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Original Article

Level of Nurses Knowledge Regarding Heart Failure Education in Three Major Hospitals of Peshawar

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ABSTRACT

Background: Heart failure poses a significant global health burden, with increasing prevalence and mortality, particularly in low- and middle-income countries like Pakistan. Nurses' knowledge in heart failure management is crucial for effective patient care and education.

Objective: This study aimed to quantitatively assess the knowledge of nurses regarding heart failure education in three major hospitals of Peshawar, Khyber Pakhtunkhwa.

Methods: A cross-sectional study was conducted from November 2015 to April 2016 among 100 registered nurses in the cardiology departments of Lady Reading Hospital, Hayatabad Medical Complex, and Khyber Teaching Hospital, using a multi-stage sampling technique. Data were gathered via a structured questionnaire, categorizing knowledge into "Poor," "Good," and "Very Good."

Results: Of the participants, 57% demonstrated "Very Good" knowledge in heart failure education. Specific findings included 55% incorrectly advising high fluid intake for heart failure patients and 37% underestimating the impact of lifestyle changes and medication adherence on disease management. Additionally, 27% of nurses suggested inappropriate medication use, like NSAIDs for heart failure patients.

Conclusion: While a majority of the nursing staff showed a commendable level of understanding in heart failure education, significant gaps in knowledge were evident. The findings underscore the need for enhanced and continuous education to bridge these gaps and align nursing practices with international standards.

Keywords: Heart Failure, Nursing Knowledge, Cardiology Education, Healthcare, Pakistan, Knowledge Assessment.

INTRODUCTION

Heart failure, a critical condition where the heart struggles to pump blood efficiently, is a growing global health concern. It impacts vast populations worldwide, with about 357,000 cases reported in the United States alone in 2015. The mortality rate of heart failure is alarmingly high, with 70% to 90% of patients dying before reaching the hospital (3). The World Health Organization (WHO) has identified heart diseases as leading causes of death, accounting for 17.7 million fatalities annually, which is 31% of global deaths. Notably, over 75% of these deaths occur in low- and middle-income countries (4).

The American Heart Association's 2018 report highlights a worrying trend: an expected 46% increase in heart failure cases by 2030 (5). Age is a significant risk factor, with a 50% prevalence in individuals over 70 years, attributed to weakening heart muscles and reduced contractility (6). Beyond the personal toll, heart failure imposes a substantial burden on healthcare systems, costing over $39 billion annually in the U.S. (7). In Pakistan, heart failure is responsible for 32% of deaths, with the risk of coronary heart disease (CHD) increasing by 4% each year (8).

Modern healthcare increasingly focuses on preventive measures for heart failure, emphasizing lifestyle modifications and exercise. However, heart failure patients face severe complications, including stroke and thromboembolic events (9). Major risk factors include arterial hypertension, coronary artery disease, diabetes mellitus, and obesity, with a higher prevalence in Pakistani females (55%) compared to males (10).

Early-stage heart failure can often be managed effectively with standardized medical treatments, reducing complications and the need for hospitalization. Advanced stages, however, lead to frequent hospital admissions and increased mortality (1). Management

strategies for heart failure are patient-specific, with a strong emphasis on healthy living, diet, habits, and regular medical follow-ups (11).

Nurses play a pivotal role in the healthcare system, particularly in the management and recovery of heart failure patients (12). They are crucial in educating patients about lifestyle changes, diet, precautions, and follow-ups. Studies have shown that patient outcomes improve significantly when they receive education and guidance from cardiology nurses on daily activities, lifestyle, medication, and follow-ups (13). Specialized nursing care has been linked to reduced hospital costs, shorter hospital stays, and fewer unplanned readmissions (14).

Nurses' understanding of heart failure guidelines is vital for effective patient education. An educational session can enhance a nurse's knowledge about heart failure by up to 13% (15). However, studies indicate that 72% of nurses in cardiology units possess only average knowledge, and 25% have very low knowledge of these guidelines (16).

In Khyber Pakhtunkhwa, data on nurses' knowledge about heart failure education is scarce. Similarly, in Pakistan, there is limited information on this aspect of nursing education. Given the significant role of nurses in health education, it is crucial that they possess comprehensive knowledge about heart failure to effectively counsel and educate patients.

The rationale for this study was driven by the critical need to address the rising prevalence and impact of heart failure, particularly in Khyber Pakhtunkhwa, Pakistan. Recognizing nurses' crucial role in patient management and education, the objective of the study was to assess the knowledge of nurses in three major hospitals in Peshawar regarding heart failure education. This assessment aimed to identify educational gaps and improve nursing practices, ultimately enhancing patient care and management in the face of this growing health challenge.

MATERIAL AND METHODS

This cross-sectional study, conducted between November 2015 and April 2016, aimed to assess the knowledge of registered nursing staff working in the cardiology departments of three major tertiary care hospitals in Peshawar, Khyber Pakhtunkhwa. The hospitals included in this study were Lady Reading Hospital (LRH), Hayatabad Medical Complex (HMC), and Khyber Teaching Hospital (KTH). A total of 100 staff nurses were part of the study, with participants being recruited using a multi-stage sampling technique. The distribution of participants was proportionate to the size of the nursing staff in each hospital, with 40 from LRH, 36 from HMC, and 24 from KTH.

The methodology for data collection involved the use of a meticulously adopted questionnaire, designed to evaluate the knowledge levels of the nurses. This questionnaire encompassed a range of topics relevant to heart failure care and management. Responses were scored on a scale, with a range of 0-270 classified as "Poor Knowledge," scores from 271-340 as "Good Knowledge," and scores above 340 categorized as "Very Good Knowledge."

Prior to the commencement of the study, all necessary ethical approvals were obtained from the Ethical Review Board of Khyber Medical University, Peshawar. Additionally, permission for data collection was granted by the administrations of the respective hospitals. Informed consent was also obtained from all the participating nurses, ensuring their voluntary participation and understanding of the study's purpose and procedures.

The data, once collected, was analysed using the Statistical Package for the Social Sciences (SPSS), version 24. This analysis involved a comprehensive examination of the gathered information to deduce significant findings and conclusions about the nurses' knowledge levels regarding heart failure. The study's methodical approach and adherence to ethical guidelines aimed to ensure the reliability and validity of its findings, contributing valuable insights into the current state of nursing education in the field of heart failure management.

RESULTS

The basic aim of the study was to evaluate the knowledge of the nurses regarding Heart failure. The majority (46%) of the nurses were from the age group of 30 to 40 years. 85% of the participants were female and 82% were married. 84% of the nurses were diploma holders and 33% of the nurses were having experience between 2 to 5 years (Table 1).

Table 1: Socio-demographic profile of the participants, n=250

Items		Percent
Age	Less than 30 years	33
	30 to 40 Years	46
	41 to 50 Years	21

Items		Percent
	Total	100.0
Gender	Male	15
	Female	85
	Total	100.0
Marital Status	Married	82
	Unmarried	18
	Total	100.0
Education	Diploma Nursing	84.0
	BScN/ Post RN	16.0
	Total	100.0
Experience	Less than 2 Years	26
	2- 5 Years	33
	5- 10 Years	25
	More than 10 Years	16
	Total	100.0

The participants were assessed regarding heart failure education. The majority (35%) of the participants disagreed with the use of aspirin and non-steroidal anti-inflammatory drugs (NSAIDs like ibuprofen) with aches and pains in heart failure patients. 31% participants disagreed with the use of potassium based salt in patients with heart failure. Nearly half (48%) participants agreed with removal of fluids limit in heart failure patients when they feel thirsty. Less than half 37% cardiology nursing staff agreed that if the patient used extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened. Less than half 40% participants strongly agree with assessing weight results, today's weight should be compared with the patient's weight from yesterday (Table 2).

Table 2: Knowledge of Participants Regarding Heart Failure Education (n=100).

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
When patients have aches and pains, aspirin, and non-steroidal anti-inflammatory drugs (NSAIDs like ibuprofen) should be recommended.	7	27	13	35	18
It is OK to use potassium-based salt	7	27	21	31	14
If patients feel thirsty, it is OK to remove fluid limits and allow them to drink.	10	48	19	20	3
When a patient used extra pillows at night to relieve shortness of breath, this does not mean that the heart failure condition has worsened.	13	37	10	26	14
If a patient wakes up at night with difficulty breathing, and the breathing difficulty is relieved by getting out of bed and moving around, this does not mean that the heart failure condition has worsened.	8	39	12	30	11
Steam or boiled meats are an acceptable food choice as part of the patient's diet.	16	37	18	27	2
When assessing weight results, today's weight should be compared with the patient's weight from yesterday, to the patient's dry or ideal weight.	40	34	16	7	3
Patients should notify their heart failure physician if they have a BP recording of 80/56 without any heart failures symptoms.	27	34	14	24	1
Patients should notify their heart failure physician if they have a weight gain of 3 pounds in 5 days without symptoms.	25	49	10	15	1

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Patients should notify their heart failure physician if they have dizziness or Light headedness when arising that disappears within 10-15 minutes.	26	48	14	10	2
Patients should notify their heart failure physician if they have new onset or worsening fatigue.	33	56	7	4	0
Patients should notify their heart failure physician if they have new onset or worsening leg weakness or decreased ability to exercise.	35	50	9	6	0
N=100, percentage					

The participants were asked regarding the education and counseling of the heart failure patients by the nurses. 43% cardiology nursing staff strongly agreed that the nurse education to the patients regarding increasing fatigue during usual activities. More than half, (54%) participants were strongly agreed with the education regarding increasing shortness of breathing with activities. Less than half 47% participants reported that the heart failure patients should be educated regarding shortness of breathing at rest. 43% participants strongly agreed with the waking at night with shortness of breathing (Table 3).

Table 3: Knowledge Regarding Education and Counseling of Heart Failure Patients (n=100).

Symptom/Action	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Increasing fatigue during usual activities	43	45	8	4	0
Increasing shortness of breathing with activities	54	41	3	2	0
Shortness of breathing at rest	47	31	16	3	3
Need to sleep with increasing number of pillows	39	51	7	3	0
Waking at night with shortness of breathing	43	38	15	2	1
Oedema	46	50	4	0	0
Perform and document daily weight	45	47	7	0	1
Common diuretics	48	43	4	5	0
Basic signs for specific medication	42	47	7	3	1
What to do if dose is missed	40	31	21	6	2
Plan for smoking cessation	38	34	10	13	5
State blood pressure (BP) goal and know own recent BP	48	43	8	0	1
Maintain HbA1C	37	33	10	19	1
N=100, Percentage					

More than half (57%) participants had a very good knowledge regarding heart failure education, 40% cardiology nursing staff had good knowledge and only 3% study participants had poor knowledge regarding heart failure education (Figure 1).

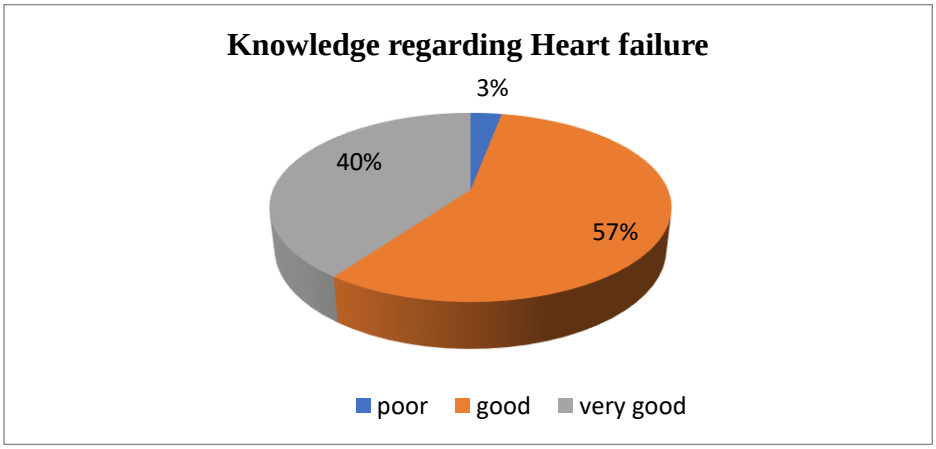

Figure 1 Pie-Chart depicting nurses' Knowledge Regarding Heart Failure

DISCUSSION

In this study, the knowledge of nurses in the field of heart failure education was evaluated. It was found that 57% of the cardiology nursing staff displayed a high level of proficiency in heart failure education. This contrasts with other studies where less than half of the nurses demonstrated sufficient knowledge in this area, indicating a significant need for enhanced training (17). Research also suggests that the knowledge base among nursing staff in developing countries falls

short of the standards seen in developed nations, underscoring the necessity for specialized training in cardiology units (18).

The variation in study outcomes can be attributed to the selection criteria of nursing staff. In this research, nurses with at least six months of experience in cardiology units were chosen. Consistent with findings from a Regional Midwestern Hospital, nurses in cardiology units often have a comprehensive understanding of heart failure, which is essential for educating patients prior to their discharge (19). Moreover, 92% of registered nurses in another study were found to have a high level of knowledge concerning heart failure education principles (17).

The critical role of cardiology nurses in patient education is well recognized. Updated knowledge and effective counseling sessions conducted by these nurses have been shown to reduce patient readmissions by 55% and to enhance the overall disease status of patients (20). Additional research supports the positive impact of nursing education and counseling on patient outcomes and hospital readmission rates, with a notable 65% of patients improving their lifestyle and disease symptoms after educational sessions conducted by nurses (21). This is in contrast with the situation in developing countries, where nurses' understanding of heart failure education does not typically reach the level seen in developed countries with more established health care and education systems (22).

The study also identified certain misconceptions among nursing staff. A majority believed that heart failure patients should consume ample fluids, and nearly half suggested increasing fluid intake when thirsty. However, literature advises that heart failure patients should limit fluid intake to prevent cardiac congestion (23), typically not exceeding 1000cc to 1500cc per day to avoid fluid retention and bodily swelling (24, 25).

Additionally, 37% of participants disagreed with the idea that proper medication and lifestyle alterations could improve the condition of heart failure patients. This contradicts evidence that lifestyle changes, including smoking cessation, regular exercise, a healthy diet, and medication adherence, can improve symptoms and reduce hospital readmissions in heart failure patients (26). This highlights the importance of nursing staff being adequately informed to effectively educate and guide patients (27).

Regarding medication use, 27% of nurses believed that heart failure patients could use aspirin and NSAIDs such as ibuprofen for pain relief. However, literature cautions against the use of these drugs in heart failure patients due to increased risks of stroke and cardiovascular issues (28, 29).

Educational interventions play a pivotal role in improving nurses' understanding of heart failure education principles. Effective training sessions have been shown to significantly enhance nurses' knowledge, with some studies recording improvements of up to 77% (30). Despite 57% of the cardiology nursing staff in this study displaying a high level of knowledge, there is a disparity when compared to international standards, indicating a need for specialized nursing training centres in Pakistan.

CONCLUSION

The majority of cardiology nurses in Peshawar, Khyber Pakhtunkhwa, exhibit a commendable level of knowledge in heart failure education, with a minority showing poor understanding. While the average knowledge level is positive, there is a clear need for continued education and training in heart failure management to reach international standards.

REFERENCES

1. Inamdar AA, Inamdar AC. Heart failure: diagnosis, management and utilization. Journal of clinical medicine. 2016;5(7):62.
2. Ziaeian B, Fonarow GC. Epidemiology and aetiology of heart failure. Nature Reviews Cardiology. 2016;13(6):368-78.
3. Savarese G, Lund LH. Global public health burden of heart failure. Cardiac failure review. 2017;3(1):7.
4. McAloon CJ, Boylan LM, Hamborg T, Stallard N, Osman F, Lim PB, et al. The changing face of cardiovascular disease 2000–2012: An analysis of the world health organisation global health estimates data. International journal of cardiology. 2016;224:256-64.
5. Benjamin EJ, Virani SS, Callaway CW, Chamberlain AM, Chang AR, Cheng S, et al. Heart disease and stroke statistics—2018 update: a report from the American Heart Association. Circulation. 2018;137(12):e67-e492.
6. Larsen CM, Arango MG, Dasari H, Calle MA, Adjei E, Mesa JR, et al. Association of anthracycline with heart failure in patients treated for breast cancer or lymphoma, 1985-2010. JAMA network open. 2023;6(2):e2254669-e.
7. Torres WM, Barlow SC, Moore A, Freeburg LA, Hoenes A, Doviak H, et al. Changes in myocardial microstructure and mechanics with progressive left ventricular pressure overload. Basic to Translational Science. 2020;5(5):463-80.
8. Ahmad T, Munir A, Bhatti SH, Aftab M, Raza MA. Survival analysis of heart failure patients: A case study. PloS one. 2017;12(7):e0181001.

9. Li Y, Meng Q, Luo B, Li M, Fang J, Allred SR, et al. Exercises in activating lymphatic system on fluid overload symptoms, abnormal weight gains, and physical functions among patients with heart failure: A randomized controlled trial. Frontiers in Cardiovascular Medicine. 2023;10:1094805.
10. Cleland JG, Lyon AR, McDonagh T, McMurray JJ. The year in cardiology: heart failure: The year in cardiology 2019. European Heart Journal. 2020;41(12):1232.
11. Tokgözoğlu L, Libby P. The dawn of a new era of targeted lipid-lowering therapies. European Heart Journal. 2022;43(34):3198-208.
12. Mohammadian M. Rehabilitation After Myocardial Infraction The nurses´ role. 2019.
13. Oliver B, Travis A, Hughes E, Condrat L, Ullman J, Cohen B, et al. Improved 30-day heart failure readmissions following implementation of an advanced cardiovascular education (ACE) academy. Journal of Nursing Care Quality. 2022;37(4):300-6.
14. Li M, Li Y, Meng Q, Li Y, Tian X, Liu R, et al. Effects of nurse-led transitional care interventions for patients with heart failure on healthcare utilization: A meta-analysis of randomized controlled trials. PloS one. 2021;16(12):e0261300.
15. Albert NM, Collier S, Sumodi V, Wilkinson S, Hammel JP, Vopat L, et al. Nurses's knowledge of heart failure education principles. Heart & Lung. 2002;31(2):102-12.
16. Knopp AM. Nurses' knowledge of heart failure guidelines in a Western Montana hospital: Montana State University-Bozeman, College of Nursing; 2009.
17. Finones CC. An Analysis of Nurses' Knowledge of Heart Failure Principles on Two Units of an Acute Hospital and Implications for Hospital Readmission Rates: Grand Canyon University; 2019.
18. Poungkaew A, Sindhu S, Pinyopasakul W, Tresukosol D, Viwatwongkasem C. EVALUATION OF A HEALTH SERVICE SYSTEM FOR HEART FAILURE MANAGEMENT IN THAILAND. Suranaree Journal of Science & Technology. 2018;25(3).
19. Róin T, Á Lakjuni K, Kyhl K, Thomsen J, Veyhe AS, Róin Á, et al. Knowledge about heart failure and self-care persists following outpatient programme-a prospective cohort study from the Faroe Islands. International Journal of Circumpolar Health. 2019;78(1):1653139.
20. Ortiz-Bautista C, Morán-Fernández L, Díaz-García M, Delgado-Nicolás MÁ, Ponz-de Antonio I, Rodríguez-Chaverri A, et al. Evaluation of a nurse-led intervention program in heart failure: A randomized trial. Medicina Clínica (English Edition). 2019;152(11):431-7.
21. Bläuer C, Frei IA, Schnepp W, Spirig R. Implementation of a nurse-led education programme for chronic heart failure patients during hospitalisation, and strategies supporting their self-management at home: a practice development project in the context of the Swiss healthcare system. International Practice Development Journal. 2015;5(1).
22. Sahoo PM, Rout HS, Jakovljevic M. Dynamics of health financing among the BRICS: a literature review. Sustainability. 2023;15(16):12385.
23. Waghmare P, Shukla S, Shah SC, Patel NK, Panwar T, Khan K. Nirma University Journal of Business and Management Studies: Volume 4, Issues1 and 2 (January-June 2021): IndraStra Global e-Journal Hosting Services; 2021.
24. Wahyuni DD, Nurachmah E, Nova PA. The Effect of Self-Care Education on Heart Failure Patients: Literature Review. Jurnal Berita Ilmu Keperawatan. 2023;16(2):269-79.
25. Bouchard J, Claure-Del Granado R, Mehta RL. Components of fluid balance and monitoring. Critical Care Nephrology: Elsevier; 2019. p. 816-21. e2.
26. Lu M, Hravnak M, Ma J, Lin Y, Zhang X, Shen Y, et al. Prediction of changes in adherence to secondary prevention among patients with coronary artery disease. Nursing Research. 2020;69(5):E199-E207.
27. Pizga A, Karatzanos E, Tsikrika S, Gioni V, Vasileiadis I, Nanas S, et al. Psychosocial Interventions to Enhance Treatment Adherence to Lifestyle Changes in Cardiovascular Disease: A Review of the Literature 2011-2021. European Journal of Environment and Public Health. 2022;6(1):em0102.
28. Schjerning A-M, McGettigan P, Gislason G. Cardiovascular effects and safety of (non-aspirin) NSAIDs. Nature Reviews Cardiology. 2020;17(9):574-84.
29. Varga Z, rafay ali Sabzwari S, Vargova V, Sabzwari SRA. Cardiovascular risk of nonsteroidal anti-inflammatory drugs: an under-recognized public health issue. Cureus. 2017;9(4).
30. Lyon AR, Bossone E, Schneider B, Sechtem U, Citro R, Underwood SR, et al. Current state of knowledge on Takotsubo syndrome: a Position Statement from the Taskforce on Takotsubo Syndrome of the Heart Failure Association of the European Society of Cardiology. European journal of heart failure. 2016;18(1):8-27.