# Case Study 6: Computer Assisted Quality of Life and Symptom Assessment for Patients with Chronic Illness Using Survey Data

* + **Overview**:
    - **Principal Investigator(s):** Trick, William, John H. Stroger, Jr. Hospital of Cook County
    - **Summary:** This dataset obtained from the ICPSR website consists of survey data collected from patients with chronic illness recruited from outpatient clinics in Chicago, Illinois from 2011-2012. The purpose was to evaluate the relationship between quality of life scores and physical symptom burden and to determine which symptoms were most strongly associated with poor quality of life among patients with chronic illness. Data were collected using audio computer-assisted self-interview (ACASI) in which patients selected responses on a touch screen. Patients completed the Promis Quality of Life instrument (PROMIS-QOL), Memorial Symptom Assessment Scale (MSAS), a physical symptom assessment, a patient health questionnaire, and a tobacco screen.

Responses were linked to patients’ electronic medical records. Researchers then calculated two comorbidity indices for each patient (Chronic Disease Score and Charlson Comorbidity Index).

* **Driving Challenges**: List a set of 3-5 questions that have clear healthcare applications that might be addressed, or at least examined by, using the dataset

Research questions that may be addressed using this dataset include:

1. Among patients with chronic illness, what symptoms are most strongly associated with poor quality of life?
2. Among patients with chronic illness, are quality of life scores, as measured by the PROMIS-QOL scale, strongly correlated with patient-reported symptom burden?
3. Among patients with chronic illness, are quality of life scores, as measured by the PROMIS-QOL scale, strongly correlated with comorbidity indices (non-patient reported)?
4. Is the Charlson Comorbidity Index strongly correlated with patient-reported symptom burden?
5. Is the Chronic Disease Score strongly correlated with patient-reported symptom burden?

# Meta-data:

[See attached codebook for full description of data elements].

Using touch screen selections, patients completed the Promis Quality of Life instrument (PROMIS-QOL), Memorial Symptom Assessment Scale (MSAS), the Patient Health Questionnaire 2 (PHQ-2), and a tobacco use screen. Providers used patient EMR data to calculate the Charlson Comorbidity Index and Chronic Disease Score.

**Demographic variables**

Participant ID Interview date

Language (survey offered in Spanish or English) Age

Race/ethnicity Sex

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| **Patient-reported survey variables** | | |
| **Variable** | **Scale** | **Questions** |
| PROMIS-QOL (global quality of life) | 1. Excellent 2. Very good 3. Good 4. Fair 5. Poor 6. No answer (Patient refused) | QOL\_Q\_01 Health rating QOL\_Q\_02 Quality of life rating QOL\_Q\_03 Physical health rating QOL\_Q\_04 Mental health rating  QOL\_Q\_05 Satisfaction with social activities and relationships rating  QOL\_Q\_06 Extent able to carry out everyday physical activities  QOL\_Q\_07 Pain rating in the past seven days |

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|  |  | QOL\_Q\_08 Fatigue rating in the past seven days QOL\_Q\_09 Carrying out usual social activities and roles rating  QOL\_Q\_10 How often bothered by emotional problems in the past seven days |
| MSAS-SF (Memorial Symptom Assessment- Short Form) | 1 No, not at all 2 Yes, a little bit  3 Yes, somewhat 4 Yes, quite a bit 5 Yes, very much 6 No answer (Patient refused) | MSA\_Q\_01 Lack of energy in the past week MSA\_Q\_02 Pain in the past week MSA\_Q\_03 Cough in the past week MSA\_Q\_04 Dry mouth in the past week MSA\_Q\_05 Nausea in the past week MSA\_Q\_06 Feel drowsy in the past week MSA\_Q\_07 Feel bloated in the past week MSA\_Q\_08 Vomiting in the past week  MSA\_Q\_09 Shortness of breath in the past week MSA\_Q\_10 Diarrhea in the past week  MSA\_Q\_11 Problems with sexual interest or activity in the past week  MSA\_Q\_12 Itching in the past week  MSA\_Q\_13 Problems with lack of appetite in the past week  MSA\_Q\_14 Problems with dizziness in the past week  MSA\_Q\_15 Problems with changes in the way food tastes in the past week  MSA\_Q\_16 Problems with weight loss in the past week  MSA\_Q\_17 Problems with constipation in the past week |
| PHQ-2 (Patient Health Questionnaire-2) | 1. Not at all 2. Several days 3. More than half the days 4. Nearly every day 5 No answer (Patient refused) | PH2\_Q\_01 How often bothered by little interest or pleasure in doing things over last two weeks PH2\_Q\_02 How often bothered by feeling down, depressed, or hopeless over last two weeks |
| Tobacco screen | 1. No, never 2. Yes, but I quit 3 Yes, in the past week 3. No answer (Patient refused) 4. (M) NULL (system missing) | TOS\_Q\_01 Ever smoked cigarettes |
| 1 Over 1 year ago 2 Within the past year  3 No answer (Patient refused) 4 SKIP  5 (M) NULL  (System missing) | TOS\_Q\_02 When quit smoking |
| 1. Yes 2. No 3. No answer (Patient refused) 4 SKIP | TOS\_Q\_03 Willingness to quit smoking |

|  |  |  |  |
| --- | --- | --- | --- |
|  | 5 (M) NULL  (System missing) | |  |
| 1- 0 to 9  2- 10 to 14   1. 15 or more 2. No answer (Patient refused) 5- SKIP   6- (M) NULL  (System missing) | | TOS\_Q\_04 Average cigarettes smoked in one day |
| **Provider-reported variables** | | | |
| **Variable** | | **Scale** | **Description** |
| Charlson Comorbidity Index | | Numeric 0-10  (-9 indicates missing score) | CHARLSON\_SCORE [calculated using ICD9 codes from EMR for prior 3 months] |
| Chronic Disease Score | | Numeric 0-19  (-9 indicates missing score) | CHRONIC\_DISEASE\_SCORE [calculated using medication orders from EMR for prior 6 months] |

* **Data**: See uploaded data file.
* **Provenance**: This case study uses real survey data obtained through the Inter- university Consortium for Political Science and Social Research (ICPSR) website. Data use is restricted to authorized users (faculty, staff, and students) at the institution (University of Michigan) for the purposes of research or instructional purposes only. Redistribution of data to unauthorized users is prohibited.

Citation:

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