

## Background

Congestive Heart Failure (CHF) affects more than 5.7 million Americans and is the leading cause of hospitalization among adults 65 years and older. CHF has the highest growth rate and is the most common diagnosis among Medicare beneficiaries. Poor self-management, lack of post discharge follow-up, limited support and resources, and non-adherence to diet, lifestyle, and medication regimens contribute to persistently high readmission rates.

Cardiac Rehabilitation Programs (CR) are associated with positive impacts in quality of life, disease self-management, exercise capacity, self-care outcomes, and ability for CHF patients to perform daily living activities. Consequently, in 2014, Centers for Medicare and Medicaid expanded coverage for CRs to include CHF patients meeting standardized criteria. Hackensack University Medical Center's Cardiac Prevention and Rehabilitation Center (CPRC), established for more than twenty years, is an integral component of the nurse-led CR. Therefore, the purpose of this retrospective pilot study was to compare the outcomes in CHF patients at pre and post completion of the Phase II 12-week CPRC.

## Methods

This retrospective pilot study was conducted at the CPRC at Hackensack University Medical Center. Historical data from 2016-2019 indicated that approximately 55 CHF patients successfully enrolled in the CPRC. Knowledge and behavior changes related to disease management, functional status, depression, body weight, quality of life, and medication and dietary adherence data were measured in CHF patients before and after completion of the CPRC.

### Hypothesis:

- $H_0$ : CHF patients who complete the Phase-II 12-week Cardiac Rehab program will demonstrate no differences in knowledge, behavior, and patient outcomes.
- $H_A$ : CHF patients who complete the Phase-II 12-week Cardiac Rehab program will demonstrate differences in knowledge, behavior, and patient outcomes.

**Patient Population:** Adult patients (18+ y.o.), history of CHF diagnosis, Class II-IV Heart Failure, systolic dysfunction, ejection fraction  $\leq 35\%$ , no planned/ scheduled major medical interventions, had optimized medical therapy for 6 weeks, and completed the Cardiac Rehab program.

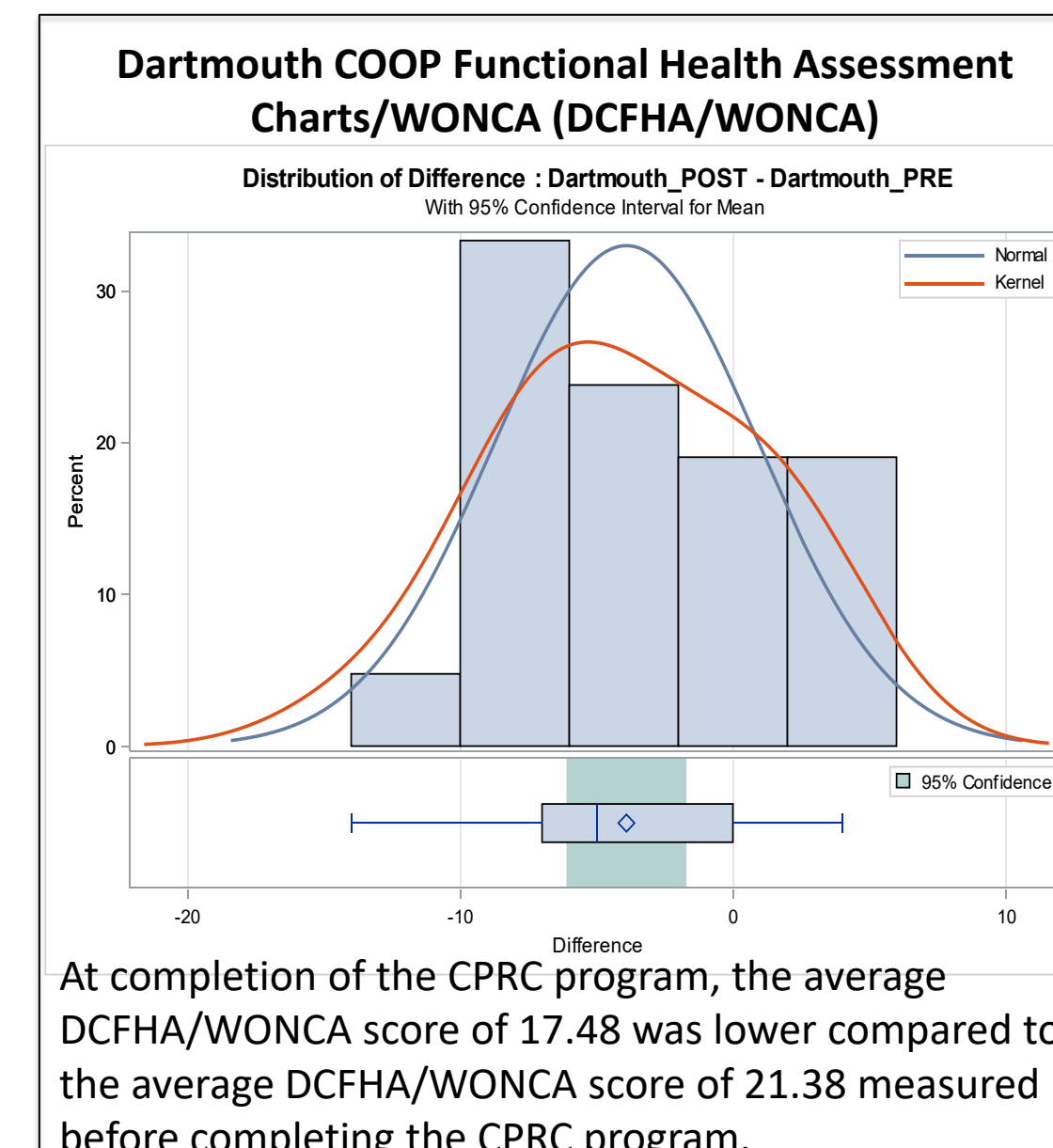
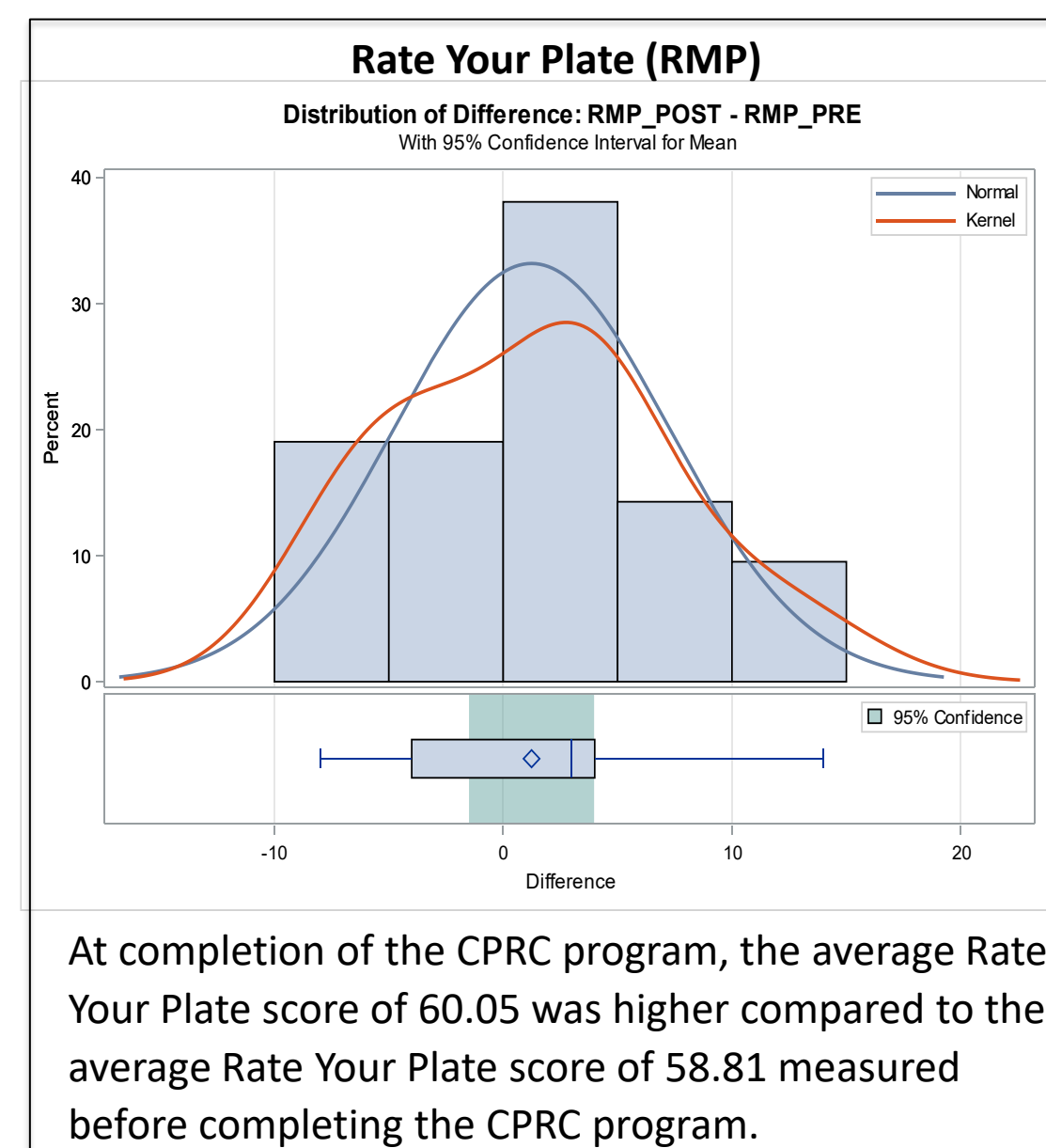
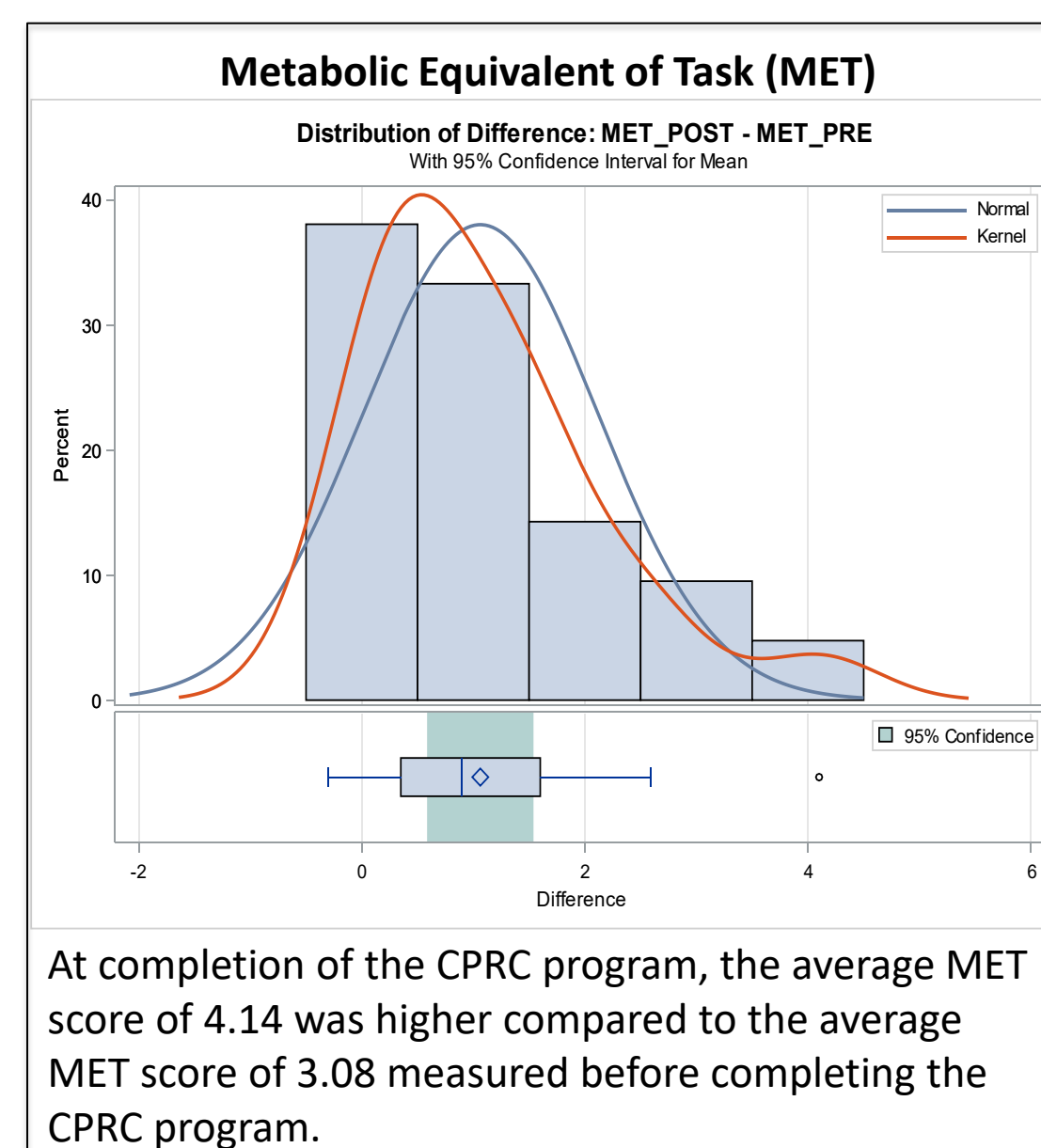
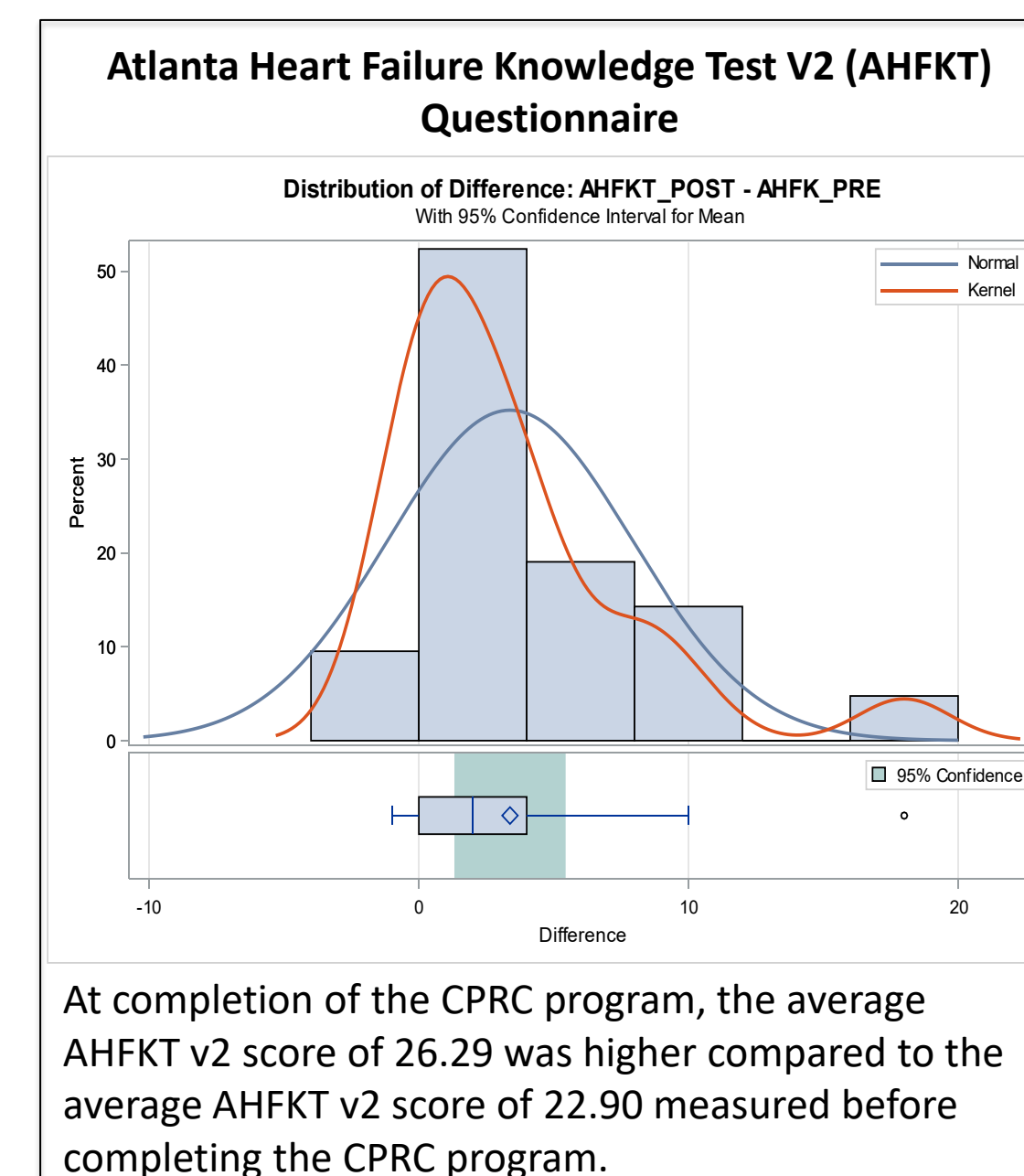
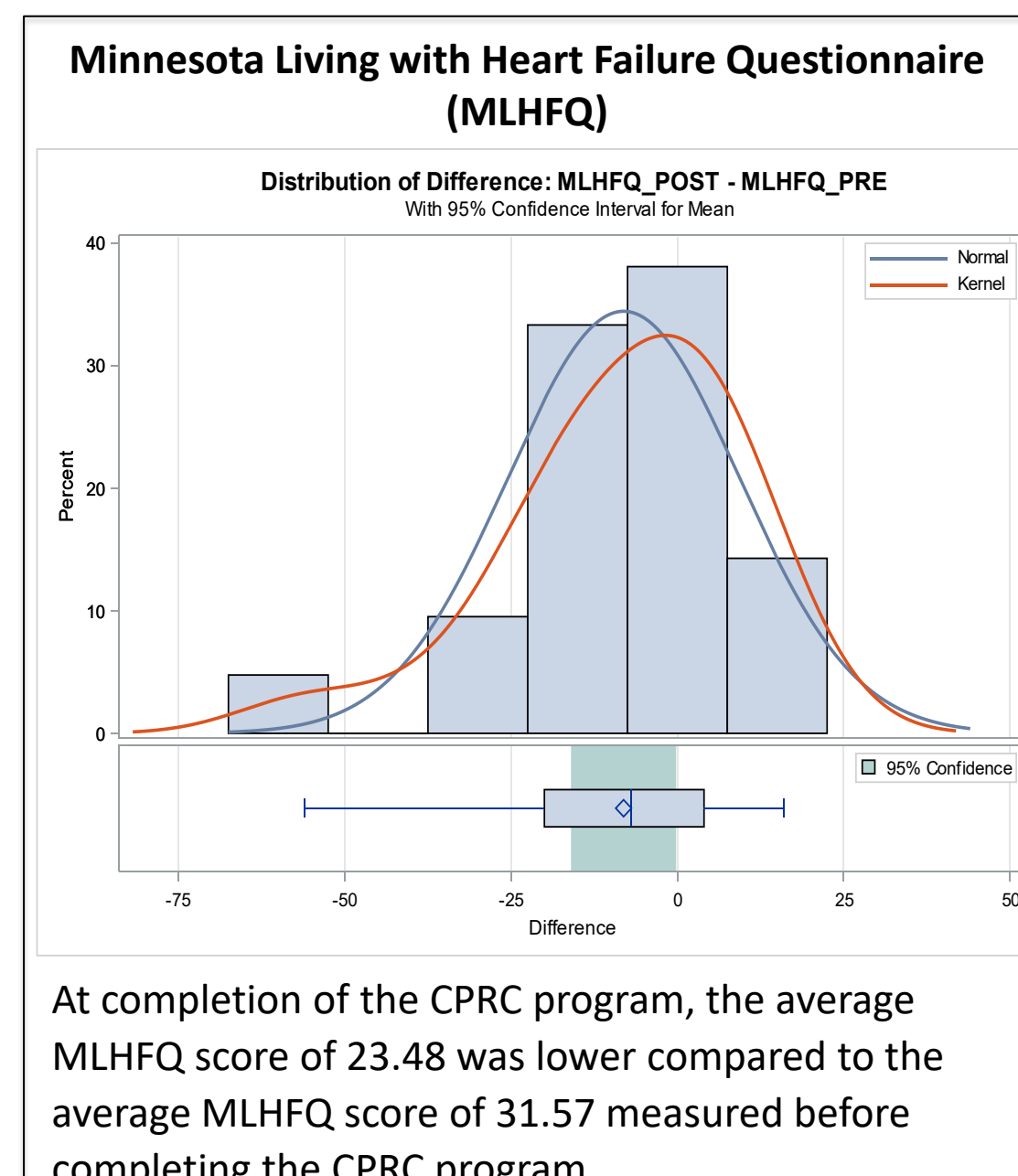
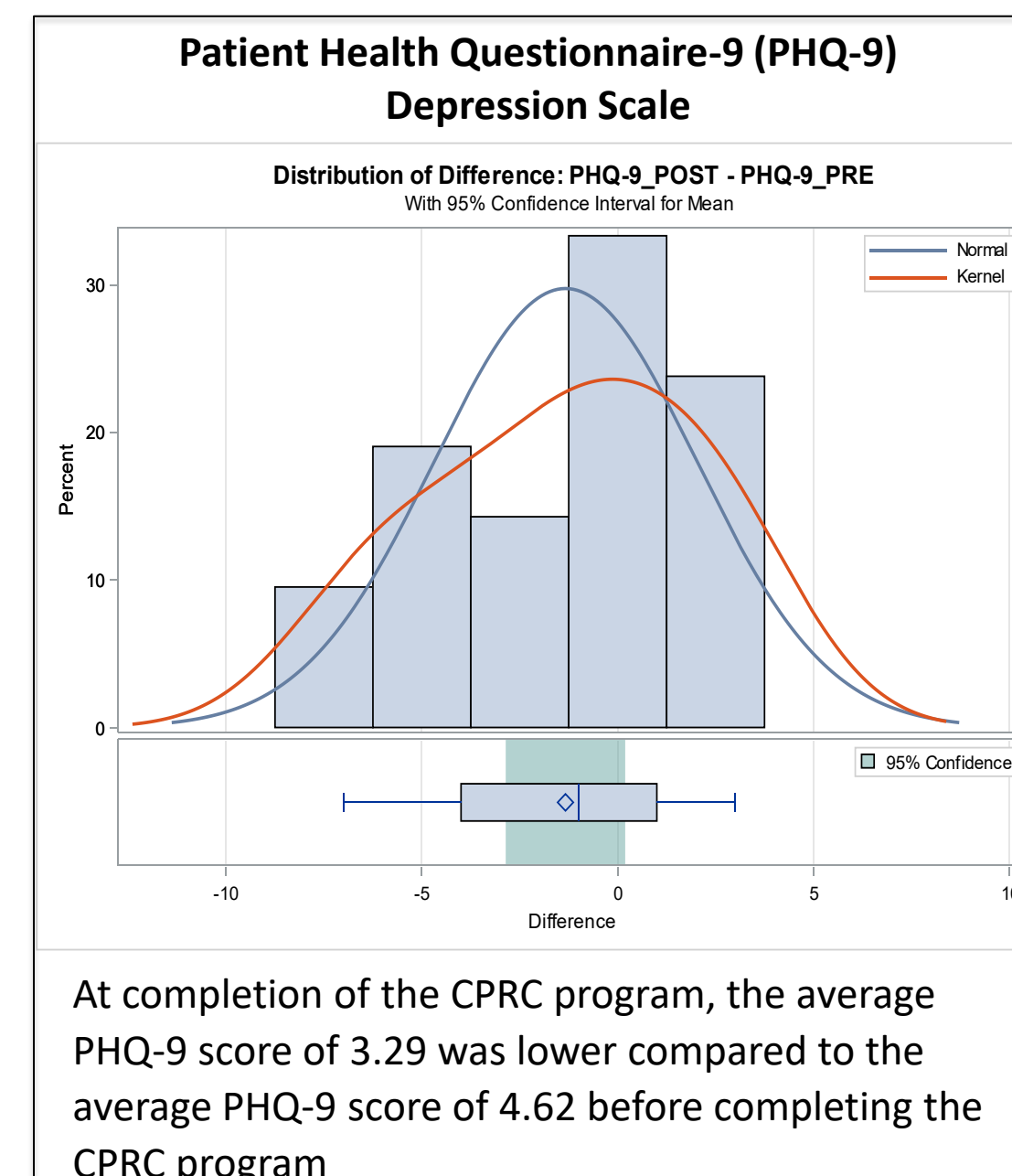
## Results

### Study Sample:

From 2016-2019, 55 CHF patients in the Phase II 12-week CPRC were screened according to the eligibility criteria and 21 subjects met criteria for enrollment.

This sample achieved a calculated statistical power of 90% which exceeds the 80% statistical power threshold for sample sizes.

Study Instruments	Average Score Before Cardiac Rehab (N=21)	Average Score After Cardiac Rehab (N=21)	Difference in Average Scores (N=21)	P value (Significance Lvl p value $\leq 0.05$ )
DCFHA/ WONCA	21.38	17.48	-3.9	0.0014
AHFKT v2	22.90	26.29	-3.39	0.0027
Rate Your Plate	58.81	60.05	1.24	0.3562
MLHFQ	31.57	23.48	-8.09	0.0452
PHQ9	4.62	3.29	-1.33	0.0833
MET	3.08	4.14	1.06	0.0002



## Limitations

- Data is from a convenience sample, thus under-representation and/or over-representation can affect data quality and cause potential data gathering bias.
- Statistical significance is impacted by the size of the sample. A larger sample size for comparison could provide a more precise analysis and thereby impact the statistical significance.

## Conclusions

Study findings indicate that the Phase II Cardiac Rehabilitation Program results in positive differences in knowledge, behavior and patient outcomes.

- [DCFHA/WONCA Analysis Summary](#): study participants demonstrated increased knowledge and behavior related to disease management after completing the CPRC.
- [AHFKT v2 Analysis Summary](#): study participants demonstrated increased knowledge and behavior related to disease management after completing the CPRC.
- [Rate Your Plate Analysis Summary](#): study participants demonstrated healthier eating habits after completing the CPRC.
- [MLHFQ Analysis Summary](#): Study participants indicated improved quality of life at completion of the CPRC.
- [PHQ-9 Analysis Summary](#): Study participants indicated lower depression severity at completion of the CPRC.
- [MET Analysis Summary](#): Study participants indicated higher activity intensity at completion of the CPRC.

## Next Steps

- Future studies can identify specific interventions that impact adherence and behavior changes.
- Additionally, our next study will seek to compare patients who complete the CR to those who receive usual care for CHF.

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