Patient Preference and Adherence Dovepress

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Predictors to Poor Quality of Life Among Patients with Heart Failure and Its Correlation with Their Medication Adherence: Finding for Healthcare Improvement and Follow-Up

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Background: Understanding medication adherence and its relationship with quality of life (QoL) is essential for improving health outcomes in patients with heart failure (HF).

Objective: This study aimed to investigate the predictors of poor quality of life and its relationship with medication adherence among patients with heart failure.

Methods: A cross-sectional correlational study was performed on 229 patients with HF receiving care at the Cardiac Center of King Salman Specialist Hospital from March to June 2024. Data were collected using a structured questionnaire comprising patient demographics, the Minnesota Living with Heart Failure Questionnaire (MLHFQ) to assess QoL, and the General Medication Adherence Scale (GMAS) to measure medication adherence.

Results: The mean medication adherence score among patients with heart HF was 17.53 ± 6.94. The level of adherence was moderate among most patients (47.2%), high (29.7%), and poor (23.1%). Regarding QoL, the mean total score for overall QoL was 42.16 ± 20.53. Specifically, the mean scores were 15.24 ± 8.65 and 10.53 ± 5.82 for the physical and emotional dimensions of QoL, respectively. More than half of the patients experienced poor QoL, while moderate QoL was observed in 31.9% and good QoL in 17% of patients. Furthermore, there were moderate negative correlations between medication adherence and physical QoL (r= −0.51), emotional QoL (r = −0.59), and overall QoL (r = −0.59), all of which were statistically significant (p <0.001).

Conclusion: Moderate-to-poor levels of medication adherence and QoL were found among HF patients receiving care in Hail City. Therefore, interventions to improve medication adherence among patients with HF must be prioritized to enhance health outcomes and QoL. It is also crucial to address the factors that negatively influence medication adherence to overcome the barriers that hinder optimal medication adherence.

Keywords: heart failure, quality of life, medication adherence, Saudi Arabia

Introduction

Heart failure (HF) is a progressive disorder that is associated with high rates of hospitalization, morbidity, and mortality.[1] Over 64 million people worldwide are affected, with an estimated prevalence of approximately 4.2% among adults in developed countries and 11.8% among older age.[2,3] Approximately 40.2% of patients with HF die within 2.5 years of follow-up.[4] HF significantly deteriorates patients' quality of life (QoL) and disturbs their physical, mental, and social well-being.[5] Therefore, continued management and medication adherence are required to reduce the morbidity and

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mortality rates.[6] Medication adherence is essential for improving the treatment outcomes in patients with HF. Systematic reviews and meta-analyses have demonstrated that medication adherence maintains physiological functions, improves QoL and reduces hospitalizations.[1,7] Improved adherence results in more effective symptom management and improved clinical outcomes.[8–11] In addition, adherence-enhancing technologies have been proven to effectively reduce readmission rates and shorten hospital stay.[12,13]

Despite recent pharmacological advancements, medication adherence in patients with HF remains suboptimal, with a quarter of patients failing to adhere to their prescribed medications, resulting in poor clinical outcomes.[14–16] In Saudi Arabia, poor adherence is influenced by several factors, including the large number of medications prescribed, complex regimens, insufficient healthcare support, distance from health facilities, and treatment duration.[17–22] QoL is a crucial therapeutic goal in the management of HF and reflects the impact of health conditions and treatments on patients' lives.[23] Patients with HF often experience symptoms that have a negative impact on their QoL, such as sleep disturbances, chest pain, depression, and fatigue. Therefore, improving QoL is essential to improve patients' well-being and reduce adverse outcomes.[23–26]

Medication adherence is associated with improved QoL in patients with HF. For instance, a study conducted in Thailand showed that better medication adherence was associated with improved QoL in patients with HF.[1] In Saudi Arabia, high adherence to antiepileptic medications is significantly associated with improved QoL.[27] However, the specific relationship between medication adherence and QoL in Saudi patients with HF remains unclear. Understanding this relationship would help develop strategies to enhance both medication adherence and QoL in these patients. Therefore, this study aimed to investigate the predictors of poor QoL and its relationship with medication adherence among patients with HF in Hail City, Saudi Arabia.

Materials and Methods

Study Design, Setting, and Participants

A cross-sectional correlational study was performed among patients with HF who were receiving care at the Cardiac Center of the King Salman Specialist Hospital in Hail City between March and June 2024. This hospital has a capacity of 500 beds and offers comprehensive care for patients with HF, including laboratory investigations and medication. However, it also encompasses various specialties including cardiovascular, medical-surgical, obstetric, and pediatric services. The Cardiac Center within the hospital has 75 beds allocated to the cardiac care and surgical units. In addition, the outpatient clinics of the center serve an average of 150 patients per day and provide services such as laboratory investigations, cardiac stress tests, and echocardiography.

Patients who met the New York Heart Association (NYHA) criteria and had a diagnosis of HF at the age of 18 years or older were eligible to participate in the study[28] and willing to participate voluntarily. Patients who were unable to complete the questionnaire, had signs of cognitive impairment, or had coexisting terminal diseases were excluded from this study.

The study's sample size was established using OpenEpi (https://www.openepi.com), and a minimum of 229 patients were selected according to the sample size calculation that took into account the total number of patients (n = 560) who were admitted to the study settings in the previous three months (margin of error = 5%, confidence level = 95%, and response distribution = 50%). Nonetheless, questionnaires were distributed to a convenience sample of 300 patients receiving care at the outpatient clinics of the Cardiac Center of the King Salman Specialist Hospital, who were accessible during the study period. Of the questionnaires distributed, 229 were sent back, yielding a response rate of 76.3%.

Study Instruments

Data were gathered using a self-administered questionnaire that comprised three parts. The first part included questions about patients' demographic and clinical characteristics, including age, sex, marital status, education level, place of residence, employment status, and the presence of chronic comorbidities, including chronic kidney disease (CKD), chronic obstructive pulmonary disease (COPD), diabetes mellitus (DM), hypertension (HTN), and coronary heart disease (CHD).

The second part of the questionnaire assessed HF patients' QoL using the Minnesota Living with Heart Failure Questionnaire (MLHFQ) by asking them to rate the degree to which HF had affected their daily lives over the past month. The MLHFQ was developed by Thomas Rector in 1984 as a self-administered and validated instrument and is brief and easy to understand for patients with HF.[29] Subsequently, this instrument has been widely used to assess QoL in patients with HF in several countries.[1,30–32] The Arabic version of the MLHFQ used in this study has been previously validated, with a Cronbach's α coefficient of 0.92.[32] It comprises 21 questions to assess the impact of HF on patients' social, psychological, and physical well-being. Responses to each question were rated on a 6-point Likert scale, with scores ranging from 0 (no effect) to 5 (very much effect), and a total score ranging from 0 to 105, where poorer QoL was indicated by higher scores. In addition, the MLHFQ was used to measure the physical (eight items related to physical functioning and mobility; range 0–40) and emotional dimensions (five items; range 0–25) of QoL.[29] The internal consistency reliability of this instrument was determined to be good, as indicated by a Cronbach's α coefficient of 0.853.

In the third part of the questionnaire, medication adherence among patients with HF was assessed using the Arabic version of the General Medication Adherence Scale (GMAS), which was developed and validated in other studies.[33,34] The English and Arabic versions of this instrument have been validated in Saudi patients.[35,36] As a self-reporting adherence assessment questionnaire, the GMAS comprises 11 items, each with four response options: never (0), sometimes (1), mostly (2), and always (3). Accordingly, the total score ranged from 0 to 33, with adherence levels designated as poor (0–10), low (11–16), partial (17–26), good (27–29), or high (30–33).[36] Overall medication adherence was further classified based on cumulative grading as adherent at a score of 27 and above and non-adherent at a score of 26 and below.[36] With a Cronbach's α coefficient of 0.777, the GMAS used in this study was found to have acceptable internal consistency reliability. Permission to use the study instruments was obtained from the corresponding author.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of the University of Hail (Ethical Approval No.: H-2024-085, March 4, 2024) and the Hail Health Cluster (Ethical Approval No.: 2024–13, March 6, 2024). After the study was approved, the researcher obtained the contact information of patients with HF from their medical records at the Cardiac Center of King Salman Specialist Hospital in Ha' il. After patients were initially approached by the nurse responsible for their care, the researcher distributed informed consent forms and questionnaires to them after being informed, both verbally and in print, about the purpose of the study, potential risks or benefits, the confidentiality of their data, and their right to withdraw from the study. This study complied with the Declaration of Helsinki.

Data Analysis

Data were analyzed using the IBM SPSS Statistics software for Windows® (version 27.0; IBM Corp., Armonk, NY, USA). Frequencies and percentages were used to display categorical data, and the mean and standard deviation (SD) or median and interquartile range (IQR) were used to summarize continuous data if they were not normally distributed. The level of medication adherence was categorized as poor (first quartile), moderate (second quartile), and high (third quartile),[1] while QoL was divided into good (score <24), moderate (score 24–45), and poor (score >45).[37]

Spearman correlation coefficient was used to evaluate the correlation between medication adherence and QoL. Additionally, the association between patient characteristics, medication adherence, and poor QoL was evaluated using univariate analysis and the chi-squared test or Fisher's exact test, as appropriate. The results are reported as odds ratios (OR) and corresponding 95% confidence intervals (CI). Multivariable binary logistic regression was performed to identify independent predictors of poor QoL among patients with HF. Adjusted ORs (AORs) and corresponding 95% CIs for each predictor of poor QoL were also calculated. p was set at <0.05.

Results

Sociodemographic Characteristics of the Study Population

Of the 229 patients with HF in this study, Table 1 shows that more than half were aged 45 years or younger, with a median age of 45 years and an interquartile range of 11, and rural residents. Most patients were men (64.6%) and single

Table 1 Characteristics of Patients with HF Included in the Study (N=229)

Characteristics	n	(%)
Age (years)		
Median (IQR): 46.53 (11)		
≤45	124	(54.1)
>45	105	(45.9)
Gender		
Men	148	(64.6)
Women	81	(35.4)
Marital status		
Single	96	(41.9)
Married	73	(31.9)
Widowed/divorced	60	(26.1)
Place of residence		
Rural	120	(52.4)
Urban	109	(47.6)
Level of education		
Primary	69	(30.1)
Intermediate	81	(35.4)
Secondary	51	(22.3)
University or higher	28	(12.2)
Employment status		
Unemployed	73	(31.9)
Employee	69	(30.1)
Student	62	(27.1)
Retired	25	(10.9)
Monthly income (SR)		
<5,000	76	(33.2)
5,000–10,000	92	(40.2)
>10,000	61	(26.6)
Duration since HF diagnosis (years)	64	(27.9)
<1	67	(29.3)
1–5	27	(11.8)
6–10	71	(31.0)
>10		
Number of medications taken		
One	54	(23.6)
Two	68	(29.7)
Three	72	(31.4)
Four	35	(15.3)
Smoking status		
Current smoker	77	(33.6)
Non-smoker	105	(45.9)
Ex-smoker	47	(20.5)

(*Continued*)

Table 1 (Continued).

Characteristics	n	(%)
BMI		
Underweight	20	(8.7)
Healthy weight	76	(33.2)
Overweight	40	(17.5)
Obesity	93	(40.6)
Presence of chronic comorbidities		
None	14	(6.1)
HTN	69	(30.1)
DM	54	(23.6)
COPD	23	(10.0)
CHD	7	(3.1)
CKD	62	(27.1)

Abbreviations: BMI, body mass index; HF, heart failure; SR, Saudi Riyals; HTN, hypertension; CHD, coronary heart disease; DM, diabetes mellitus; CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disease.

(41.9%). In addition, most patients had an intermediate level of education (35.4%), followed by those with primary and secondary levels of education (30.1% and 22.3%, respectively), with 12.2% achieving a university level or higher. Regarding employment status, most patients were unemployed (31.9%), followed by employed (30.1%). However, students and retirees accounted for 27.1% and 10.9% of patients, respectively. Most patients (40.2%) reported earning 5000–10,000 Saudi Riyals (SR) per month, while 33.2% earned less than 5.000 SR and 26.6% earned more than 10,000 SR.

Table 1 shows that 31% of patients were diagnosed with HF for more than 10 years, followed by those diagnosed within the last five years (29.3%), and within less than one year (27.9%). Comparable proportions of patients reported taking two and three medications (29.7% and 31.4%, respectively), followed by those taking a single medication (23.6%) and four medications (15.3%). The majority of the patients were non-smokers (45.9%), while the remaining patients were either current smokers (33.6%) or ex-smokers (20.5%). In addition, most patients with HF in this study were classified as obese (40.6%), followed by those with a healthy weight (33.2%), whereas the remaining patients were either overweight (17.5%) or underweight (8.7%). Regarding the presence of chronic comorbidities, HTN was the most common condition among 30.1% of patients, followed by CKD (27.1%), DM (23.6%), COPD (10.0%) and CHD (3.1%). However, 6.1% of the patients had no chronic comorbidities.

Medication Adherence and Quality of Life Among Patients with Heart Failure

Table 2 demonstrates that the total mean score of medication adherence among patients with HF was 17.53 ± 6.94. In contrast, patients' adherence levels ranged from moderate (47.2%) to high (29.7%) and poor (23.1%), with the majority of patients exhibiting a moderate level of adherence.

The mean score of physical QoL among patients with HF was 15.24 ± 8.65 (range: 0–38) on a scale of 0 to 40, and the mean score of emotional QoL was 10.53 ± 5.82 (range: 0–25) on a scale of 0 to 25. The total QoL mean score was 42.16 ± 20.53 (range: 0–93) on a scale of 0 to 105. On the other hand, 51.1% of patients exhibited poor QoL, followed by those exhibiting moderate QoL (31.9%) and good QoL (17%).

Correlation Between Medication Adherence and Quality of Life

Table 3 shows moderate negative correlations between medication adherence and physical QoL ($r = -0.51$), emotional QoL ($r = -0.59$), and overall QoL ($r = -0.59$), which were statistically significant ($p < 0.001$). Figure 1 also shows that 45% of the variance in QoL was explained by variations in medication adherence ($r^2 = 0.45$).

Table 2 Medication Adherence and QoL Among Patients with HF Receiving Care (N=229)

Medication Adherence	**Mean ± SD**	**n**	**%**
Total adherence score	17.53 ± 6.94		
Levels of adherence			
Poor		53	(23.1)
Moderate		108	(47.2)
High		68	(29.7)
QoL subscales and classification[a]	**Possible score range**	**Observed range**	**Mean score ± SD [a]**
Subscales			
Physical	0–40	0–38	15.24 ± 8.65
Emotional	0–25	0–25	10.53 ± 5.82
Overall	0–105	0–93	42.16 ± 20.53
Classification		**n**	**(%)**
Good		39	(17.0)
Moderate		73	(31.9)
Poor		117	(51.1)

Notes: [a]signifies that Higher scores indicated poorer QoL.
Abbreviations: QoL, quality of life; HF, heart failure; SD, standard deviation.

Table 3 Correlation Between Medication Adherence and Poor QoL Among Patients with HF Receiving Care (N=229)

Medication Adherence	**QoL[a]**		
	Physical	**Emotional**	**Overall**
r	−0.51	−0.59	−0.59
p	<0.001*	0.001*	0.001*

Notes: The star sign *indicates significant results; [a]signifies that higher scores indicate poorer QoL.
Abbreviations: r, Spearman correlation coefficient; QoL, quality of life; HF, heart failure.

Predictors of Poor QoL Among Patients with HF

Univariate analysis showed a significant association between age and poor QoL, where patients over 45 years of age were approximately twice as likely to have poor QoL as those aged 45 years or younger (OR = 1.9, 95% CI: 1.15–3.30; p =0.014). However, after adjusting for other variables in the multivariate analysis, this association was no longer significant (AOR = 1.5, 95% CI: 0.73–3.18; p =0.266). In addition, patients' employment status was found to be significantly associated with poor QoL, with employed patients being three times and students 3.5 times more likely to have poor QoL than unemployed patients (OR = 3.0, 95% CI: 1.51–5.93; p <0.001 and OR = 3.5, 95% CI: 1.70–7.04; p <0.001, respectively), but none of these associations were found to be statistically significant in multivariable analysis (AOR = 0.7, 95% CI: 0.26–2.08; p =0.565 and AOR = 0.8, 95% CI: 0.29–2.20; p <0.666, respectively) (Table 4).

Table 4 also shows that the duration since HF diagnosis was found to be significantly associated with poor QoL, with patients diagnosed for more than a year being approximately four times more likely to have poor QoL than those diagnosed within less than a year (OR = 3.8, 95% CI: 2.05–7.18; p <0.001). However, this association was confirmed to be non-significant in the multivariate analysis (AOR = 2.2, 95% CI: 0.72–6.53; p =0.168). Residence in urban areas and current smoking status were significantly associated with poor QoL (OR = 2.1, 95% CI: 1.23–3.52; p = 0.007 and OR = 0.5, 95% CI: 0.27–0.89; p =0.020, respectively). However, these associations were confirmed to be not statistically significant by multivariate analysis (AOR = 1.1, 95% CI: 0.57–2.31; p =0.701 and AOR = 1.3, 95% CI: 0.54–3.08;

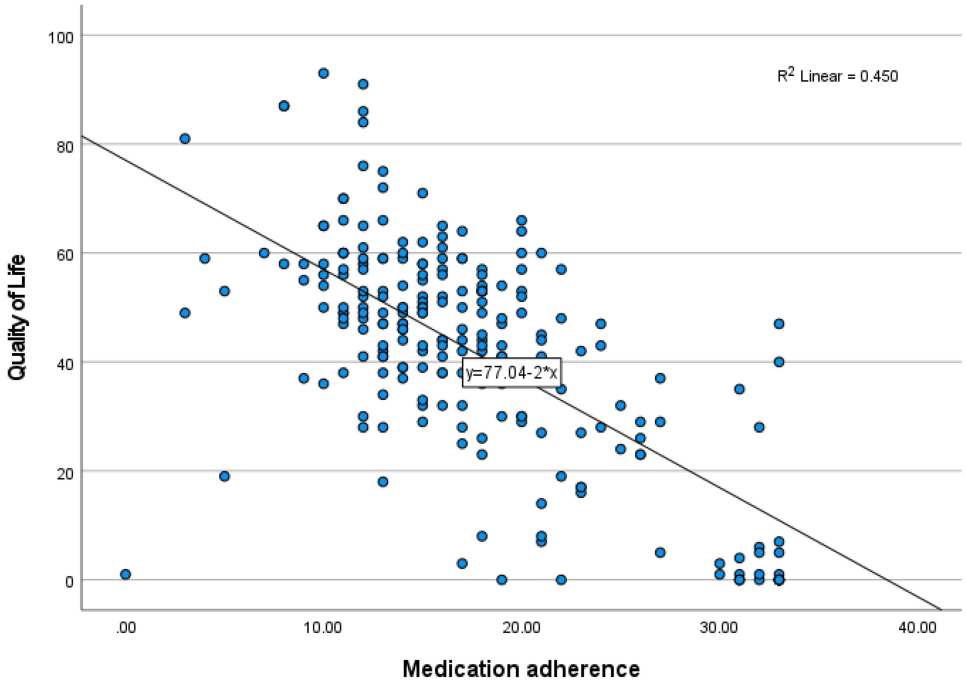

Figure 1 Correlation between Medication Adherence and poor QoL among Patients with HF (N=229).

p <0.564, respectively). In contrast, the presence of a comorbidity was significantly associated with improved QoL according to both univariate and multivariable analyses (OR = 0.2, 95% CI: 0.04–0.73; *p* =0.018 and AOR = 0.1, 95% CI: 0.02–0.93; *p* =0.042, respectively).

Table 4 Predictors of Poor Qol Among Patients with HF Receiving Care (N=229)

		n (%)	Univariate Logistic Regression		Multivariate Logistic Regression	
			AOR (95% CI)	*p*	AOR (95% CI)	*p*
Age (years)						
	≤ 45 Years	124 (54.1)	Reference		Reference	
	> 45 Years	105 (45.9)	1.94 (1.14, 3.29)	0.014*	1.52 (0.73, 3.17)	0.266
Gender						
	Men	148 (64.6)	Reference		Reference	
	Women	81 (35.4)	1.54 (0.89, 2.66)	0.121	1.96 (0.93, 4.17)	0.077
Marital status						
	Single	96 (41.9)	Reference		Reference	
	Married	73 (31.9)	3.53 (1.86, 6.70)	<0.001*	1.39 (0.57, 3.39)	0.467
	Widowed/Divorced	60 (26.2)	5.13 (2.54, 10.34)	<0.001*	1.75 (0.68, 4.55)	0.245

(*Continued*)

Table 4 (Continued).

		n (%)	Univariate Logistic Regression		Multivariate Logistic Regression	
			AOR (95% CI)	*p*	AOR (95% CI)	*p*
Level of education						
	Primary	69 (30.1)	Reference		Reference	
	Intermediate	81 (35.4)	3.72 (1.86, 7.45)	<0.001*	0.99 (0.36, 2.73)	0.994
	Secondary	51 (22.3)	5.19 (2.36, 11.40)	<0.001*	0.95 (0.31, 2.99)	0.942
	University	28 (12.2)	7.08 (2.65, 18.87)	<0.001*	0.76 (0.19, 3.08)	0.705
Employment status						
	Non-employee	73 (31.9)	Reference		Reference	
	Employee	69 (30.1)	2.99 (1.51, 5.93)	0.002*	0.74 (0.26, 2.08)	0.565
	Student	62 (27.1)	3.46 (1.70, 7.04)	0.001*	0.80 (0.29, 2.19)	0.666
	Retired	25 (10.9)	2.21 (0.87, 5.57)	0.092	0.34 (0.08, 1.31)	0.118
Monthly income (SR)						
	< 5000	76 (33.2)	Reference		Reference	
	5000–10,000	92 (40.2)	6.04 (3.05, 11.93)	<0.001*	2.39 (0.87, 6.55)	0.090
	> 10,000	61 (26.6)	5.71 (2.71, 12.01)	<0.001*	2.01 (0.66, 6.06)	0.217
HF duration (years)						
	<1	64 (27.9)	Reference		Reference	
	≥1	165 (72.1)	3.83 (2.04, 7.18)	<0.001*	2.17 (0.72, 6.53)	0.168
Number of medications						
	One	54 (23.6)	Reference		Reference	
	Two	68 (29.7)	12.02 (4.85, 29.76)	<0.001*	3.77 (1.07, 13.20)	0.038*
	Three	72 (31.4)	10.81 (4.42, 26.42)	<0.001*	2.55 (0.73, 8.92)	0.142
	Four	35 (15.3)	4.84 (1.77, 13.20)	0.002*	1.93 (0.48, 7.75)	0.349
Place of residence						
	Rural	120 (52.4)	Reference		Reference	
	Urban	109 (47.6)	2.07 (1.22, 3.52)	0.007*	1.14 (0.56, 2.31)	0.701
Smoking status						
	Non-smoker	105 (45.9)	Reference		Reference	
	Ex-smoker	47 (20.5)	1.43 (0.70, 2.90)	0.322	1.39 (0.57, 3.38)	0.458
	Smoker	77 (33.6)	0.49 (0.26, 0.89)	0.020*	1.29 (0.54, 3.07)	0.564
Presence of a comorbidity						
	No	14 (6.1)	Reference		Reference	
	Yes	215 (93.9)	0.15 (0.03, 0.72)	0.018*	0.14 (0.02, 0.93)	0.042*

(*Continued*)

Table 4 (Continued).

		n (%)	Univariate Logistic Regression		Multivariate Logistic Regression	
			AOR (95% CI)	*p*	AOR (95% CI)	*p*
Medication adherence						
	High	68 (29.7)	Reference		Reference	
	Medium	108 (47.2)	5.83 (2.81, 12.10)	<0.001*	3.01 (1.25, 7.26)	0.014*
	Poor	53 (23.1)	26.25 (9.88, 69.72)	<0.001*	16.20 (4.99, 52.54)	<0.001*

Notes: Star sign (*) indicates significant results.
Abbreviations: QoL, quality of life; HF, heart failure; AOR, Adjusted odds ratio; CI, confidence interval.

Discussion

To the best of our knowledge, this study is the first to investigate the predictors of QoL and their relationship with medication adherence among patients with HF in the Hail region of Saudi Arabia. The study revealed that less than one-third of patients with HF in Hail City demonstrated high levels of adherence to their prescribed medications, suggesting that most patients face challenges or barriers that impede their ability to adhere to their prescribed medications. This finding is consistent with those of previous studies, which found predominantly poor medication adherence rates. For example, studies conducted in Tanzania and Jordan reported good medication adherence rates of 25.3% and 33.5%, respectively, among patients with HF.[9,38] Similarly, another study in Jordan showed that 31.4% of patients with cardiovascular disease adhered to their prescribed medications.[39] Medication adherence reflects patients' behaviors in following prescribed regimens and health instructions, which in turn can help enhance physiological functions, improve QoL, and reduce rehospitalization rates.[40] Psychosocial problems such as depression, anxiety, and stress have been linked to medication non-adherence.[39] Conversely, high self-esteem, more frequent hospital visits, better knowledge and awareness of the disease, and certain sociodemographic factors have been positively correlated with medication adherence.[22,39,41–44]

The present study revealed that a decline in medication adherence among patients with HF led to a corresponding decrease in both the physical and emotional dimensions of QoL as well as their overall QoL. This was evidenced by the presence of significant, moderate negative correlations between patients' medication adherence and the different dimensions of their QoL, with 45% of QoL explained by patients' adherence to their HF medications. Consequently, it is imperative to address inadequate medication adherence among these patients in order to improve various aspects of their well-being and QoL.

Similarly, a positive relationship between medication adherence and health-related QoL has been found among patients with HF in Thailand.[1] This underscores the critical role of medication adherence in reducing hospitalizations and improving patients' QoL by alleviating HF symptoms such as difficulties in performing activities, sleep problems, and breathlessness. Effective symptom management can improve the physical, emotional, and social functioning of patients and ultimately enhance their overall QoL.[1,7]

Therefore, medication adherence is not only an important modifiable factor influencing QoL among HF patients, but also a crucial factor for controlling blood sugar and improving QoL among patients with diabetes,[45] hypoparathyroidism,[46] and ischemic heart disease.[47]

This study found that more than half of the patients with HF had poor QoL, suggesting that these patients faced difficulties across various aspects of their lives related to their HF condition. This finding is consistent with studies conducted in Ethiopia, where poor QoL was found in more than half of patients with HF.[37,48] Likewise, poor physical and mental QoL were reported among 51.7% and 45.7% of Chinese patients with HF, respectively.[49] In Jordan, patients with HF have a low health-related QoL.[50] These consistent findings across different countries highlight the impact of HF on patients' QoL, and the need for interventions and support systems that address the challenges faced by these patients to improve their QoL.

Except for sex, all the factors investigated in the present study were found to be associated with QoL. However, multivariable binary logistic regression analysis revealed that medication adherence, number of medications, and presence of chronic comorbidity were independent predictors of poor QoL. These findings align with previous research that identified several predictors of health-related QoL, including medication adherence, comorbidities, and the duration of HF.[51–56]

Limitations of the Study

This study is the first to examine the relationship between medication adherence and QoL in patients with HF in the Hail Region of Saudi Arabia. The findings of this study can aid healthcare professionals and policymakers in developing targeted interventions to improve health-related QoL in patients with HF. However, its cross-sectional design limits its ability to establish causality between medication adherence and QoL. Additionally, the study was conducted in a single health facility and convenience sampling was adopted, which may limit the generalizability of the results to other regions of the kingdom or populations. Another limitation is the inability to establish a link between disease-related factors, such as NYHA class, and QoL among patients with HF, which could provide a more comprehensive understanding of the factors influencing patients' QoL.

Conclusions

Moderate-to-poor levels of medication adherence and QoL are common among HF patients receiving care in Hail City. Meanwhile, their QoL is influenced by their levels of medication adherence, as higher adherence levels positively impact their physical and emotional well-being, ultimately leading to enhanced overall QoL. Therefore, interventions aimed at improving medication adherence among patients with HF must be prioritized to enhance health outcomes and QoL. Nevertheless, given the limitations of this study, further studies should employ longitudinal designs to gain deeper insights into the relationship between medication adherence and QoL in this particular population. Moreover, it is crucial to address the factors that negatively influence medication adherence to overcome barriers that hinder optimal medication adherence.

Institutional Review Board Statement

This study was approved by the Institutional Review Board (IRB) of the University of Ha' il (Ethical Approval No.: H-2024-085, March 4, 2024) and Ha' il Health Cluster (Ethical Approval No.: 2024-13, March 6, 2024).

Data Sharing Statement

Data in this study will be provided upon request by the corresponding author.

Informed Consent Statement

Informed consent was obtained from all the subjects involved in the study.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis, and interpretation, or in all these areas, took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that there is no conflict of interest.

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