

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Abstract

Background: The Ventricular Assist Device (VAD) Coordinator Nurse plays a vital role in managing patients with end-stage heart failure requiring mechanical circulatory support. However, limited research exists on the specific responsibilities and contributions of VAD coordinators, particularly in Saudi Arabia. Understanding their roles and impact on patient care and organizational outcomes is crucial for healthcare improvement. **Objective:** This study examined the role of VAD Coordinator Nurse in Saudi Arabia by describing the role characteristics, including demographic information, qualifications, compensation, job preparation, work setting and responsibilities, scope of practice, contributions to patient care, and organizational outcomes. **Methods:** A descriptive study was conducted to explore the roles of VAD Coordinator Nurses in Saudi Arabia. A survey instrument developed by Casida (2011) was used to collect data from VAD coordinators working in Saudi Arabian centers offering VAD services. Convenience sampling was employed, and the survey was distributed electronically through the hospital's email system. Descriptive statistics, including percentages and frequencies, were calculated using the Statistical Package for the Social Sciences (SPSS). **Results:** The study involved VAD coordinators with an average age of 36.47 years, predominantly male (60%), and Arab (80%). Most participants held a bachelor's degree (60%) and had previous experience as staff nurses. Findings revealed that VAD Coordinator Nurses have diverse responsibilities, including patient monitoring, VAD performance evaluation, medical emergency management, and coordination of ancillary tasks. **Conclusions:** This study highlights the dynamic and multifaceted roles of VAD Coordinator Nurses in Saudi Arabia. They play a crucial role in bridging the technical and clinical aspects of VADs, ensuring optimal patient care, and contributing to positive organizational outcomes. Understanding their demographics, qualifications, responsibilities, and contributions is essential for healthcare policies and job preparation enhancements. Future research should address challenges faced by VAD coordinators and support their professional growth in delivering high-quality care to patients with end-stage heart failure.

Keywords: VAD Coordinator, MCS Coordinator, End-Stage Heart Failure, Mechanical Circulatory Support, Ventricular Assist Device.

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INTRODUCTION

The utilization of Ventricular Assist Devices (VADs), a form of mechanical circulatory support (MCS), has become a standard therapy for patients with end-stage heart failure, either as a bridge to transplantation or an alternative treatment. Over the past two decades, there has been a significant increase in scholarly publications focusing on VAD advancements,

patient care, management, and research findings (Casida & Ilacqua, 2011).

The role of VAD coordinators, who possess technical, clinical, and systems knowledge, is crucial in MCS programs. These coordinators oversee patient care, ensure compliance with regulatory requirements, and facilitate effective communication among team members (Christensen *et al.*, 2017). Originating in the early to mid-1990s, VAD coordinators were introduced to bridge

the gap between the technical and clinical needs of patients requiring long-term circulatory support outside of the operating room (Christensen *et al.*, 2017). VAD coordinators typically have backgrounds in nursing, medicine, perfusion, or biomedical engineering.

The initial survey conducted in the United States highlighted the important roles and skills required of nurses in the MCS program. VAD coordinators play a critical role in ensuring the success of MCS therapy by adequately preparing patients and caregivers for self-care. Their responsibilities include patient monitoring, evaluating VAD performance, and managing medical emergencies. VAD coordinators are often sought after as a primary resource for patients, families, and healthcare team members seeking support and information about MCS devices (Casida & Ilacqua, 2011).

The survey emphasized the growing need for MCS nurses to have a better understanding of their roles due to the increasing demand for MCS, the rise in VAD implants, and the prevalence of heart failure risk factors. However, despite potential job market improvements, there is a lack of research focusing on this vital group. Enhancing the understanding of their roles could empower nurses to contribute more effectively (Casida & Ilacqua, 2011). Therefore, this study aimed to examine the role of the VAD coordinators in Saudi Arabia by describing the role characteristics, including demographic information, qualifications, compensation, job preparation, work setting and responsibilities, scope of practice, contributions to patient care, and organizational outcomes.

LITERATURE REVIEW

Ventricular Assist Device (VAD)

Continuous flow technology has revolutionized the field of Ventricular Assist Devices (VADs), making them a widely utilized treatment option for patients with advanced heart failure. These devices have undergone significant improvements in terms of efficiency, size, implantability, extended support, and overall outcomes, leading to better patient outcomes (Rodriguez et al., 2013).

In Arab countries, heart transplantation rates remain low due to factors such as a lack of laws, social stigmas, and religious restrictions. However, Saudi Arabia, among other countries in the region, has established successful heart transplantation centers with comparable success rates to those in Western countries. As an alternative to transplantation, long-term MCS programs, including VADs, have been implemented in Saudi Arabia (Elasfar et al., 2020). However, the implementation of these programs faces challenges such as patient satisfaction, drive line issues, physician awareness, and late referrals. These obstacles are primarily logistical rather than financial and addressing them is crucial for optimizing the effectiveness of long-term MCS programs in the region.

Role VAD Coordinator

The role of the VAD coordinator is of utmost importance in establishing a vital connection between the technical aspects of the VAD and the patient's medical care, making their position indispensable within the MCS program. VAD coordinators come from diverse backgrounds, including registered nurses, advanced practice prescribers, biomedical engineers, or perfusionists. Despite their varied backgrounds, VAD coordinators serve as versatile professionals, overseeing a wide range of technological, clinical, and health system components that contribute to the success of a VAD program (Joyce & Joyce, 2020).

In addition to their primary responsibilities, VAD coordinators also handle various ancillary tasks that are crucial for the efficient operation of the hospital (Joyce & Joyce, 2020). These tasks encompass conducting equipment inspections, meticulously documenting device serial numbers, managing hardware inventory, and ensuring accurate coding and charging of VADs in accordance with the hospital's protocols. Moreover, VAD coordinators may be entrusted with the responsibility of ordering and managing MCS program hardware, including systems for dispensing, tracking, and inventory management. The recorded serial numbers play a vital role in facilitating recalls, identifying malfunctions, and supporting research initiatives.

Furthermore, as noted by Joyce and Joyce (2020), the VAD coordinator may assume the responsibility of promptly reporting any damaged equipment to the manufacturer and making informed decisions regarding patient charges or warranty claims. They may also serve as couriers, ensuring the timely return of borrowed supplies to vendors and their delivery to the appropriate suppliers (Joyce & Joyce, 2020). Additionally, the VAD coordinator plays a pivotal role in promptly notifying patients affected by recalls, facilitating prompt equipment replacements, and providing updated training to both patients and caregivers. Moreover, the VAD coordinator exercises discretion in determining which individuals require education about VADs and who should receive direct training to ensure the effective and safe handling of these complex devices (Joyce & Joyce, 2020).

VAD Program Structure

The development and increased utilization of VAD technology have led to the establishment of well-defined structures within VAD programs, with specific key members playing essential roles. While the composition of personnel may vary across institutions, successful VAD programs typically consist of core individuals (Christensen *et al.*, 2017). These core members include a cardiac surgeon, a heart failure cardiologist, a VAD coordinator, and a palliative care specialist. Collaborative teamwork among these core members is crucial for the effective functioning of the VAD program (Christensen *et al.*, 2017).

Beyond the core team, the involvement of professionals from various disciplines is vital for the comprehensive management of VAD patients. Christensen *et al.*, (2017) emphasize the significance of interdisciplinary collaboration, which entails the inclusion of experts from fields such as psychiatry, social work, psychology, pharmacy, nutrition, occupational therapy, physical therapy, rehabilitation services, finance, research, and equipment specialists. The expertise and contributions of these professionals are essential in addressing the multifaceted needs of VAD patients. This comprehensive approach encompasses not only the patients' medical requirements but also their psychosocial, emotional, financial, and rehabilitative needs (Christensen *et al.*, 2017).

The interdisciplinary collaboration allows for a holistic approach to patient care, ensuring that all aspects of the patient's well-being are addressed. For instance, psychiatric professionals can provide support for patients dealing with mental health challenges, social workers can assist with navigating social and financial issues, and rehabilitation specialists can aid in physical recovery and enhancing quality of life. The involvement of experts from various fields ensures a comprehensive and patient-centered approach to VAD care (Christensen *et al.*, 2017).

Suitable Staffing Model for The MCS Program

Selecting the appropriate staff model is crucial for maximizing staff performance in a program. This involves a thorough evaluation of job requirements and available human resources. The quality of patient care relies on receiving continuous care from competent professionals. There is a significant relationship between the patient-to-coordinator ratio and the occurrence of adverse events, morbidity, and mortality (Brogan *et al.*, 2022). Additionally, the workload of coordinators has been found to impact clinical outcomes, as it is linked to the severity of patients' conditions. Therefore, careful consideration of staffing ratios and workload allocation is essential for ensuring optimal patient outcomes and well-being (Brogan *et al.*, 2022).

METHODOLOGY

Study Design:

We used a descriptive research design involving a survey instrument developed by Casida (2011) (Casida & Ilacqua, 2011). The participants were invited to participate in the study by completing a self-administered questionnaire, which was done 'paperless' through RedCap to minimize infection transmission. The questionnaire collected information on demographic characteristics, employment characteristics, eligibility and role preparation, scope of practice, and professional practice issues. Statistical analysis was performed using the SPSS.

Study Site: Active VAD centers in Saudi Arabia.

Sample Population:

This study focuses on VAD coordinators working in Saudi Arabian centers that offer VAD services.

Recruitment:

We included all the active VAD centers across the kingdom of Saudi Arabia. An online survey was sent to VAD coordinator nurses working at those centers through email, arranged with the collaboration of the hospital's internal communication channels.

Data Collection:

We obtained written approval and an email copy of the survey from the primary author and distributed it to participants through the hospital's email system. The survey, which was taken directly from a previous study on the same subject, aimed to establish the content validity of the survey instrument. To ensure the validity, a group of experienced Advanced Practice Nurses (APNs) and Registered Nurses (RNs) with extensive expertise in MCS programs across different regions in the United States were convened. The final version of the survey included five sections covering demographics, employment, scope of practice, perceived contribution to patient outcomes, and professional practice issues (Casida & Lacquer, 2011). Data collection commenced on January 1, 2023, and was completed by the end of May 2023.

Eligibility Criteria

Inclusion criteria

1. The VAD coordinator working with in active VAD centers in Saudi Arabia.

Statistical Considerations:

The research principal investigator collected the electronically distributed questionnaire responses from the VAD coordinators. Descriptive statistics and summarized tables of the data were presented, and statistical analysis was performed using the SPSS for data entry and analysis. The research investigator calculated the percentages and frequencies for all nominal variables for the different items.

Ethical Considerations

The study followed ethical guidelines to ensure participant protection and confidentiality. Informed consent was obtained from participants, emphasizing their voluntary participation and the option to withdraw at any time. Participant information was treated with strict confidentiality and accessible only to the research team. The study received ethical approval from three participating centers: King Faisal Specialist Hospital and Research Center (RAC#2231023), King Fahad Medical City (RAC#23-077), and Prince Sultan Military Medical City in Riyadh, Saudi Arabia.

RESULTS

Demographic and Employment Characteristics

The average age of the participants was 36.47 years. 60% were male and 40% were female. 80% identified as Arab and 20% as Asian. 13.3% were single, 60% were married, and 26.7% were divorced. 53.3% were Clinical Specialists, 26.7% were VAD/Heart Transplant Coordinators, and 6.7% were Nurse Practitioners. 60% held a bachelor's degree, 33.3% had a master's degree, and 6.7% had a Diploma. All participants had previous experience as staff nurses

(Table 1). RNs had an average experience of 7.40 years, VAD RNs/APNs had an average experience of 2.08 years, and APNs had an average experience of 0.09 years. All participants were employed full-time at a tertiary/teaching hospital with a heart transplant program. On average, the hospital performed 19.14 VAD implants per year. The VAD RN/APN position was primarily listed under the nursing department (73.3%) and the heart failure/transplant department (26.7%). Most RNs reported directly to a nursing administrator (86.7%), while a smaller percentage reported to a collaborating physician (13.3%).

Table 1: Demographic Characteristics

Variables	N	%
Gender		
Male	9	60 %
Female	6	40 %
Race/Ethnicity		
Arab	12	80 %
Asian	3	20 %
Marital Status		
Single	2	13.3 %
Married	9	60 %
Divorced	4	26.7 %
Official Title		
Clinical Specialist	8	53.3 %
VAD/Heart Transplant Coordinator	4	26.7 %
Nurse Practitioner	1	6.7 %
Level of Education		
Bachelor's degree	9	60 %
Master's degree	5	33.3 %
Diploma	1	6.7 %

Work Characteristics

The study findings revealed significant insights into the workload and dynamics of VAD coordinators. In the inpatient setting, VAD coordinators had an average caseload of 5.80 patients per week, while in the outpatient setting, the average caseload was 4.33 patients (Table 2). New patient visits averaged 2.20 visits in the inpatient setting and 1.87 visits in the outpatient setting. Return visits or follow-ups showed an average of 2.33 visits in the inpatient setting and 2.13 visits in the outpatient setting. The involvement of physicians in

patient care was notable, with an average of 3.40 physicians in the inpatient setting and 2.53 physicians in the outpatient setting (Table 2). The nurse-to-patient ratio was reported as 1:3 for inpatient care and 1:4 for outpatient care, indicating the workload distribution among healthcare providers. Participants reported an average of 47.07 working hours per week, reflecting the demanding nature of their responsibilities. It is noteworthy that all participants received a fixed salary, and 26% of them reported receiving additional compensation for taking calls as overtime.

Table 2: Work Characteristics

Work characteristics	In Patient	Outpatient
Caseload per week (number of patients)	5.80	4.33
Direct patient/family care hours per day		
New patient visit	2.20	1.87
Return visit or follow-up	2.33	2.13
Number of physicians in patient care setting	3.40	2.53

Job Requirements

The study findings revealed that VAD coordinators typically required a bachelor's degree (60%) or a Diploma in Nursing (6.7%). All participants agreed on the importance of basic and advanced

cardiovascular life support training. In terms of clinical experience, 80% of employers specified a minimum of 2 years of experience in cardiac surgery or critical care.

Role Preparation

The study findings provided insights into the preparation of the VAD coordinators in various aspects. Orientation methods varied among participants. Didactic training: 20%. Simulation 20%. Clinical experience 86.7%. Observation 73.3. Other training methods 33.3%.

Topics covered during orientation: Basic science 86.7%. Biomedical engineering concepts 13.3%. VAD physiology/mechanics 93.3%. VAD initiation, maintenance, troubleshooting 80.0%. Surgical techniques/procedures 46.7%. Diagnosis and management of patients with 93.3% overall. Additional topics included coding/billing, case management, quality improvement, heart transplantation, organ donation, procurement, palliative care, and end-of-life care.

Scope of Practice

The study findings revealed that VAD coordinators have a wide scope of practice across

different healthcare settings (Table 3). They are heavily involved in direct patient care, particularly in ICUs and PCUs. They also play a significant role in outpatient clinics. They have a participation rate of 67% in the operating room. VAD coordinators contribute their expertise in hospital and community settings. Education is a crucial aspect of their practice, as they provide guidance and support to various individuals. Nurses actively participate in research activities, including IRB document preparation, subject recruitment, data collection, and research protocol development. Some nurses also take on roles as principal investigators, co-investigators, and research assistants. Leadership and administrative responsibilities are also evident in nursing practice, with nurses overseeing compliance, managing MCS programs, performing financial management tasks, engaging in strategic planning, and participating in community outreach/public relations initiatives.

Table 3: VAD Coordinator's Scope of Practice

Feature	All	
	N	%
Direct patient care provided in		
Intensive care unit	11	73
Progressive care unit	14	93
Outpatient clinic	15	100
Operating room	10	67
Provide patient care on the "day of transplant"	8	53
Provide palliative care	5	33
Provide end-of-life care	5	33
Consultant/Clinical expert for		
Hospital	14	93
Community	11	73
Educator		
Patient and caregivers	15	100
Nursing staff	15	100
Other healthcare professionals	13	87
First responders	11	73
Community	6	40
Other (eg, long-term care facility)	11	73
Researcher		
Prepare and submit IRB documents	3	27
Recruit subjects	5	33
Collect data	7	47
Manage data	7	47
Develop research protocol	7	40
Principal investigator	3	27
Co-investigator	5	33
Research assistant	4	27
Develop and implement quality/performance improvement projects	12	80
Leader/administrator		
Lead the oversight for compliance with regulatory agency	3	20
Day-to-day operation of MCS program	6	40
Financial management	1	6.7
Strategic planning	4	27
Community outreach/public relations	6	40

General Patient Care and Related Activities Performed

In the domain of patient care, VAD coordinators are responsible for conducting comprehensive health history assessments. They assess patients' readiness for discharge and manage common health problems. In terms of procedures, they initiate nursing diagnoses and medical diagnoses. VAD coordinators also collaborate with healthcare professionals in ordering laboratory tests and interpreting the results.

In terms of management and intervention, they actively participate in daily patient rounds and assist in preparing patients for surgery. They also contribute to implementing VAD patient protocols and developing care protocols specific to MCS/VAD. Additionally, they share the responsibility of admitting and discharging patients, and are involved in writing progress notes and discharge summaries.

VAD-specific procedures and tasks frequently performed

The study findings provided insights into the tasks and procedures carried out in the care of VAD patients. One of the typical responsibilities was troubleshooting VAD alarms and addressing problems 93.3%. Monitoring and maintaining the VAD system in both the patient care unit and operating room 93.3% and

66.7% respectively. The care of wounds and drivelines, critical for preventing infections and ensuring the integrity of the VAD system 73.3%. Managing hemodynamic parameters, involving monitoring, and optimizing the patient's cardiac function 80%. Assisting with VAD implants, a complex surgical procedure 86.7%. However, tasks such as maintaining VAD inventories and supplies, setting up and preparing the VAD system in the operating room, and assisting with VAD explants or removals were primarily carried out by RNs. The participation rates for these tasks ranged from 69.2% to 84.6%, indicating the significant responsibility of RNs in managing the logistical aspects of VAD care.

Contributions to Patient Care and Organizational Outcomes

The study findings revealed that VAD coordinators made valuable contributions to patient care and organizational outcomes (Figure 1). VAD coordinators were effective in reducing hospitalization days (86.7%), readmission rates (93.3%), device malfunctions (80%), and post-operative complications (80%). They also improved patient care quality (86.7%), staff nurse competency (73.3%), and patient quality of life (93.3%). Additionally, they enhanced patient and family satisfaction (93.3%), patient adherence to therapy (86.7%), and patient referrals (60%). They also increased the volume of VAD cases (26.7%).

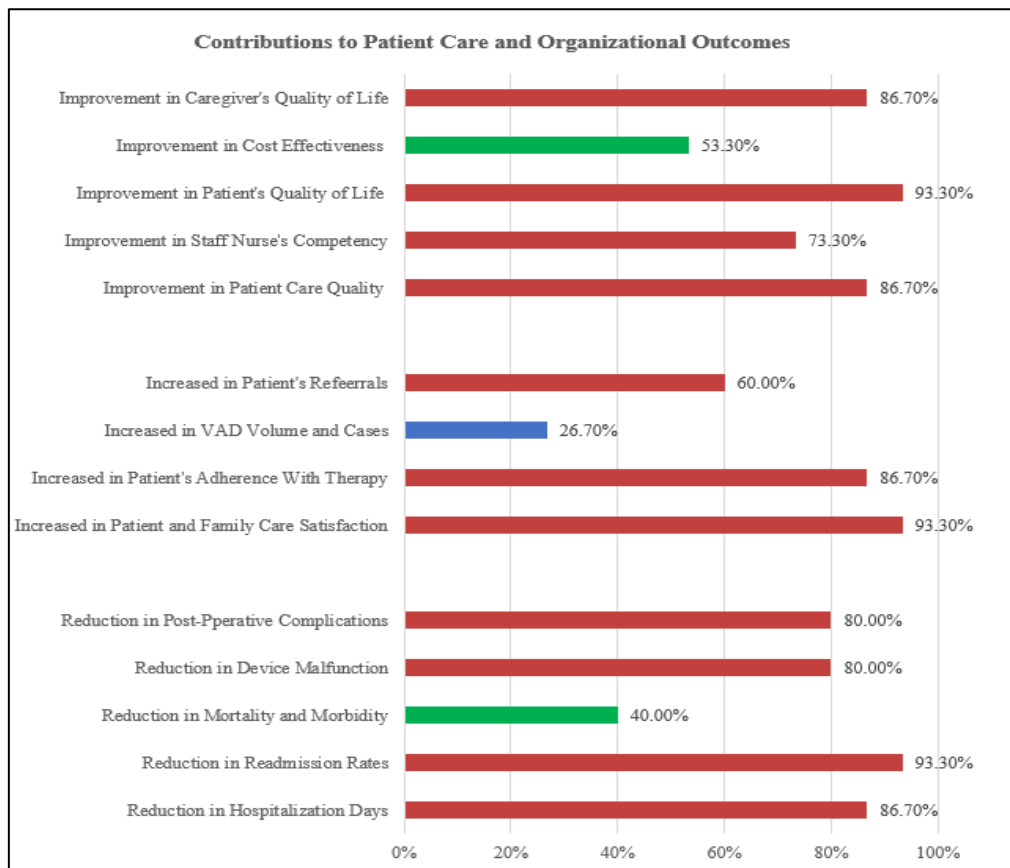


Figure 1 VAD Coordinator Contributions to Patient Care and Organizational Outcomes

Barriers to Practice and Professional Issues

The study findings revealed barriers to practice, and professional issues faced by VAD RNs and APNs. These barriers hindered the implementation and management of VAD programs. Communication barriers, inadequate training, and managing patients on ECMO and VAD were identified as challenges. Issues related to workload, compliance, language barriers, and lack of knowledge and regular workshops were reported. Participants expressed the need for guidelines, policies, competency frameworks, and more courses and workshops to enhance their skills. Professional issues included the need for official training and certification as VAD coordinators, challenges related to workload and learning opportunities, and the availability of local training and sufficient stock. Participants emphasized the importance of continuous education programs, workshops, financial support, and professional development in the field of VAD. They highlighted the absence of specific certification for VAD coordinators and the need for a housing allowance for on-call duties. Addressing these barriers and professional issues through training programs, guidelines, policies, education opportunities, and support for professional growth can improve VAD practice.

DISCUSSION

The role of VAD coordinators is to provide comprehensive care for patients with VADs. VAD Coordinator Nurses bring their nursing expertise to assess patients' conditions, monitor their progress, and manage complications. They deeply understand cardiovascular health and the unique needs of patients with advanced heart failure. This allows them to deliver high-quality, patient-centered care to VAD recipients (Rodriguez *et al.*, 2013).

VAD Coordinator Nurses are the main point of contact for patients and their families throughout the VAD journey. They provide education, support, and help in understanding the procedure, post-operative care, and lifestyle adjustments. Building rapport and maintaining open communication is crucial for patient satisfaction and adherence to the treatment plan. VAD Coordinator Nurses advocate for their patients, ensuring their voices are heard and concerns addressed. Hlozek (1995) described how the VAD coordinator nurse provides sustained and coordinated care to VAD patients, including assembly and insertion of the VAD pump during surgery and troubleshooting post-operatively (Hlozek, 1995).

In addition, VAD Coordinator Nurses play a pivotal role in coordinating the multidisciplinary team involved in VAD care. They collaborate closely with cardiac surgeons, heart failure cardiologists, and other healthcare professionals to develop individualized care plans and ensure seamless transitions between different stages of the VAD process. Effective communication and collaboration among team members are essential for

optimizing patient outcomes, and VAD Coordinator Nurses facilitate this coordination (Hlozek, 1995).

The study emphasizes the importance of VAD Coordinator Nurses in ensuring regulatory compliance and best practices. These nurses are responsible for accurate documentation and regulatory compliance (Hlozek, 1995).

Furthermore, VAD Coordinator Nurses contribute to the overall efficiency of VAD programs by managing logistical aspects of care. They oversee equipment inspections, inventory management, and coordination of resources, ensuring that necessary supplies and devices are readily available when needed. Their organizational skills and ability to manage these logistical aspects contribute to the smooth functioning of VAD programs. These additional responsibilities contribute to the hospital's smooth functioning and the MCS program's overall success (Rodriguez *et al.*, 2013).

The study emphasizes the important role of VAD Coordinator Nurses as experts in VADs. They are sought after for their expertise by patients, family members, and healthcare team members, providing guidance and support on VADs. Their proficiency in handling emergencies, monitoring VAD performance, and providing education and training to patients and caregivers is crucial for the well-being of patients receiving MCS therapy (Rodriguez *et al.*, 2013).

Regarding the structure of VAD programs, this study highlights the critical team members needed for an effective program. These include a cardiac surgeon, a heart failure cardiologist, a VAD coordinator, and a palliative care specialist. Other professionals from fields like psychiatry, social work, pharmacy, and rehabilitation services are also essential for the comprehensive care of VAD patients.

VAD Coordinator Nurses play a vital role in successfully operating VAD programs. However, they face barriers such as limited resources and support systems. The complex nature of VAD care requires specialized equipment, adequate staffing, and ongoing training. Resource constraints and limited funding can hinder optimal care and impede professional growth. Legal and regulatory frameworks surrounding VAD care add to the challenges. VAD Coordinator Nurses must navigate ethical and legal considerations, such as informed consent, patient privacy, and end-of-life decision-making. Clear guidelines and support from legal and ethics experts are necessary to assist them in making well-informed decisions.

Language barriers in healthcare challenge patient satisfaction, quality of care, and safety (Wolz 2015). VAD Coordinator Nurses face challenges due to language differences in multicultural healthcare settings. Patients with limited English proficiency are less

satisfied and understand treatment (Rosse 2016, AlShamsi 2020). Miscommunication can have significant consequences in healthcare, including medication errors, incorrect diagnoses, and lack of informed consent (Rosse, 2016, Timmins, 2002). Additionally, language or communication barriers can negatively affect the quality of medical care and impact relationships between patients, healthcare providers, and healthcare facilities (Slade & Sergent, 2023). Non-English-speaking patients have higher odds of hospital readmission, indicating potential gaps in discharge planning or follow-up (Karliner 2010). Providers need education on cultural diversity and working with interpreters (Timmins 2002, Makovhololo 2020).

Additionally, VAD Coordinator Nurses may face professional challenges regarding role clarity and recognition in their field. By achieving professional role clarity through role redefinition and reformation, nurses can experience increased work engagement. Conversely, role ambiguity can have detrimental effects, including heightened stress levels, reduced organizational commitment, job dissatisfaction, burnout, and an increased likelihood of leaving the profession (Cengiz *et al.*, 2021). Therefore, establishing role clarity can positively impact job satisfaction among nurses. The evolving nature of the VAD coordinator role can lead to ambiguity in job expectations and responsibilities. Establishing clear role definitions and providing opportunities for professional growth and advancement can help address these issues and enhance the effectiveness of VAD Coordinator Nurses. Standardizing the role of VAD Coordinator Nurses and establishing a unified job description and official title in Saudi Arabia is crucial for optimizing VAD care. Recognizing the importance of this role and creating a standardized framework can lead to improved collaboration, enhanced patient outcomes, and a more efficient healthcare system. Unifying the official title among hospitals makes identifying and recruiting qualified VAD Coordinator Nurses easier, ensuring the right expertise is available to meet the growing demand for VAD care. A standardized job description provides clarity and consistency in the expectations and responsibilities of VAD Coordinator Nurses, facilitating effective communication and teamwork among healthcare providers. Ultimately, this recognition and standardization contribute to elevating the quality of VAD care in Saudi Arabia and promoting the professional growth and development of VAD Coordinator Nurses.

Interdisciplinary collaboration can present challenges and conflicts within the healthcare team. VAD Coordinator Nurses work closely with various healthcare professionals, and differences in opinions, communication breakdowns, and conflicts of interest can arise. Health professionals must manage relationship dynamics and challenges to work together. Strategies such as regular team meetings, open communication channels, and conflict resolution protocols are essential

for fostering effective collaboration and maintaining a supportive work environment (Leever, 2010).

Furthermore, VAD Coordinator Nurses may face emotional and psychological challenges. Caring for patients with advanced heart failure, witnessing their struggles, and being involved in end-of-life decisions can take an emotional toll on nurses (Akbarian-Rokni *et al.*, 2023). Adequate emotional support, including counseling services and debriefing sessions, is essential to help VAD Coordinator Nurses cope and prevent burnout (McFarland & Hlubocky, 2021).

Recognizing and addressing these barriers and professional issues is crucial for supporting VAD Coordinator Nurses and ensuring high-quality care to VAD patients. Healthcare institutions should prioritize providing necessary resources, clarifying role expectations, fostering interdisciplinary collaboration, offering language services, and providing emotional support to enhance the effectiveness and well-being of VAD Coordinator Nurses. By addressing these challenges, healthcare systems can optimize the role of VAD Coordinator Nurses and improve patient outcomes in VAD programs.

The study provides insights into the responsibilities, qualifications, and contributions of VAD Coordinator Nurses in the evolving field of MCS. These insights can help Saudi Arabian healthcare institutions optimize the role of VAD Coordinator Nurses, improving patient care and organizational outcomes.

However, there are limitations in this study. The sample size was small, which may limit generalizability. Future research with a more extensive and diverse sample could provide a better understanding of the role of VAD coordinator nurses in Saudi Arabia. This study only focused on VAD coordinators in Saudi Arabian centers. Including perspectives from other healthcare professionals and patients could enhance understanding of the role dynamics and its impact on patient outcomes.

CONCLUSION

The role of the VAD Coordinator Nurse in Saudi Arabia is crucial for the success of MCS programs. This study examines their characteristics, responsibilities, and contributions to patient care. VAD coordinators bridge the technical aspects of VADs with medical care, ensuring patient and caregiver preparedness, monitoring VAD performance, handling emergencies, and providing support. A well-defined interdisciplinary VAD program structure involving core members and professionals from various fields is essential. Adequate staffing and resources are crucial for high-quality care. This study emphasizes the significant contributions of VAD Coordinator Nurses in Saudi Arabia.

Table of Abbreviations

APN	Advanced practice nurses
BSN	Bachelor of Science in Nursing
ECMO	Extracorporeal Membrane Oxygenation
HF	Heart Failure
ICU	Intensive care units
IRB	Institutional review board
MCS	Mechanical Circulatory Support
PCU	Progressive care units
RN	Registered nurses
RNFA	Registered nurse-first assistant
SPSS	Statistical Package for the Social Sciences
VAD	Ventricular Assist Device

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