

Socioeconomic Marginalization is Associated with Lower Health Utilities (Quality of Life) in Chronic Hepatitis C Patients

**Yasmin Saeed, Kate Mason, Suzanne Chung,
Jason Altenberg, Jeff Powis, Julie Bruneau,
Jordan J Feld, Zeny Feng, Nicholas Mitsakakis,
Valeria E Rac, Karen E Bremner, Murray D Krahn,
William WL Wong**

BACKGROUND

BACKGROUND

- Viral infection that primarily affects the liver
 - Discovered 1989
 - ~0.7% of Canadians infected

BACKGROUND

- Viral infection that primarily affects the liver
 - Discovered 1989
 - ~0.7% of Canadians infected
- Transmitted parenterally (i.e. by blood)
 - Blood transfusions before 1992
 - Shared needles during IVDU

BACKGROUND

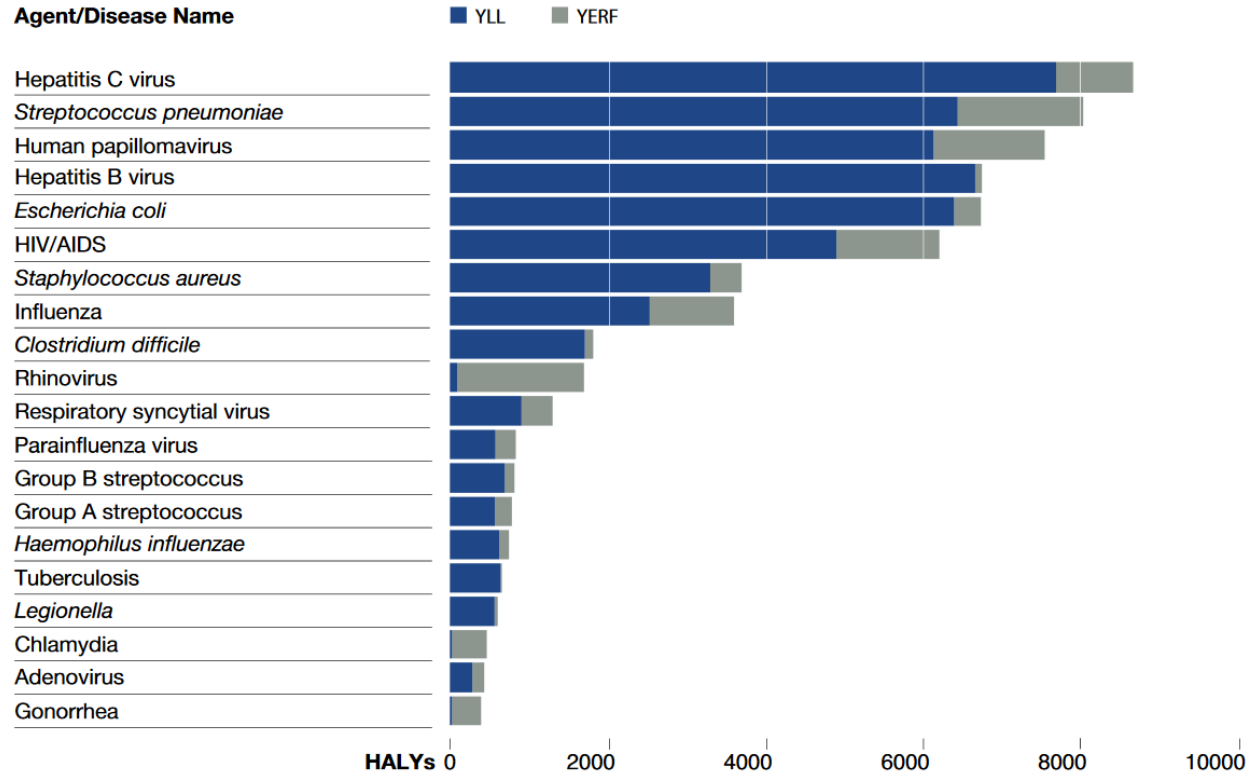
- Viral infection that primarily affects the liver
 - Discovered 1989
 - ~0.7% of Canadians infected
- Transmitted parenterally (i.e. by blood)
 - Blood transfusions before 1992
 - Shared needles during IVDU
- High burden of disease
 - Leading cause of liver transplants in Canada & US
 - Ranked most burdensome infectious disease in Ontario

BACKGROUND

Ontario Burden of **INFECTIOUS DISEASE** Study



Years of life lost due to premature mortality (YLL), year-equivalents of reduced functioning (YERF) and health-adjusted life years (HALYs) for the top 20 pathogens, ranked by disease burden



BACKGROUND

- HCV is a timely subject because:

BACKGROUND

- HCV is a timely subject because:
 1. Although rate of new infections declining, burden will soon reach a peak
 - Those infected 20 – 30 years ago are experiencing negative outcomes now

BACKGROUND

- HCV is a timely subject because:
 1. Although rate of new infections declining, burden will soon reach a peak
 - Those infected 20 – 30 years ago are experiencing negative outcomes now
 2. New medications available
 - Higher cure rate, fewer SEs, fewer contraindications

BACKGROUND

- HCV is a timely subject because:
 1. Although rate of new infections declining, burden will soon reach a peak
 - Those infected 20 – 30 years ago are experiencing negative outcomes now
 2. New medications available
 - Higher cure rate, fewer SEs, fewer contraindications
 - **High cost**
 - **Accurate pharmacoeconomic analysis is crucial**

BACKGROUND

- Economic analyses require **health utilities** that reflect QoL of CHC patients

BACKGROUND

- Economic analyses require **health utilities** that reflect QoL of CHC patients
 - Global measure of health status
 - Range from 0 (dead) to 1 (perfect health)
 - Preference-based
 - Can be measured directly or indirectly

BACKGROUND

- Existing utility data comes from hospital settings
 - Primarily middle-class patients

BACKGROUND

- Existing utility data comes from hospital settings
 - Primarily middle-class patients
- Socioeconomically marginalized populations not represented
 - Including PWID, incarcerated, homeless

BACKGROUND

- Existing utility data comes from hospital settings
 - Primarily middle-class patients
- Socioeconomically marginalized populations not represented
 - Including PWID, incarcerated, homeless
 - **Major limitation**
 - **Marginalized pop. disproportionately affected by CHC**
 - May experience different QoL

PURPOSE

PURPOSE

- Elicit health utilities (QoL scores) from marginalized CHC patients at community health clinics
 - To address a major gap in the utility literature
 - To enable future economic evaluations to include a more representative sample of hepatitis C patients

METHODS

METHODS

Toronto Community Hepatitis C Program (TCHCP)

- Community-based interprofessional program
- Provides CHC treatment, support, and education to marginalized individuals

METHODS

Toronto Community Hepatitis C Program (TCHCP)

- Community-based interprofessional program
- Provides CHC treatment, support, and education to marginalized individuals
- Difficulty accessing mainstream healthcare due to:
 - Alcohol and/or drug use
 - Low income
 - Past or current homelessness
 - Mental health issues

METHODS

Toronto Community Hepatitis C Program (TCHCP)

- Collaboration between 3 sites in downtown Toronto
- At each site, small group of patients meets weekly x16 weeks

METHODS

Toronto Community Hepatitis C Program (TCHCP)

- Collaboration between 3 sites in downtown Toronto
- At each site, small group of patients meets weekly x16 weeks
 - During each session, receive:
 - Group and individual support
 - CHC monitoring and/or treatment on-site
 - Food and public transit fare

METHODS

Toronto Community Hepatitis C Program (TCHCP)

- Collaboration between 3 sites in downtown Toronto
- At each site, small group of patients meets weekly x16 weeks
 - During each session, receive:
 - Group and individual support
 - CHC monitoring and/or treatment on-site
 - Food and public transit fare
- **Unique program that allows us to access this marginalized population**

METHODS

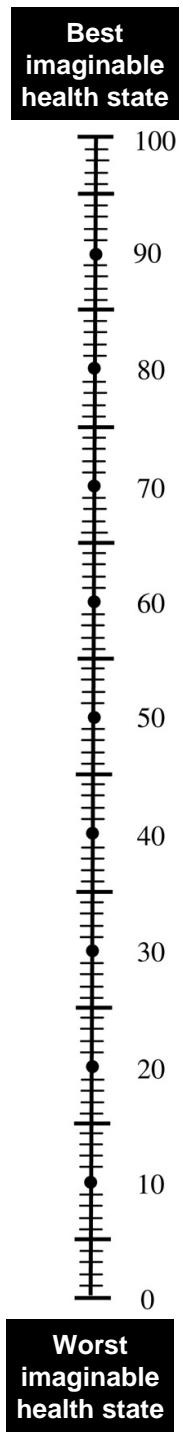
- Pilot study
 - Recruitment complete: 101 patients from TCHCP
- Measuring:
 1. Health utilities and quality of life using standardized instruments
 2. Demographic and clinical information
 3. (Out-of-pocket costs and time costs associated with CHC)

METHODS

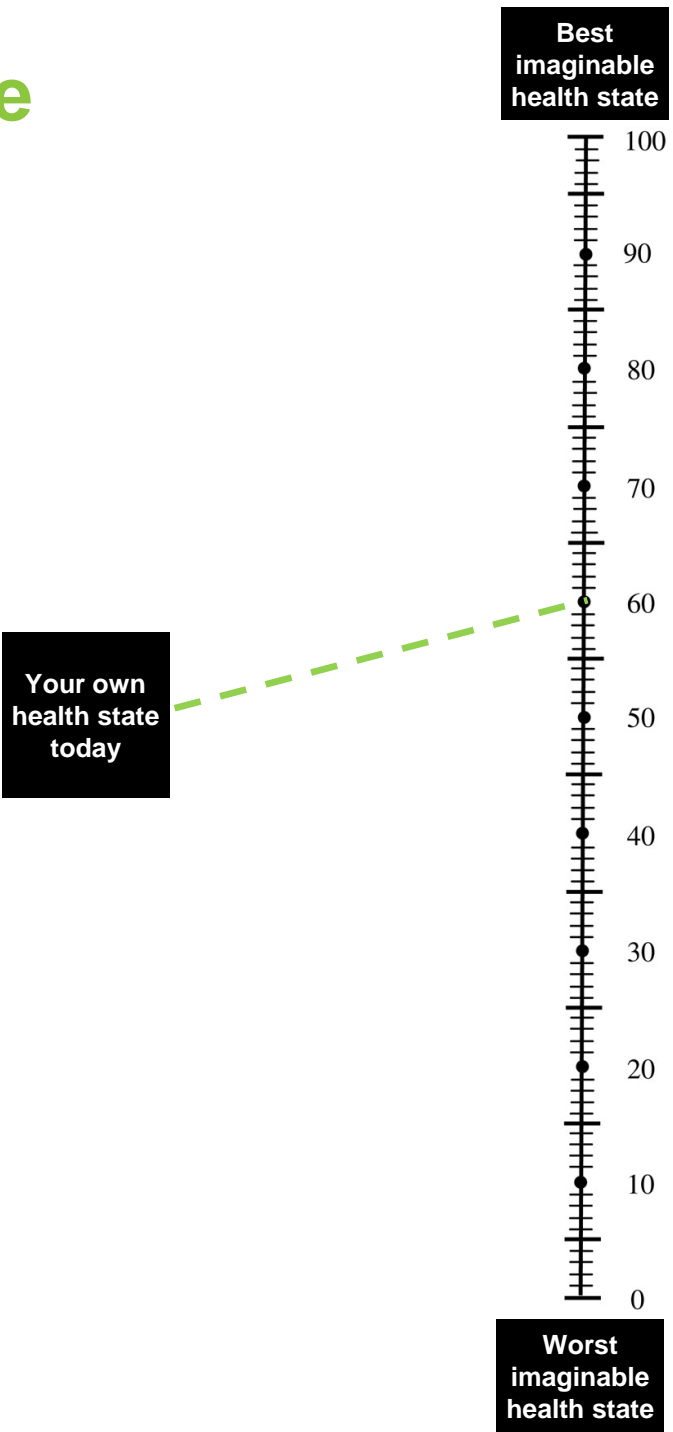
- Pilot study
 - Recruitment complete: 101 patients from TCHCP
- Measuring:
 1. Health utilities and quality of life using standardized instruments:
 - EuroQol-5D (EQ-5D)
 - Health Utilities Index Mark 2/3 (HUI2/HUI3)
 - Visual Analogue Scale (VAS)
 - Time Trade-off (TTO)
 - Hepatitis Quality of Life Questionnaire (HQLQ) (includes SF-36)
 2. Demographic and clinical information
 3. Out-of-pocket costs and time costs associated with CHC

Visual Analogue Scale

Your own
health state
today



Visual Analogue Scale



Health Utilities Index

12. Which one of the following best describes your ability, during the past 2 weeks, to think and solve day to day problems?

- a. Able to think clearly and solve day to day problems.
- b. Had a little difficulty when trying to think and solve day to day problems.
- c. Had some difficulty when trying to think and solve day to day problems.
- d. Had great difficulty when trying to think and solve day to day problems.
- e. Unable to think or solve day to day problems.

13. Which one of the following best describes your ability, during the past 2 weeks, to perform basic activities?

- a. Eat, bathe, dress and use the toilet normally.
- b. Eat, bathe, dress or use the toilet independently with difficulty.
- c. Required mechanical equipment to eat, bathe, dress or use the toilet independently.
- d. Required the help of another person to eat, bathe, dress or use the toilet.

14. Which one of the following best describes how you have been feeling during the past 2 weeks?

- a. Generally happy and free from worry.
- b. Occasionally fretful, angry, irritable, anxious or depressed.
- c. Often fretful, angry, irritable, anxious or depressed.
- d. Almost always fretful, angry, irritable, anxious or depressed.
- e. Extremely fretful, angry, irritable, anxious or depressed; to the point of needing professional help.

RESULTS

RESULTS

PATIENT CHARACTERISTICS

(mean \pm SD or %) n = 101

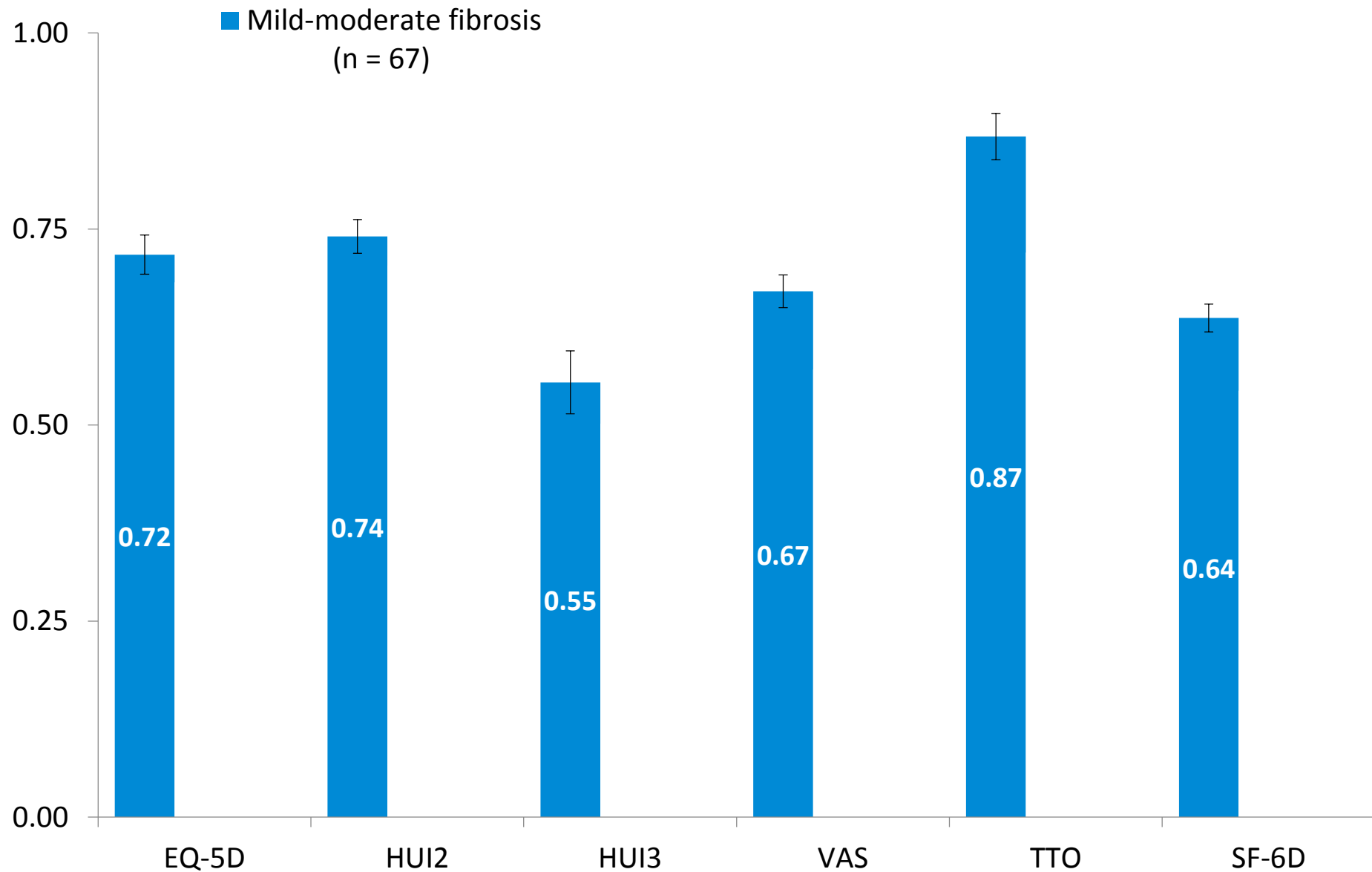
| | |
|--|-----------------|
| Age | 51.2 \pm 9.5 |
| Male | 67% |
| Caucasian | 77% |
| Clinical Characteristics | |
| Genotype 1 Genotype 2 or 3 | 62% 30% |
| Mild/moderate fibrosis Compensated cirrhosis | 74% 22% |
| Decompensated Cirrhosis Hepatocellular Carcinoma | 3% 0% |
| HIV Positive | 5% |
| Charlson Comorbidity Score | 0.97 \pm 1.61 |

RESULTS

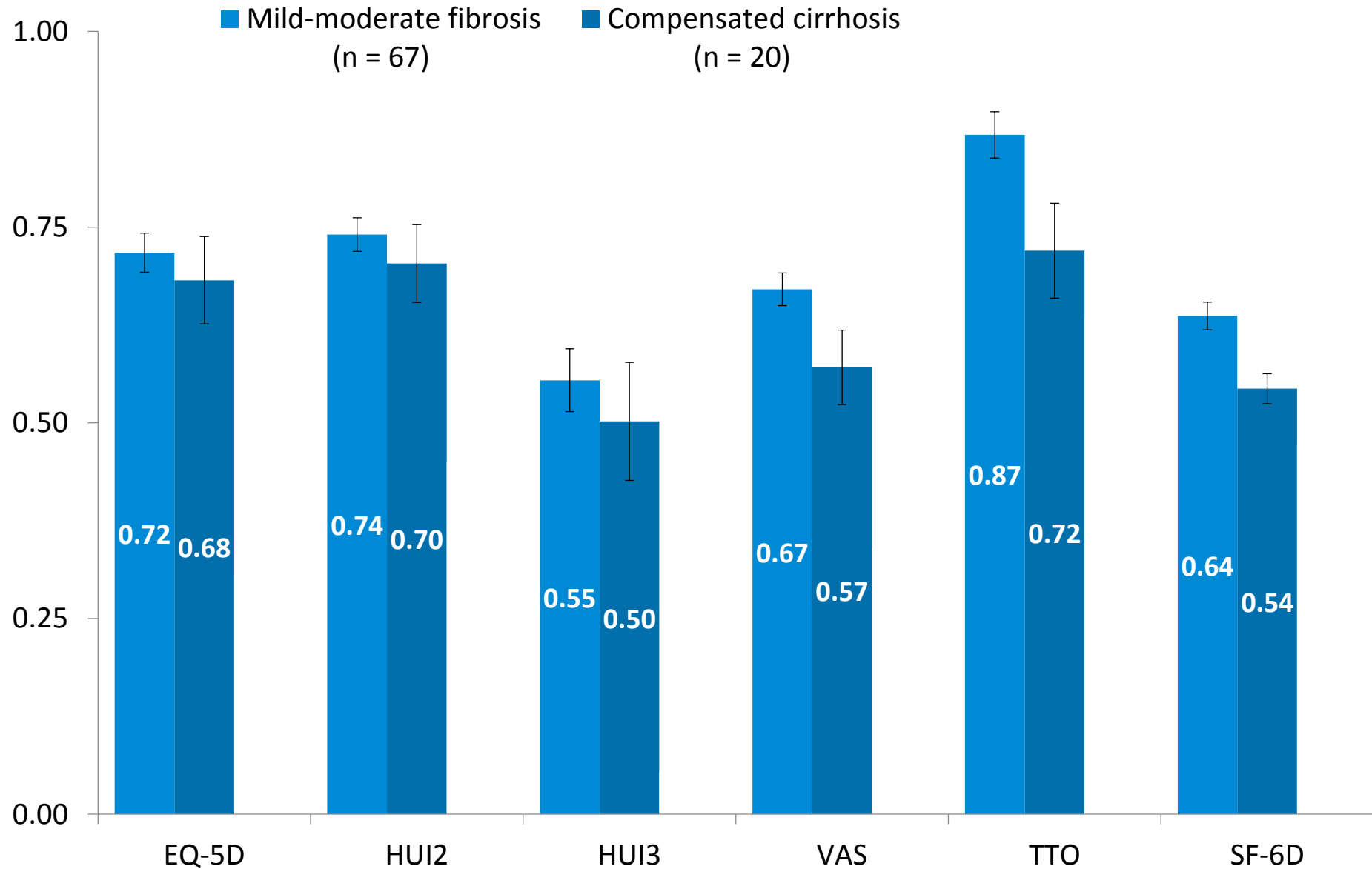
Socioeconomic Characteristics

| | |
|--|-----------|
| Born in Canada | 89% |
| Married | 8% |
| Low Education (Completed High School or Less) | 62% |
| Unemployed Receiving Support (Disability Pension or Welfare) | 89% 97% |
| Past IVDU Current IV or Intranasal Drug Use | 88% 25% |
| History of Mental Illness History of Alcohol Dependence | 79% 70% |
| Permanent housing Living on the street | 88% 0% |

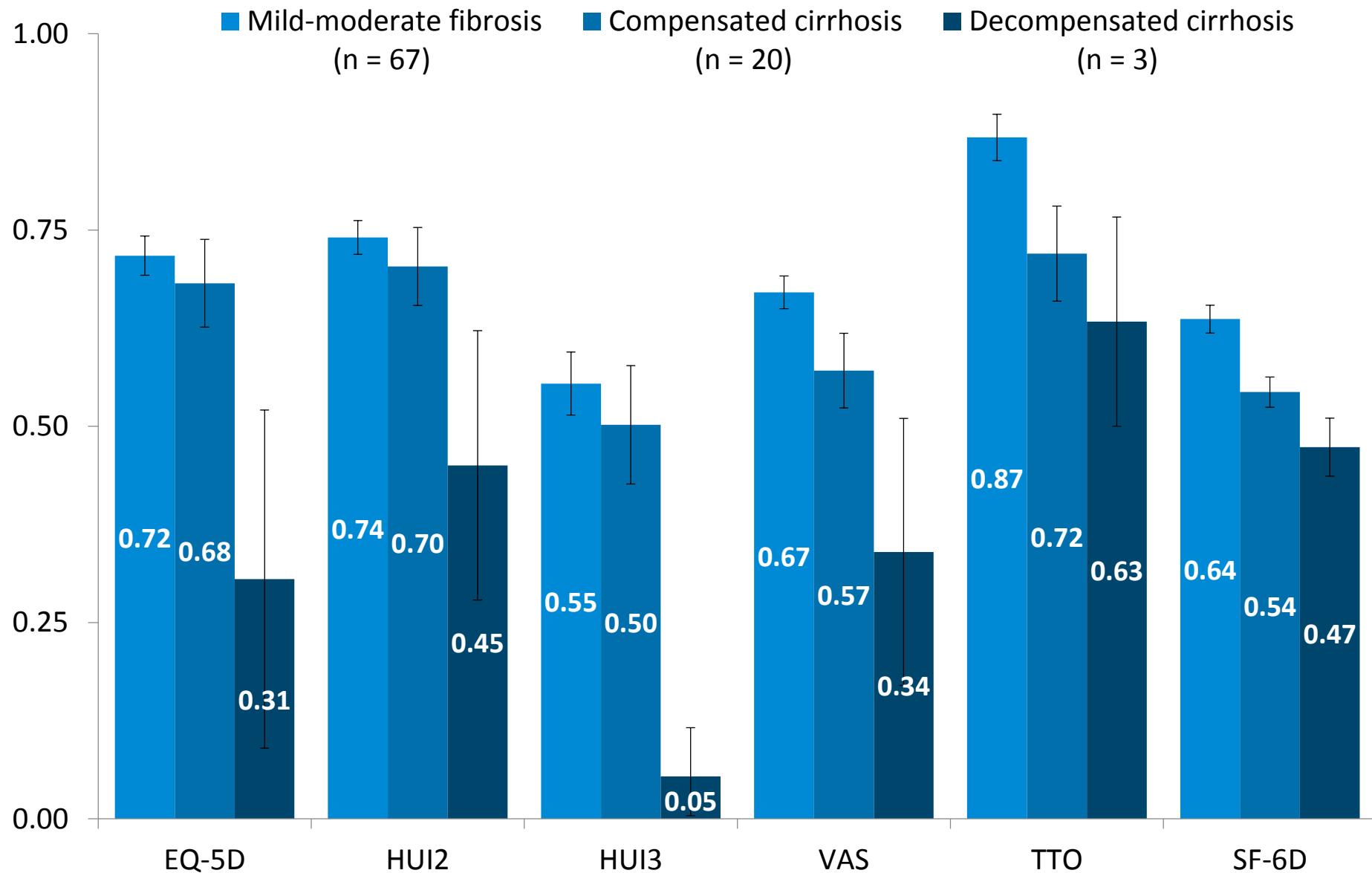
RESULTS



RESULTS

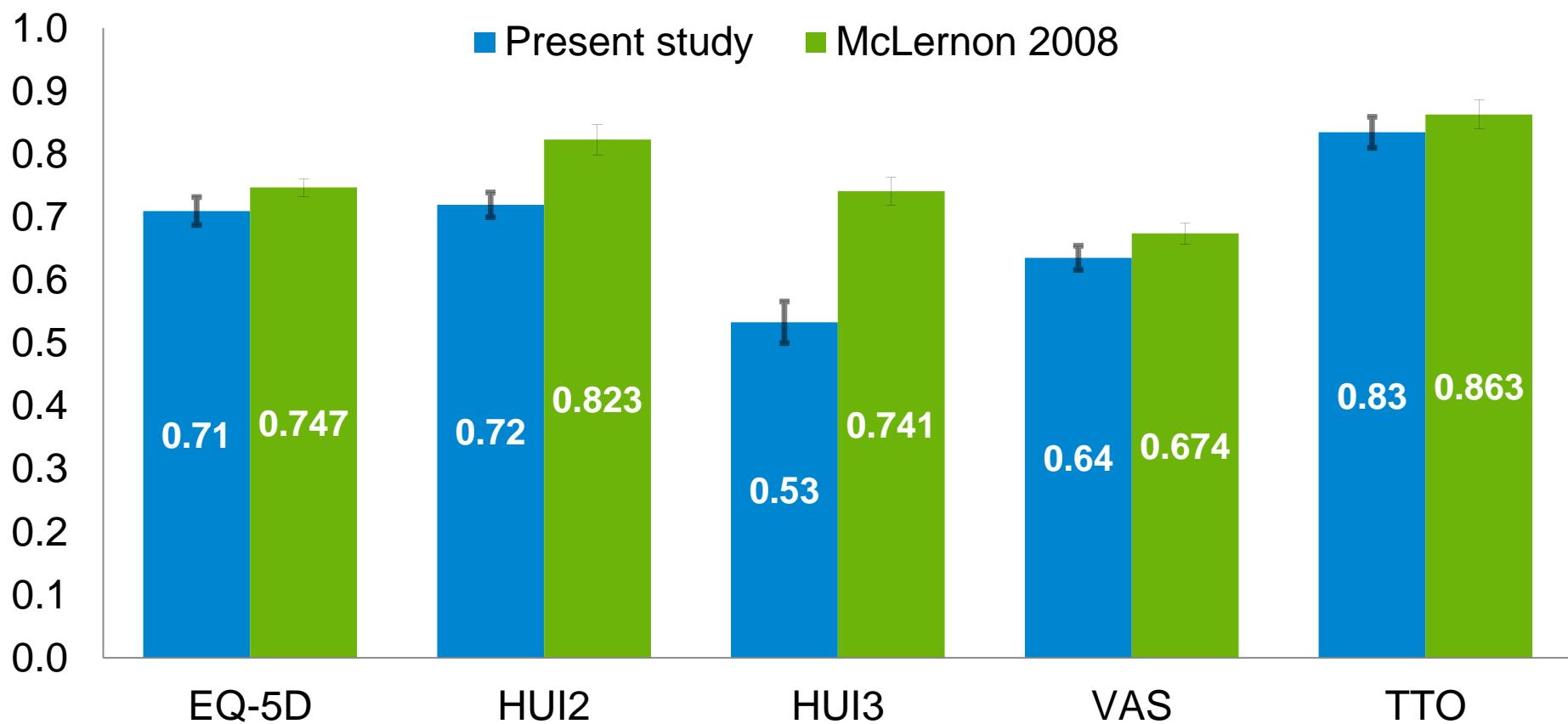


RESULTS



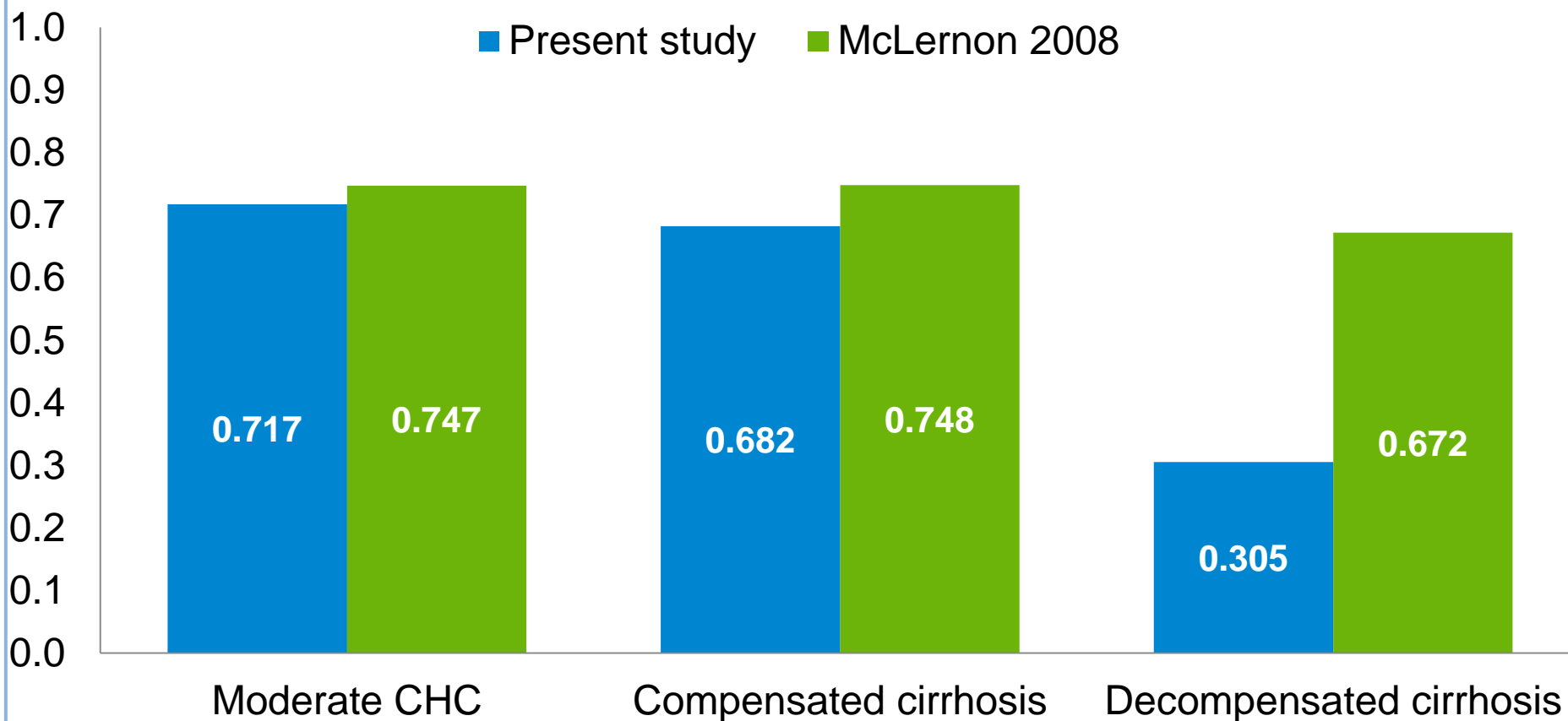
RESULTS

COMPARISON TO PREVIOUSLY PUBLISHED UTILITIES



RESULTS

COMPARISON TO PREVIOUSLY PUBLISHED UTILITIES: EQ-5D



RESULTS

REGRESSION ANALYSIS

| Variable | Utility Instrument | | | | | |
|---|--------------------|-------|-------|-------|-------|-------|
| | EQ5D | HUI2 | HUI3 | VAS | TTO | SF-6D |
| Compensated or Decompensated Cirrhosis | -0.09 | -0.10 | -0.17 | -0.15 | -0.15 | -0.10 |
| Charlson Comorbidity Index | -0.01 | 0.00 | -0.01 | -0.02 | -0.01 | -0.01 |
| History of IV or Intranasal Drug Dependence | -0.11 | -0.05 | -0.08 | -0.11 | -0.03 | -0.07 |
| History of Mental Illness | -0.12 | -0.08 | -0.14 | -0.12 | -0.13 | -0.08 |
| Low Education | 0.00 | -0.03 | -0.13 | -0.01 | 0.02 | -0.07 |

p < 0.05

CONCLUSION

LIMITATIONS

- Few (3) decompensated patients, no HCC patients

LIMITATIONS

- Few (3) decompensated patients, no HCC patients
- Fit of linear regression model
 - Skewed data ranging from 0 to 1
 - Could use log-transformed two-part model

LIMITATIONS

- Few (3) decompensated patients, no HCC patients
- Fit of linear regression model
 - Skewed data ranging from 0 to 1
 - Could use log-transformed two-part model
- Note: some CHC patients more marginalized than ours
 - E.g. currently homeless patients
 - TCHCP has positive effect on patients

CONCLUSION

- **Marginalized CHC patients' utilities are lower than other CHC patients' utilities**
 1. Factors associated with marginalization were prevalent in our patients
 2. Our mean utilities were lower than 2008 systematic review
 3. Regression analysis suggests factors associated with marginalization are associated with lower utilities

CONCLUSION

- **Marginalized CHC patients' utilities are lower than other CHC patients' utilities**
 - **Why?**

Factors Affecting Health-related Quality of Life (HRQoL)

HCV-related factors

Non-HCV-related factors

Physiology of HCV

Ability to cope with
HCV

Comorbid conditions

Ability to cope with
comorbid conditions

NEXT STEPS

- **More utility data need to be collected from marginalized populations**
- **Incorporate into accurate cost-effectiveness analyses of new hepatitis C treatments**

THANK YOU. QUESTIONS?

