**Supplemental Table 1. Details of studies included in Figure 3.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Value of R2 | |  |
| Citation | N | Sample | Outcome | Measure | Traditional | Quantitative | Transformation to R2 |
| Forbush et al., 2017 | 207 | Adults with eating disorders | Clinical impairment | Clinical Impairment Assessment | 10.6 | 67.7 | none |
| Waszczuk, Kotov et al., 2017 | 314 | Adult psychiatric outpatients | Self-reported functioning | Sheehan Disability Scale | 27.0 | 47.0 | none |
| Reininghaus et al., 2019 | 933 | Patients with psychotic disorders | Biotype | B-SNIP biotypes | 9.9 | 38.8 | Converted AUC to R2 |
| Hanlon et al., 2019 | 150 | Patients with psychotic disorders | Cognitive functioning | General cognitive ability (PCA on several tests) | 2.8 | 31.0 | none |
| Rosenman et al., 2003 | 982 | Treatment seekers with lifetime psychotic disorder | Overall functioning | SOFAS | 7.8 | 23.7 | none |
| Hanlon et al., 2019 | 150 | Patients with psychotic disorders | Observed functioning | UPSA | 5.6 | 22.1 | none |
| Waszczuk, Zimmerman et al., 2017 | 318 | Adult psychiatric outpatients | Medication prescriptions | Mean AUC in predicting prescription of 7 classes of medications | 9.4 | 22.1 | Converted AUC to R2 |
| Hanlon et al., 2019 | 150 | Patients with psychotic disorders | Informant-rated functioning | SLOF | 3.3 | 9.5 | none |
| Rosenman et al., 2003 | 981 | Treatment seekers with lifetime psychotic disorder | Mental health crises | In past year, involuntary hospitalizations, crisis teams, incidents of self-harm, & arrests | 5.5 | 9.5 | none |
| Rosenman et al., 2003 | 980 | Treatment seekers with lifetime psychotic disorder | Service utilization | Voluntary hospitalizations, crisis teams, community services | 6.9 | 8.5 | none |
|  |  |  |  |  |  |  |  |
| Forbush et al., 2018 | 194 | Adults with eating disorders | 6 month eating disorder outcome | Weight and binging/compensatory behavior | 35.8 | 60.1 | none |
| Waszczuk et al., 2021 | 133 | Trauma-exposed primary care adult patients | 1 year depression | PHQ-9 | 27.3 | 52.0 | none |
| Waszczuk et al., 2021 | 133 | Trauma-exposed primary care adult patients | 1 year mental functioning | Short-Form Health Survey | 20.1 | 49.9 | none |
| Forbush et al., 2018 | 109 | Adults with eating disorders | 1 year self-reported functioning | WHO-DAS total | 16.1 | 45.7 | none |
| Morey et al., 2012 | 668 | Treatment seekers with personality disorder and/or depression | 10 year depression | Personality Assessment Inventory depressice scale score at 10 year follow-up | 10.2 | 28.1 | Squared multiple R |
| Morey et al., 2012 | 668 | Treatment seekers with personality disorder and/or depression | 10 year illness severity | Global Assessment of Functioning at 10 year follow-up | 13.7 | 27.0 | Squared multiple R |
| Martin et al., 2021 | 316 | First-admission psychosis | 20 year recovery | Recovery | 14.0 | 27.0 | none |
| Martin et al., 2021 | 319 | First-admission psychosis | 20 year social functioning | Social functioning | 6.0 | 23.0 | none |
| Martin et al., 2021 | 318 | First-admission psychosis | 20 year role functioning | Role functioning | 11.0 | 22.0 | none |
| Martin et al., 2021 | 324 | First-admission psychosis | 20 year cognitive functioning | Cognition composite | 17.0 | 15.0 | none |
| Martin et al., 2021 | 320 | First-admission psychosis | 20 year self-reported functioning | WHO-DAS | 7.0 | 15.0 | none |
| Morey et al., 2012 | 668 | Treatment seekers with personality disorder and/or depression | 10 year social functioning | LIFE Social Functioning | 7.8 | 13.0 | Squared multiple R |
| Martin et al., 2021 | 321 | First-admission psychosis | 20 year diabetes onset | Diabetes | 5.0 | 10.0 | none |
| Martin et al., 2021 | 317 | First-admission psychosis | 20 year education attainment | Educational attainment | 6.0 | 10.0 | none |
| Morey et al., 2012 | 668 | Treatment seekers with personality disorder and/or depression | 10 year medications | Number of medications taken at 10 year follow-up | 3.2 | 9.0 | Squared multiple R |
| Martin et al., 2021 | 323 | First-admission psychosis | 20 year EEG (P300) | P3a amplitude | 1.0 | 7.0 | none |
| Martin et al., 2021 | 322 | First-admission psychosis | 20 year EEG (mismatch negativity) | Duration mismatch negativity | 3.0 | 6.0 | none |
| Morey et al., 2012 | 668 | Treatment seekers with personality disorder and/or depression | 10 year suicide attempts | Number of suice attempts by 10 year follow-up | 6.8 | 5.3 | Squared multiple R |

We selected non-redundant measures of biomarkers, functioning, service utilization, and clinical status from these studies. AUC = area under the curve. SLOF = Specific Levels of Functioning scale. PHQ-9 = Patient Health Questionnaire, Depression Module. WHO-DAS = World Health Organization's Disability Assessment Scale II. UPSA = UCSD Performance-based Skills Assessment. SOFAS = Social and Occupational Functioning

Assessment Scale. B-SNIP = Bipolar‐Schizophrenia Network on Intermediate Phenotypes. AUC was transformed to r and then squared to obtain variance explained (Rice & Harris, 2005).

**Supplemental Table 2. Clinician ratings of HiTOP and DSM**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| This system is useful for… | DSM-5 | | |  | HiTOP | | |
|  | Disagree | Neutral | Agree |  | Disagree | Neutral | Agree |
| building a therapeutic alliance | 33% | 67% | 0% |  | 0% | 33% | 67% |
| selecting a treatment | 22% | 33% | 44% |  | 0% | 11% | 89% |
| assessing probable prognosis | 0% | 33% | 67% |  | 0% | 0% | 100% |
| educating patients and/or families about diagnosis | 11% | 11% | 78% |  | 0% | 11% | 89% |
| gathering information for necessary documentation | 0% | 11% | 89% |  | 11% | 0% | 89% |
| communicating with other health care professionals | 0% | 11% | 89% |  | 0% | 11% | 89% |

*Note:* Anonymous survey of nine clinicians who completed the HiTOP-DAT workshop.

**Additional References for Studies Included in Supplemental Table 1**

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