Patient Factors Associated with Adherence, and the Change in Cardiac Risk Factors Among Cardiac Rehabilitation Patients in Qatar

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Background

cardiovascular disease is the number one killer in Qatar(1). Cardiac rehabilitation (CR) is a secondary prevention model of care for cardiac patients. It is proven that CR reduces cardiovascular mortality by 20% (2). However, CR is underutilized worldwide, with low enrolment and adherence rates (3). This study aims (a) to investigate factors associated with adherence (median number of sessions, i.e. 21), and (b) to examine the relationship between adherence and change in cardiac risk factors, i.e. blood pressure, cholesterol, and low-density lipoprotein (LDL)

Method and materials

This study consisted of 714 cardiac patients, aged ≥18 years, who were referred to the cardiac rehabilitation program in Qatar. **Retrospective cohort study using data from (January 2013-September 2018)** were analysed. **Logistic regression** models were used to assess factors associated with adherence. **Multiple linear regression models** were used to examine the relationship between the number of CR sessions attended and changes in cardiac risk factors.

Figure1: Study Flow Chart

Results

The mean age of our population was 52.7±10.1 years. The majority of our patients were males (n=641, 89.8%) and non-Qatari (n= 596, 83.5%). One fourth were smokers (n=185, 25.91%), and one fifth (n=128, 18.8%) were diagnosed with severe depression. Patients with AACVPR moderate and high-risk levels were more likely to adhere compared to those with low risk. PCI and musculoskeletal disease were negatively associated with adherence **(Table 1).** We found clinically significant health improvements among adherents compared to non-adherents; reduction of 10% in cholesterol, and 15% in low-density lipoprotein (LDL) **(Tables 2 and 3).** The median number of sessions attended by the patients was **22 (Figure 2)**
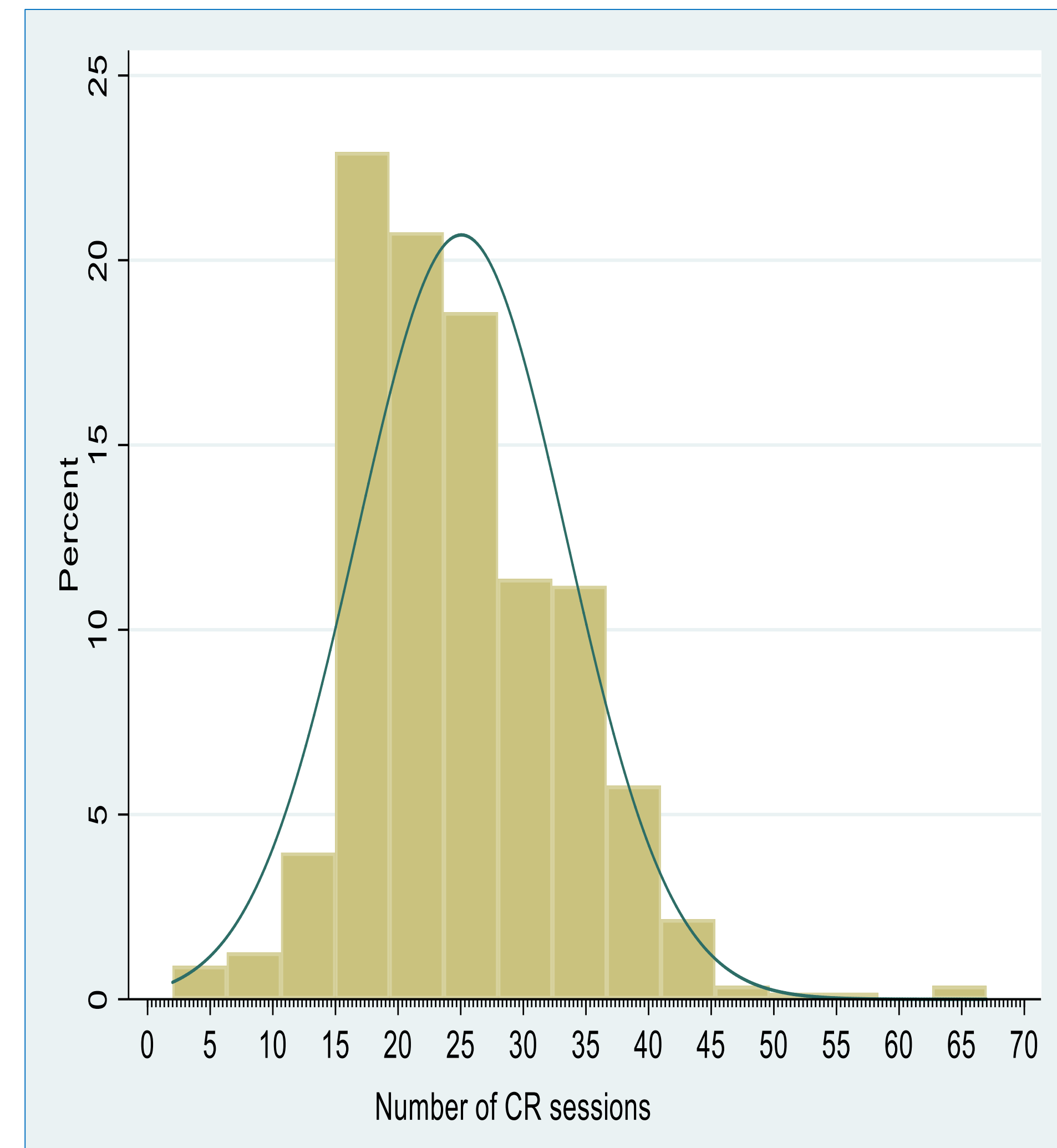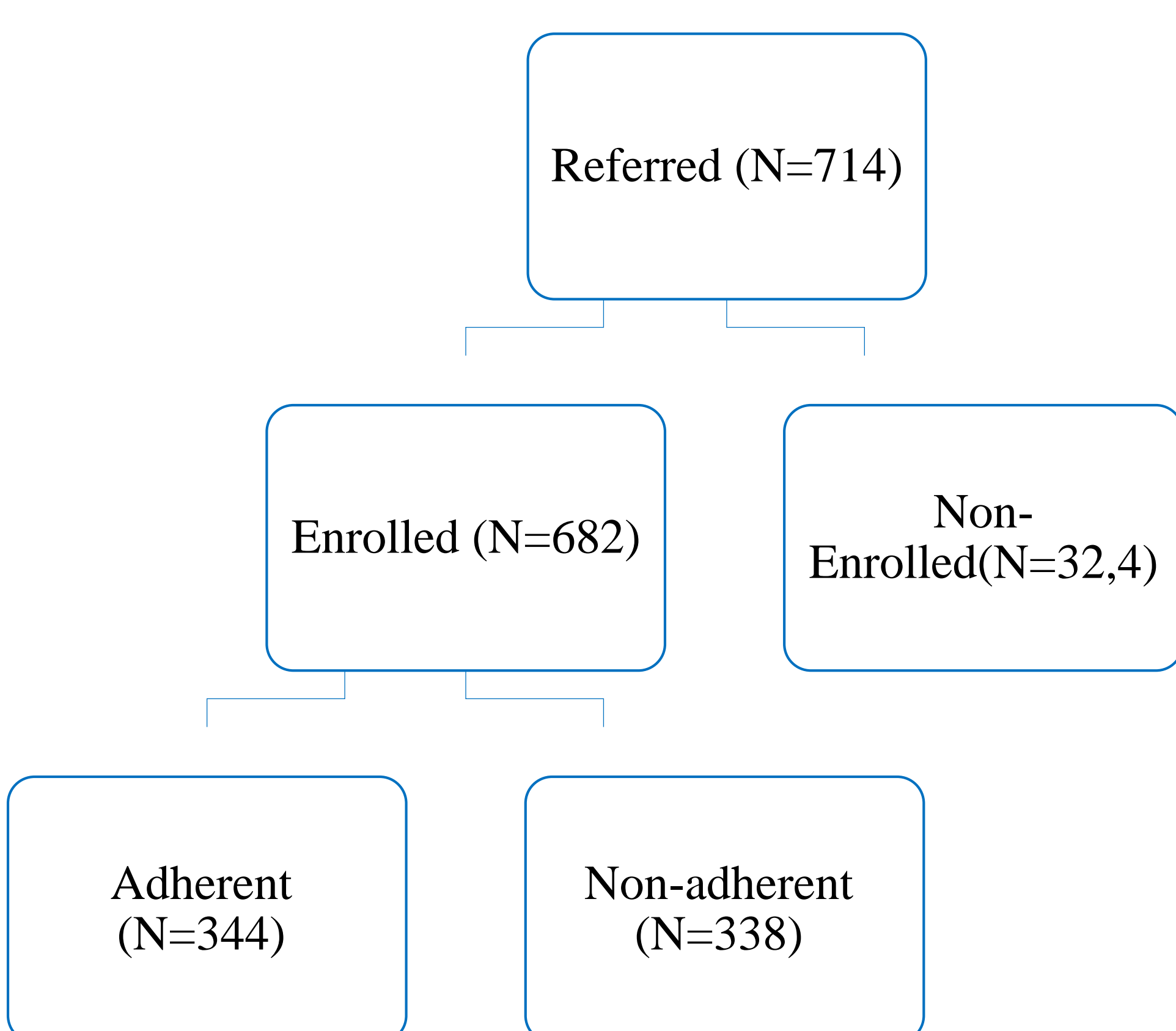
Table 1: Patients factors associated with adherence

Variables	OR	95%CI		P-value
Age (years)	1.01	0.98	1.04	0.42
Gender				
Female	Ref			
Male	1.20	0.53	2.74	0.66
AACVPR Risk Category				
Low risk	Ref			
Moderate risk	12.71	7.81	20.68	<0.001
High risk	10.60	6.44	17.44	<0.001
PCI				
No	Ref			
Yes	0.39	0.17	0.89	0.03
CABG				
No	Ref			
Yes	0.49	0.19	1.28	0.14
Musculoskeletal diseases				
No	Ref			
Yes	0.15	0.06	0.5	0.003

Table 2: Change in Clinical Measures Among Adherent and Non-adherent group

Measures	Adherence			
	Pre	Post	Change	% change
BMI (Kg/m²)	29.18±5.36	27.63± 5.23	-0.54±2.40	-1.8%
LDL (mmol/L)	1.95±0.93	1.26±0.78	-0.31±0.86	**-15%**
Cholesterol(mmol/L)	3.66±1.09	3.26±0.74	-0.40±0.89	**-10%**
SBP (mm Hg)	130.35±18.65	124.98±15.81	-5.36±17.33	-4%
Measures	**Nonadherence**			
BMI (Kg/m²)	28.07±5.03	27.62±5.23	-0.44±2.09	-1.5%
LDL (mmol/L)	1.95±1.02	1.63± 1.51	-0.32±0.93	**-16%**
Cholesterol(mmol/L)	3.62± 1.25	3.28±0.92	-0.33±0.96	-9.11%
SBP (mm Hg)	6.58± 1.56	6.32± 1.30	-0.25±0.94	-3.79%

Figure2: Distribution of CR sessions attended by patients

Recommendations

Research is needed to better understand the patient factors associated with enrolment with a **larger sample size.** We recommend to re-conduct this study but with **including those critical variables** associated with enrolment and adherence, such as education, employment status, social support, and social status. A **combination of quantitative and qualitative research** on why people drop out of the program or what could be the reasons Qatari patients do not adhere to such programs could be a good future study in this area.

Conclusion

This study provides new insights in Qatar setting into factors that lead patients to adhere to their CR sessions. These factors represent opportunities for targeted interventions to improve CR utilization.

References

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