

Assessing the Health Education Needs of Heart Failure Patients in Saudi Arabia

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Abstract

Objectives

This study aimed to assess the health education needs of heart failure patients at King Fahad Medical City in Riyadh. It also sought to identify the preferred methods of health education and the challenges these patients face during educational sessions.

Methods

A descriptive, cross-sectional survey study was conducted between January 2024 and June 2024. Data were collected using a self-administered questionnaire, designed based on previous studies and established frameworks. Statistical analysis was performed using SPSS version 21.

Results

The study found that health education is crucial and highly sought after by many Saudi patients. Different patients have varying requirements for health education, with one-on-one sessions led by physicians identified as the most preferred method. However, patients frequently encountered challenges, including unclear medical terminology, insufficient time for questions, and an overwhelming amount of information. Concerns were also raised about the educators' listening skills and the effectiveness of their educational approach.

Conclusion

To address these challenges, it is recommended that health education needs be integrated into clinic visits, involving all relevant healthcare professionals such as nurses, pharmacists, and physicians. This integration can ensure that patients receive comprehensive knowledge about their conditions, thereby improving their health behaviors and outcomes.

Categories: Other, Public Health, Medical Education

Keywords: king fahad medical city, educational challenges, preferred education methods, patient needs, health education, heart failure

Introduction

Heart failure (HF) is a clinical syndrome that is the leading cause of hospitalization and death and presents significant challenges for patients and their families. More than 64 million people around the world are affected by HF, and this number continues to rise [1]. Saudi Arabia saw a 20.97% prevalence in HF on the scale set from 1990 to 2019, and according to Joinpoint's regression analysis, Saudi Arabia saw an average annual percentage change (AAPC) of 0.7% during this period, indicating one of the largest increases [2]. The prevalence of HF is projected to increase by 46% by 2030, and associated healthcare costs are expected to grow exponentially over the next decade [3]. Efforts to reduce the societal, health, and economic burden of HF have thus become a public health imperative [4]. Patients with HF often experience multiple symptoms simultaneously, some synergistic and reinforcing each other to form symptomatic clusters [5]. These groups are influenced by intrinsic and environmental factors [6]. However, the majority of patients with HF struggle to perform the basic tasks required to care for themselves with HF [7]. HF restricts physical and social activities, with approximately 11% to 75% of patients with HF having difficulties with daily activities [8]. In addition, advances in HF treatment and equipment, while improving patient prognosis, also complicate treatment plans, posing significant challenges for patients [9]. Therefore, relying solely on patients to care for themselves is not enough. Caregivers play an important pivotal role in supporting and promoting self-care behaviors in patients with HF; however, adherence to care is typically low among HF patients worldwide [10].

How to cite this article

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Effective health education interventions for HF patients can theoretically improve their health outcomes, including readmissions, short-term mortality, and quality of life [11]. However, the result of a meta-analysis of 5,264 HF patients showed that self-management interventions were not effective in reducing the rate of readmission [12]. Some studies have indicated that the reduced effectiveness of self-management interventions was caused by the knowledge gap between healthcare professionals (HCPs) and patients [13]. A study reported that less than 10% of all patients who received education at discharge understood what they had learned [14]. In addition, HF patients adhered to their prescribed medication regimens but did not follow recommended behavioral changes, including physical activity and weight control [15]. These results suggest that effective discharge education is necessary to improve self-management among HF patients.

Asiri et al. [16] generally point out that in a one-to-one study, educational clinics were the most preferred method by study participants, preferably delivered by a doctor, he concluded that the importance of the health education service was evident in the participants' responses, but it was not yet sufficient to attract the majority of attendees to the various clinics at Prince Sultan Military Medical City (PSMMC). Al-Khashan et al. [17] point out that health reforms aiming to increase patients' participation in decision-making require them to be health-conscious; hence, the importance of health education. This importance stems from understanding potential gender differences in health education needs and preferences. Health education has a significant impact on educational interventions for patients living with coronary artery disease (CAD), as Eckman et al. [18] indicated. They randomly selected 187 patients and key outcome measures included assessment of CAD knowledge, clinical outcomes (weight and blood pressure), and healthy behaviors (diet, exercise, smoking). Functional health literacy was assessed as a potential predictor variable. It was concluded that there was an improvement in the scores of knowledge and health behaviors after both interventions. The importance of health education extends to the development of a strategic plan to train health education professionals while providing effective services, which was classified as very satisfactory in this community [16].

Globally, there is growing interest in evaluating methods for monitoring health services and the quality of healthcare delivery in health institutions [19]. Assessing the quality of health education is a significant obstacle to better interventions and broader recognition of its importance in improving public health [20].

Based on this, health education interventions will be more effective if appropriately targeted to different segments of society according to their preferences and needs. Therefore, it is necessary to engage patients regularly, and frequent assessments must be conducted to prioritize their needs and improve health patterns and required health education. The main objective of this study is to assess the health education needs of HF patients and how to provide them in Riyadh, as well as to understand patients' preferences regarding health education services.

Materials And Methods

Study design and setting

A cross-sectional survey study was conducted between January 2024 and June 2024 at King Fahad Medical City (KFMC) in Riyadh, Saudi Arabia. KFMC is a prominent healthcare facility offering advanced medical care, including specialized treatment for cardiovascular diseases. The study was carried out in both the outpatient and inpatient cardiac clinics within KFMC, which cater to a broad spectrum of patients with heart conditions from Riyadh and neighboring areas.

Study population and setting

The study targeted HF patients, both inpatients and outpatients, aged 18 and older. The clinics are equipped with state-of-the-art facilities and are staffed by a multidisciplinary team of HCPs specializing in cardiology. These clinics provide comprehensive diagnostic and therapeutic services, making them an ideal setting for assessing patients' health education needs.

Inclusion and exclusion criteria

Participants were included if they were HF patients who provided verbal consent to participate. Patients were excluded if they declined to participate, had mental or speech disorders that could impair their ability to provide informed consent, or were under 18 years old without an adult guardian.

Ethical considerations

Institutional review board (IRB) approval for the study titled 'Assessing the Health Education Needs of Heart Failure Patients in Saudi Arabia' was obtained from the IRB under reference number 24-062E. The submission, dated February 1, 2024, was reviewed and approved in accordance with ICH GCP guidelines. Written informed consent was obtained from all participants, who were fully briefed on the study's objectives, potential benefits, and risks. Participants were assured of their voluntary participation and their right to withdraw from the study at any time without obligation.

To address ethical concerns, a participant information sheet (PIS) was included on the first page of the questionnaire. This sheet outlined the study's purpose, potential risks, and benefits, and provided instructions for voluntary participation. By completing the questionnaire, whether online or in printed form, participants implicitly consented to participate, as indicated in the PIS.

The survey was designed to ensure confidentiality by not collecting any identifying information that could link participants to their responses. Upon completion, participants were directed to a secure website where their encrypted responses were stored on a password-protected server, accessible only to authorized members of the research team [21].

Sample size calculation

The minimum expected sample size was determined to be 400 participants, which includes an additional buffer to account for any potential dropout or data deficiencies. This calculation was based on the following parameters [22]:

- Required accuracy (margin of error): 5%
- Study power: 95%
- Participants' age: Over 18 years
- Expected total number of patients: 383

To ensure robust study results, the sample size was calculated using the following formula in Figure 1 for proportion measurements:

$$n = \left(\frac{Z_{\alpha/2}^2 \cdot p \cdot (1 - p)}{E^2} \right)$$

FIGURE 1: Sample size formula

Where:

- n: sample size
- $Z_{\alpha/2}$: Z-value associated with the confidence level (for 95%, Z is 1.96)
- p: expected proportion (if unknown, 0.5 is commonly used as a conservative estimate)
- E: desired margin of error (in this case, 5% or 0.05)

Given these parameters, the estimated sample size was calculated to be 400 participants.

Sampling technique

The calculated sample size was proportionally distributed across the different areas within KFMC based on the annual rate of attendees in each area. For example, to determine the sample distribution in the outpatient clinics (OPD), we used the following equation: the total number of patients seen in OPD clinics

(56,751) divided by the total number of patients in the entire Prince Fahad Medical City (KFMC) (184,474), then multiplied by the sample size (400), as indicated in Table 1.

Strata	N	Sample (%)	Survey forms
Outpatient clinics	56751	31	124
Inpatient clinics	11885	6	24
Primary care	115838	63	252
Total	184474	100	400

TABLE 1: Sample size distribution per King Fahad Medical City (KFMC) areas

Participant enrollment was based on a simple random sampling technique to ensure that all attendees had an equal chance of being included. Participants were selected on a first-come, first-served basis after being informed of the study’s objectives and expected outcomes. They were also assured of full privacy concerning the information obtained. Written consent was obtained from all participants.

Data collection

The design of the questionnaire was based on a review of the relevant literature, including the study by Asiri et al. and the study by Al-Khashan et al. [16,17]. Recognizing that some of the questions included had not been previously tested, a pilot survey was conducted involving 20 participants from KFMC, representing 5% of the sample size. This pilot study aimed to test the questionnaire items and evaluate both content and face validity.

The reliability of the questionnaire was rigorously assessed. Findings from the pilot study informed further refinement, including rephrasing unclear questions and incorporating feedback from HCPs on the health education process. These adjustments ensured the questionnaire’s relevance and clarity.

Subsequently, the questionnaire was translated into Arabic and underwent back-translation by a bilingual individual unfamiliar with the original English version. Any discrepancies in translation were resolved through discussion between the translators and the researchers.

The piloting phase lasted one month. The final version of the questionnaire includes sections on sociodemographic characteristics, the availability and provision of health education services, patient preferences, and challenges for these services.

Procedures regarding the survey application

The survey was administered to participants using an indirect distribution method, specifically through electronic distribution via email. The research survey utilized a five-point scale with the following response options: strongly agree, agree, neutral, disagree, and strongly disagree.

To determine the length of the five-point scale cells (lower and upper bounds) used in the research axes, the range ($5 - 1 = 4$) was calculated, then divided by the number of scale cells to obtain the correct cell length: ($4/4 = 1.00$). This value was then added to the lowest value on the scale (or the starting point, which is 1) to determine the upper limit of this cell. Thus, the length of the cells became as indicated in Table 2.

Scale Description	Scale Range
Very high	5.0-4.21
High	4.20-3.41
Medium	3.40-2.61
Low	2.60-1.81
Very low	1.80-1.00

TABLE 2: Five-point scale ranges

Statistical analysis

A total of 400 sample sizes was included in the final analysis. SPSS version 21 was used for data entry and evaluation. The frequency and percentages were obtained using descriptive statistics. Using the K-square test, the relationship between categorical variables was investigated.

Results

Demographic analysis

The demographic analysis in Table 3 for HF patients at KFMC in Saudi Arabia reveals significant insights into the patient population.

Variables	Frequency	Percentage
Age		
24-18 years	4	1
31-25 years	5	1.5
38-32 years	13	2.5
39- 45 years	77	19.3
46 < years	301	75.3
Gender		
Male	303	75.8
Female	95	23.7
Preferable not to declare	2	0.5
Nationality		
Saudi	325	81.3
Others	75	18.8
Marital Status		
Single	72	18
Married	323	80.8
Divorced	5	1.2
Education		
Illiterate	5	1
Intermediate	8	2
Secondary	151	37.8
Diploma	172	43
Bachelor	62	15.5
Graduate	2	0.1
Occupation		
Student	2	0.3
Employed	306	76.5
Not working	15	2
Retired	75	18.8
Other	2	0.3
Place of Residence		
Riyadh	329	82.3
Other	71	17.8

TABLE 3: Descriptive statistics of sociodemographic characteristics of participants (N=400)

The mean age of participants (N=400) was calculated to be 47.41 years, indicating the average age within the sample. This value, derived from midpoint estimates and a conservative assumption for the “46 years and above” category, provides an overall view of the age distribution. The standard deviation of 5.23 years

suggests a relatively narrow dispersion of ages around the mean, implying that most participants' ages are closely clustered. The median age of 50.0 years further supports this, showing that at least half of the participants are aged 50 or older. Notably, the interquartile range (IQR) was observed to be 0 years, which indicates a very tight clustering of ages within the sample, likely confined to the "46 years and above" category.

The gender distribution reveals that men constitute the majority at 75.8% (303 participants), while women make up 23.7% (95 participants). Most participants are Saudi nationals, accounting for 81.3% (325 individuals), with the remaining 18.8% (75 individuals) from other nationalities. Marital status indicates that a significant portion of participants are married, at 80.8% (323 individuals), while 18% (72 individuals) are single, and 1.2% (5 individuals) are divorced. Education levels vary, with the largest groups having secondary education (37.8%, 151 participants) and diploma certificates (43%, 172 participants), while those holding bachelor's degrees constitute 15.5% (62 participants), and illiterate individuals make up 1% (5 participants). Employment status shows that 76.5% (306 individuals) are employed, 18.8% (75 individuals) are retired, and 2% (15 individuals) are unemployed. Most participants reside in Riyadh, comprising 82.3% (329 individuals) of the sample, while 17.8% (71 individuals) live in other areas.

Axes questionnaire

Provision of Health Education Services

Table 4 provides an in-depth overview of how health education services are provided to HF patients at KFMC. The table includes data on whether patients have received health education advice, the providers of this education, the methods used to deliver it, and the level of patient satisfaction.

Sentences	Frequency	Percentage (%)	Chi-square (χ²)	P-value	DF
Have You Received Health Education Advice?					
Yes	322	80.5	148.84	0.0000	1
No	78	19.5			
Health Education Providers					
Doctor	302	75.5	834.6	0.0000	5
Health educator	15	2.5	39.8	0.0000	5
Nurse	5	1.0	0.0	0.0000	5
Dietitian	3	0.3	56.8	0.0000	5
Social worker	-	-	-	-	-
Pharmacist	-	-	-	-	-
Other patients	69	17.3	0.094	0.9998	5
Other	5	1.0	56.8	0.0000	5
Health Education Tips Methods					
Health education clinic (one-to-one)	315	78.8	690.3	0.0000	4
Group education	4	0.8	72.2	0.0000	4
Printed educational materials	3	0.5	74.11	0.0000	4
Educational information in the waiting room	69	17.3	1.5125	0.824	4
Other	9	1.2	63.01	0.0000	4
Satisfaction with Health Education					
Fully satisfied	318	79.5	255.66	0.0000	2
Somewhat satisfied	77	19.3	23.15	0.00012	2
Not satisfied	5	1.0	123.56	0.0000	2

TABLE 4: Descriptive statistics for the provision of health education services

Out of the 400 respondents, 322 (80.5%) reported receiving health education advice, while 78 (19.5%) did not. The chi-square test revealed a highly significant association between receiving health education and overall satisfaction (χ² = 148.84, p < 0.0001).

Physicians were the primary source of health education, with 302 patients (75.5%) receiving information from them. Other sources were less common, with health educators (2.5%), nurses (1.0%), and dietitians (0.3%) playing minimal roles. The chi-square analysis for these variables also indicated significant differences (p < 0.0001 for each).

One-to-one education in a clinic setting was the predominant method, used by 315 patients (78.8%). Group education and printed materials were notably less common, at 0.8% and 0.5% respectively. A majority of patients (79.5%) reported being fully satisfied with the health education they received, while 19.3% were somewhat satisfied, and 1.0% were not satisfied at all. The chi-square tests confirmed that satisfaction levels were significantly associated with the provision and method of education (χ² = 255.66, p < 0.0001).

Patients Preference for Health Education Services

Table 5 provides insights into patient preferences for health education services at KFMC. It includes data on the perceived need for health education, preferred providers, and preferred methods of education.

Sentences	Frequency	Percentage (%)	Chi-square (χ²)	P-value	DF
The Need for Such Health Education Services					
Yes	330	82.5	169	0.0000	1
No	70	17.5			
Preferred Health Education Provider					
Doctor	318	79.5	255.66	0.0000	2
Health educators	12	3.0	110.41	0.0000	2
Others	70	17.5	30.08	0.0000	2
Preferred Method of Health Education					
Health education clinic (one-to-one)	247	61.8	218.66	0.0000	3
Group education	75	18.8	6.03	0.11016	3
Printed educational materials	-	-	-	-	-
Health education in the waiting room	-	-	-	-	-
Media (internet or social media)	6	1.5	87.86	0.0000	3
Out of stock	-	-	-	-	-
Other	70	17.5	8.74	0.03296	3

TABLE 5: Descriptive statistics of patients' preference for health education services

Out of the surveyed population, 330 patients (82.5%) recognized the need for health education services, while 70 patients (17.5%) did not see the need. The chi-square analysis ($\chi^2 = 169$, $p < 0.0001$) indicates a highly significant association between the perceived need for education and patient preferences.

A significant majority of patients (79.5%) preferred receiving health education from doctors. Health educators were preferred by a smaller proportion (3.0%), and 17.5% of patients preferred other providers. The chi-square test showed significant differences in preferences ($\chi^2 = 255.66$, $p < 0.0001$ for doctors; $\chi^2 = 110.41$, $p < 0.0001$ for health educators; $\chi^2 = 30.08$, $p < 0.0001$ for others).

The one-to-one health education clinic was the most preferred method, chosen by 247 patients (61.8%). Group education was preferred by 18.8%, and media (internet or social media) was preferred by 1.5%. Additionally, 17.5% of patients preferred other unspecified methods. The chi-square test revealed significant associations between the method of education and patient satisfaction ($\chi^2 = 218.66$, $p < 0.0001$ for one-to-one clinics; $\chi^2 = 87.86$, $p < 0.0001$ for media; $\chi^2 = 8.74$, $p = 0.03296$ for other methods). Notably, the preference for group education was not statistically significant ($\chi^2 = 6.03$, $p = 0.11016$), suggesting that while it is valued, it might not be as impactful or widely accepted as individual consultations.

Main Health Education Needs

Table 6 offers a detailed examination of the primary health education needs of HF patients, highlighting their key priorities and concerns.

Sentences	Mean	St.D	Level
Medical information about your disease.	4.450	0.532	Very high
Living with the disease	4.428	0.495	Very high
Prevention of complications of the disease	4.405	0.540	Very high
Lifestyle modification (e.g. diet, exercise, weight loss)	4.430	0.548	Very high
Taking special medications	4.425	0.524	Very high
Preventive periodic check-ups	4.432	0.530	Very high
How to prevent diseases	4.412	0.531	Very high
Use of medical instruments	4.418	0.538	Very high
Unhealthy practices (e.g. smoking)	4.395	0.616	Very high

TABLE 6: Descriptive statistics of main health education needs

The results reveal significant insights into the primary health educational needs of patients at KFMC. Each area of need was rated on a scale from 1 to 5, with higher scores indicating greater importance.

The category medical information about your disease received the highest average score of 4.450 (standard deviation = 0.532). Similarly, those living with the disease scored highly, with an average of 4.428 (standard deviation = 0.495). The topic of prevention of disease complications had an average score of 4.405 (standard deviation = 0.540). Lifestyle modification (e.g., diet, exercise, weight loss) received an average score of 4.430 (standard deviation = 0.548). Medication adherence was evaluated with an average score of 4.425 (standard deviation = 0.524). Preventive check-ups had an average score of 4.432 (standard deviation = 0.530).

How to prevent diseases scored an average of 4.412 (standard deviation = 0.531), while the use of medical devices had an average score of 4.418 (standard deviation = 0.538). Unhealthy practices (e.g., smoking) received the lowest average score of 4.395 (standard deviation = 0.616) among the assessed areas.

Health Education Challenges

The results presented in Table 7 address the critical challenges faced by HF patients during health education sessions.

Sentences	Mean	St.D	Level
Unexplained or understandable medical terms	3.290	1.453	Medium
Insufficient time to answer questions.	3.240	1.483	Medium
Different language education	2.450	1.404	Low
Inadequate listening by the education.	3.228	1.475	Medium
Too much information.	3.248	1.482	Medium
Difficulty understanding information.	3.225	1.480	Medium
Inconsistency of information provided by education service providers.	2.826	1.334	Medium
Speed during education	3.227	1.468	Medium
The place is not suitable for education.	3.222	1.467	Medium
Approach or style of education providers.	3.258	1.462	Medium

TABLE 7: Challenges of health education for heart failure patients

The challenges are classified on a scale, with mean scores and standard deviations indicating the perceived difficulty level and variability of responses, respectively.

Regarding unexplained or understandable medical terms, the mean score is 3.290, with a standard deviation of 1.453. This indicates that the use of medical terms that are either unexplained or difficult to understand is one of the most significant challenges. Insufficient time to answer questions has a mean score of 3.240, with a standard deviation of 1.483. Different language education represents a lower-level challenge with a mean score of 2.450, though it remains a significant barrier for non-native speakers.

Patients also face a medium-level challenge in inadequate listening by education, with a mean score of 3.228. Too much information is considered a medium-level difficulty with a mean score of 3.248, and difficulty understanding information has a mean score of 3.225. Inconsistency of information provided by education service providers is rated as a medium challenge, with a mean score of 2.826 and a standard deviation of 1.334.

Speed during education is a medium-level challenge with a mean score of 3.227 and a standard deviation of 1.468. This is followed by the place is not suitable during education, with a mean score of 3.222 and a standard deviation of 1.467, and approach or style of education providers, with a mean score of 3.258 and a standard deviation of 1.462.

Discussion

The study sample consisted of 400 individuals, predominantly male, over the age of 47, with the vast majority being employed and educated. Most patients had received some form of health education, primarily delivered by doctors in health education clinics.

The results of this study provide a comprehensive overview of health education services for HF patients, revealing significant insights into patient preferences, needs, and challenges. A notable finding is that 80.5% of patients reported having received health education advice, emphasizing the crucial role that educational interventions play in managing chronic conditions like HF. This high rate of reported education aligns with the emphasis placed on patient education in HF management, as highlighted in prior studies [16, 17].

The data shows a clear preference for doctors as the primary providers of health education, with 75.5% of patients favoring them over other professionals. This preference reflects the trust and confidence patients place in their primary healthcare providers and supports findings from previous research that underscore the importance of direct, personalized communication in effective health education [15]. Health education clinics offering one-to-one interactions were also highly preferred, with 78.8% of patients selecting this method. This preference for individualized education is consistent with studies that highlight the benefits of tailored, one-on-one educational interventions for improving patient outcomes [12].

The study also indicates a high level of satisfaction with health education services, with 79.5% of patients expressing full satisfaction. This finding suggests that current educational practices are generally effective in meeting patient needs, although there remains room for enhancement. Previous research has shown that patient satisfaction with educational interventions is closely linked to the quality and clarity of information provided [11].

In terms of health education needs, patients rated several areas as “Very high” in importance, including medical information about their disease, lifestyle modifications, and prevention of complications. These findings are consistent with existing literature that emphasizes the need for comprehensive education covering various aspects of disease management [18]. Addressing these needs effectively can lead to better self-management and improved health outcomes for HF patients.

The study also identified challenges in health education, such as difficulties with understanding medical terms, insufficient time for questions, and the pace of education. These challenges are consistent with previous studies that have highlighted the need for clear, accessible information and adequate time for patient-provider interactions to ensure effective learning [16].

While the study provides valuable insights, it is important to acknowledge its limitations. The findings are specific to the patient population at KFMC and may not fully represent other settings or regions. Additionally, incorporating qualitative insights into patient experiences could provide a more comprehensive understanding of the nuances in patient preferences and challenges.

The study reinforces the importance of personalized, clear, and comprehensive health education for HF patients. The findings are consistent with existing literature and underscore the need for continued improvement in educational strategies to enhance patient self-management and health outcomes. Future research should explore these aspects further, potentially incorporating qualitative data to enrich our understanding of patient needs and preferences in diverse healthcare settings.

Conclusions

Based on the findings, it is evident that health education needs are significant and widely recognized among Saudi patients. Thus, it can be concluded that patients have varying and diverse requirements for health education, which must be addressed through tailored approaches. It was found that one-to-one health education clinics providing medical instruction by physicians are the most preferred way to communicate health education. Therefore, it is proposed to integrate health education needs during clinic visitation to patients to both nursing and pharmacists and everything that is directly related to the patient. The physician, nurses, pharmacists, or everyone involved in the medical field should give patients complete and adequate knowledge about their diseases and encourage them to change their lifestyle as this can lead to improved health behaviors and therefore improving results.

Appendices



تجمع الرياض الصحي الثاني
Riyadh Second Health Cluster

IRB Registration Number with KACST, KSA: H-01-R-012

IRB Registration Number with OHRP/NIH, USA: IRB00010471

Approval Number Federal Wide Assurance NIH, USA: FWA00018774

March 6, 2024
IRB Log Number: 24-062E
Department: External - Nursing, King Saud University
Category of Approval: EXEMPT

Dear Tahani Duhaym Aldawsari, Sarah Duhaym Aldawsari, Zainab Mohammed Olwani, Kholod Abdullah Albeshi, Amnah Ali Aljubran, amal Hassan Sayyadi, Mona Turki Alanzi, Abeer sultan Alenzi, Wafi Sultan Alenzi, Huda Salem Alshehri, Haya Mazayad Alshammari,

I am pleased to inform you that your submission dated February 1, 2024 for the study titled '**Assessing the Health Education needs of Heart Failure Patients in Saudi Arabia**' was reviewed and was approved according to ICH GCP guidelines. Please note that this approval is from the research ethics perspective only. It is the responsibility of the researcher to make arrangement for the conduct of research and data collection.

We wish you well as you proceed with the study and request you to keep the IRB informed of the progress on a regular basis, using the IRB log number shown above.

Please be advised that IRB for administrative purposes requires that you submit a progress report on your research every 6 months. You are required to submit any manuscript resulting from this research for approval by IRB before submission to journals for publication.

As a researcher you are required to maintain a valid certification on protection of human research subjects or the GCP certification. Failure to provide this certificate shall a reason for suspension of your research project.

Sincerely yours,




Dr. Hussam Sakkijha, FCCP, FACP, Diplomat, ABSIM
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هاتف: 966-11-2889999 ext. 15789/26943

FIGURE 2: A copy of the informed consent



IRB Registration Number with KACST, KSA: H-01-R-012
IRB Registration Number with OHRP/NIH, USA: IRB00010471
Approval Number Federal Wide Assurance NIH, USA: FWA00018774

July 11, 2024

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Department: External - Nursing, King Saud University

Category of Approval: EXEMPT

Dear Tahani Duhaym Aldawsari, Sarah Duhaym Aldawsari, Zainab Mohammed Olwani, Kholod Abdullah Albeshi, Amnah Ali Aljubran, amal Hassan Sayyadi, Mona Turki Alanzi, Abeer sultan Alenzi, Wafi Sultan Alenzi, Huda Salem Alshehri, Haya Mazyad Alshammari,

I am writing to inform you that your **manuscript** submitted on July 07, 2024 for the study titled '**Assessing the Health Education needs of Heart Failure Patients in Saudi Arabia**' was reviewed and was approved for publication in a scientific journal. Please send us a copy of the publication approval letter and later a copy of the published paper.

Sincerely yours,



Dr. Hussam Sakkijha, FCCP, FACP, Diplomat, ABSIM

Chairman Institutional Review Board--IRB

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FIGURE 3: A copy of the approval for publication

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

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Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. King Fahad Medical City Riyadh - Saudi Arabia issued approval 24-062E. Dear Tahani Duhaym Aldawsari, Sarah Duhaym Aldawsari, Zainab Mohammed Olwani, Kholod Abdullah Albeshi, Amnah Ali Aljubran, Amal Hassan Sayyadi, Mona Turki Alanzi, Abeer Sultan Alenzi, Wafi Sultan Alenzi, Huda Salem Alshehri, Haya Mazayad Alshammari, I am pleased to inform you that your submission dated February 1, 2024 for the study titled 'Assessing the Health Education needs of Heart Failure Patients in Saudi Arabia' was reviewed and was approved according to ICH GCP guidelines. Please note that this approval is from the research ethics perspective only. It is the responsibility of the researcher to make arrangement for the conduct of research and data collection.

Animal subjects: All authors have confirmed that this study did not involve animal subjects or tissue.

Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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