Supplemental Appendix for "Invisible Wounds: How Mental Disability Benefits Shape Veteran Well-Being"

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A. Variable Definitions

In this appendix we describe the source and construction of our variables, grouped by outcome type. Note that wherever possible, we use official VA definitions and measures, sourcing our data from the Office of Mental Health and Suicide Prevention. For example, see Figure C.1 for an example of a clinical dashboard which uses the same definitions on homelessness, VA debt, medication adherence, and appointments.

A.1 Utilization and Average Cost

Our "log utilization" outcomes are based on VA's average cost computed by the Health Economics and Resource Center (HERC). It uses CMS relative value weights to assign national-level VA cost to encounter-level VA utilization. It is average cost in the sense that two encounters with the same characteristics (e.g., procedures, diagnoses, length of stay, etc.) will have the same average cost. It does *not* reflect veteran out-of-pocket spending. Outpatient costs do not include prescription costs. Inpatient costs include acute inpatient hospital, nursing home, and inpatient domiciliary and rehabilitation care. See Wagner et al. (2003) for more details.[1] We also compute the number of days the veteran has any encounter of that type of care or care setting: the number of days with any mental health outpatient encounter or the number of days with any emergency department or acute inpatient hospital visit.

[1]For an overview: https://www.herc.research.va.gov/include/page.asp?id=average-cost.

A.2 Preventive Care

We calculate the number of days the veteran receives any preventive care, calculated from CPT procedure codes: 4000F-4320F; 90750-90759, 90762-90764, 90778, 99381-99429, G0438, G0439. There is likely to be under-use of procedure codes in the VHA as providers are salaried and do not bill insurers.

We also evaluate whether veterans' preventive care follows the VA's official preventive care guidelines (VHA, 2021). Of all the preventive care guideline recommendations, three apply broadly to the majority of our sample and can be measured at (roughly) annual frequencies[2]: annual flu immunization for all adults, annual colorectal cancer screen via fecal occult blood test (FOBT) among all adults ages 45-75, and hepatitis C screen at least once among all adults ages 18-79. Based off of these recommendations, we construct the fraction of years where the veteran has a flu immunization (takes on 0 or 1 for the 1-year outcome and 0, 0.2, 0.4, 0.6, 0.8, or 1 for the 5-year outcome), fraction of years they have a FOBT colon cancer screen, and an indicator for whether the veteran receives any hepatitis C screen in 1 or 5 years. All three measures are constructed from procedure codes, lab results, and clinician ordered items in a computerized system.

A.3 Food Insecurity

The VA started screening for food insecurity in primary care starting in October 2017. This is done in primary care via VA's EHR clinical reminder system. An annual reminder automatically pops up on all primary care provider's computer screen as an alert. The screen asks "In the past three months did you ever run out of food and you were not able to access more food or have money to buy more food?". A binary yes/no response is required on the screen, entered, and automatically recorded. Our indicator is derived from the recorded data and takes a value of one if the veteran answers yes and zero if they answer no. Veterans

[2]Other recommendations either do not apply to the majority of our sample (e.g., breast and cervical cancer screens, syphilis screens, etc.), are recommended without guidance on frequency, (e.g., high blood pressure screen), or are not easily measured in the data (e.g., overweight and obesity counseling).

who are not screened (within the 1-year or 5-year time period) are coded as zero and thus dropped from the regressions with food insecurity as an outcome. By late 2019, nearly 5 million veterans have been screened and approximately 74,000 have screened positive (Cohen et al., 2020).

A.4 Homelessness

Homelessness is measured from three sources: medical diagnosis codes, inpatient hospital bed sections, and utilization of homeless and employment services. Our definition of homelessness is the official VA Office of Mental Health and Suicide Prevention definition which appears on multiple patient dashboards used to assist clinicians in decision making, and used in various predictive algorithms (e.g., for suicide risk). Similar VA homelessness measures have been used in prior studies to estimate incidence and predictors (Tsai et al., 2014), investigate gender differences (Brignone et al., 2018), and as an outcome following financial assistance (Nelson et al., 2021). Below we describe the three sources.

1. Diagnosis codes
    - Homelessness (ICD-9: Z59.0; ICD-10: V60.0) across all care settings/modalities
    - Inadequate housing (ICD-9: Z59.1; ICD-10: V60.1) across all care settings/modalities
2. Inpatient hospital bed sections
    - Acute inpatient hospital beds for homeless veterans
    - Residential Domiciliary Care for Homeless Veterans (DCHV[3])
3. Outpatient homeless and employment services:

[3]The VA defines DCHV as a setting that "provides a residential level of care for a homeless Veteran population. DCHVs provide a 24/7 structured and supportive residential environment as a part of the rehabilitative treatment regime." See https://www.va.gov/homeless/dchv.asp.

- Health Care for Homeless Veterans (HCHV) at VA medical outpatient clinics, contracted community centers.[4]
- U.S. Department of Housing and Urban Development-VA Supportive Housing (HUD-VASH) Program: use of HUD-VASH services (in-person or telephone) such as residential assistance, vouchers, counseling, and others.[5]
- Homeless Veteran Community Employment Services (HVCES) "provides vocational assistance, job development and placement, and ongoing supports to improve employment outcomes among homeless veterans and veterans at-risk of homelessness. Formerly homeless veterans who have been trained as Vocational Rehabilitation Specialists provide these services."[6]
- Compensated Work Therapy (CWT) and vocational assistance for homeless veterans are vocational programs such as paid vocational programs, on-the-job-training, apprenticeships, and non-paid work experiences
- Community outreach to homeless veterans by VA staff via telephone
- Use of community homeless services awarded by the VA's Homeless Veterans Grant and Per Diem (GPD) program to fund contracted community non-profit agencies[7]

A.5 Medication Adherence-Related Variables

We construct five medication-related outcomes. The first, is the number of new drugs the patient starts and refills at least once during the 1 or 5 year period. A drug is formulation without dosage and not the brand name. The second outcome is the ratio of prescriptions that are dispensed and released to the patient divided by the number of new prescriptions

[4]This also includes non-medical care (e.g., housing services, social work, etc.) at non-medical stations; see https://www.va.gov/homeless/hchv.asp.

[5]See https://www.va.gov/homeless/hud-vash.asp.

[6]See https://www.va.gov/homeless/employment_programs.asp.

[7]These agencies may provide supportive housing or services such as case management, education, crisis intervention, counseling, and targeted services for specialized under-served populations; see https://www.va.gov/homeless/gpd.asp.

written for the patient. The underlying data comes from the universe of prescriptions written by a VA provider that get entered electronically and prescriptions filled and released at VA pharmacies.

Drug episode-level medication possession ratio (MPR) is constructed by the VA for all veterans who are alive and fill a prescription after January 1, 2017. A drug episode is a "trial" of a drug (formulation without dosage). A patient may have multiple episodes for the same drug if i) a new drug is released more than 300 days from the previous release; or ii) if a new release is more than 180 days from the previous and under a different prescription; or iii) if a new release is more than twice the days supply since the previous release and is under a different prescription and the previous prescription was discontinued. The VA computes MPR for a drug episode as:

$$MPR_{episode} = \frac{\text{Days Supply Dispensed}}{\text{Drug Episode Duration}}$$

$MPR_{episode}$ is mechanically only defined for drug episodes that get refilled at least once; it is top-coded at one. Using drug episode MPR, we construct 1-year and 5-year patient MPR as the episode duration weighted average MPR for all *non-opioid* drug episodes that start in that time period (regardless of when they end). This is our average MPR measure. We also construct the fraction of drug episodes with $MPR_{episode}$ greater than 0.8, a commonly used adherence threshold that has been found to be predictive of reduced mortality (Rodriguez et al., 2019).

We also calculate average MPRs for five drug classes using VA drug class codes: *antidepressants* (tricyclic antidepressants, monamine oxidase inhibitor antidepressants, and other antidepressants), *antipsychotics* (phenothiazine/related antipsychotics and other antipsychotics), *sedatives/hypnotics* (barbituric acid derivatives, benzodiazepine derivatives, and other sedatives/hypnotics), *statins* (antilipemic agents), and *hypertensive drugs* (angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, direct renin inhibitors, anti-adrenergic antihypertensives, beta-blockers, diuretics, and calcium-channel blockers).

A.6 VA Debt

Data on debt owed to the VA and debt progression (debt notification letters, referral to Treasury Offset Program letters) between 2016 and 2021 are from the VBA Debt Management Center (DMC). VA debt can accrue on VA benefits such as disability and pension benefits, home loans, and GI Bill education, vocational, and employment benefits. This typically happens when veterans no longer meet eligibility requirements such as being a full-time student (and thus have to repay portions of tuition, books and fees, school housing, etc.), or dependent situation changes (child dependent is no longer under 18 and this has resulted in months of disability benefit overpayment), or inability to make mortgage payments on VA home loans. In some cases veterans may also incur medical debt, although the amounts are generally small and we observe no instances of debt collection on medical debt in our baseline sample (who all receive nearly free healthcare).

When a debt is first established, the DMC sends an initial letter of notification to the veteran. If within 30 days of the initial letter, the veteran has not made debt arrangements, the DMC will send a second letter of notification. If no arrangements have been made within 120 days (including applications for debt waiver and forgiveness), the DMC is required to refer the debt to the U.S. Treasury which may i) add fees and interest; ii) keep part or all of your federal or state payments to pay down your debt (known as offsetting in the Treasury Offset Program); iii) refer your account to a private collection agency. At this stage—which we consider "debt collection"–the VBA can no longer waive or forgive the debt.[8]

With the debt referrals to Treasury, we follow Dobbie et al. (2017) and Dobkin et al. (2018) and construct variables on the number of debt collections (that get referred to Treasury) and the collection amount on all such debt within one and five years of the disability claim. Although we do not observe non-VA debt, the amount of VA debt is substantial; 2.6% of our baseline sample have any collections within five years and the median balance among these collections is $8,229 with a quarter owing over $17,500.

[8]For more details on the life-cycle of VA debt, see https://www.va.gov/resources/va-debt-management.

A.7 Physical and Mental Health Outcomes

Physical and mental health outcomes are measured from electronic health records. Major depression disorder (MDD) is an indicator variable that takes the value of one when the veteran (*i*) **ever** screens positive on the 2-item or 9-item Patient Health Questionnaire (PHQ-2 $\geq$ 3, PHQ-9 $\geq$ 5) over the time frame **or** (*ii*) is diagnosed with MDD over the time frame. Veterans who score negative on all PHQs and are never diagnosed with MDD receive a value of zero. All other veterans (including those who are never screened) are coded as missing. AUD/SUD is constructed analogously replacing PHQs with the Alcohol Use Disorders Identification Test-Concise (AUDIT-C $\geq$ 3) and MDD diagnosis with AUD or SUD diagnosis. The AUDIT-C and PHQ questionnaires can be found on the NIDA website. Question 3 of the AUDIT-C ("*How often did you have six or more drinks on one occasion in the past year?*") is used to construct proxy for binge drinking in Figure C.4; the proxy takes a value of one for responses of "weekly" or "daily or almost daily". Overdose poisonings is a binary variable constructed only using poisoning diagnosis codes. See Section A.8 for description on the data behind the suicide variable.

Average body mass index, pain score, HbA1c glucose levels, and blood pressure are constructed at the one-year and five-year level only for individuals with at least one measurement during the time period. Pain scores are self-reported responses to (some variant) of the following question: "*On a scale of zero to ten, where zero means no pain and ten equals the worst possible pain, what is your current pain level?*" Since BMI and blood pressure are often measured multiple times within a single encounter to improve precision, we first obtain encounter day-level averages before taking averages again at the one-year or five-year level. Only measurements of pain and blood pressure taken in primary care settings are used.

A.8 Suicide Surveillance Data

Data on suicide attempts come from the VA Office of Mental Health and Suicide Prevention's Suicide Prevention Applications Network (SPAN; US Department of Veteran Affairs, 2021b).

SPAN was established following the passage of the Joshua Omvig Veterans Suicide Prevention Act in 2007 as a national surveillance database to better inform suicide prevention. It is comprised of clinically mandated suicide evaluations, suicide behavior and overdose reports, clinical texts, current and historic reports from clinical and suicide prevention coordinators, in addition to medical records. This data is used to inform national suicide prevention efforts (e.g., displayed on clinical dashboards, used as a feature in predictive algorithms of veteran suicide risk, and used to construct reports on veteran suicide to congress). It captures data that would not normally be available in patient health records, for example, if a patient reveals to a clinician of a suicide attempt that occurred last year, this would not appear in diagnosis data, but would in SPAN. Roughly two-thirds of suicide attempts in SPAN had no data in recorded medical records (Hoffmire et al., 2016). From this data we code an indicator for whether the veteran had a suicide attempt in the 1 year or 5 year period.

A.9 Veteran Satisfaction Survey (VSS)

Starting in fiscal year 2018, the VA Office of Mental Health started conducting VHA mental health satisfaction surveys (VSS) to veterans currently receiving mental health outpatient treatment. Each year since 2018, veterans receiving mental health outpatient treatment are randomly (phone) called a set of roughly 36 questions relating to their satisfaction in VHA mental health care. Veterans are drawn and contacted until roughly 10,000 veterans respond and complete the survey each year.

We have three waves of the VSS (FY2018, 2019, 2020), covering 26,879 unique veterans receiving VHA mental health care. We merge these survey responses to our analysis sample starting in 2014 (to allow a five-year response period), resulting in a sample size of 1,401. For the few veterans who were surveyed more than once, their responses are averaged. We only focus on the 27 questions that were consistent over the three years. We group the 27 questions into four categories: i) satisfaction with VA care; ii) access and availability; iii) collaborative medication management; and iv) communication, trust, and rapport. See Figure C.5 for the grouping categories. For each category, we calculate equally-weighted averages of Z-scores

as our main outcome variable. In Figure C.5, we also study the raw response on a 1-5 scale (1: disagree strongly; 2: disagree; 3: neither disagree or agree; 4: agree; 5: agree strongly); and an indicator for agree or agree strongly. The impact of $1,000 on completing the survey (response bias) is 0.00017 (s.e.=0.00011) and statistically insignificant at the 10% level.

B. Correlated Random Coefficients Model

This appendix section provides details on the estimation strategy underlying Figure 5. In that figure, we show estimates from a control-function implementation of a correlated random coefficients model (Garen, 1984; Wooldridge, 2015).

The standard model begins with the following model:

$$y_i = \delta z_{i1} + g_{i1} x_i + u_i \tag{1}$$

where y_i is the outcome of interest, z_{i1} is a vector of included exogenous variables, and x_i is the endogenous explanatory variable of interest. The coefficient dictating the impacts of additional benefits g_{i1} is individual-specific. In our setting, the impact of VA DC benefits (x_i) on wellbeing (y_i) may differ from veteran to veteran. One can rewrite the individual-specific coefficient as the sum of a population average and an idiosyncratic term:

$$g_{i1} = \gamma_1 + v_{i1}, \quad \text{where } E[v_{i1}] = 0 \tag{2}$$

Suppose the there is an excluded exogenous variable z_{i2} with the following first stage relationship:

$$x_i = \pi z_{i2} + v_{i2}. \tag{3}$$

Now assume that all unobservables are independent of exogenous variables z_{i1} and z_{i2}, and that u_i and v_{i1} can be expressed linearly in v_{i2}

$$E[u_i|v_{i2}] = \eta v_{i2}, \quad E[v_{i1}|v_{i2}] = \psi v_{i2} \tag{4}$$

Plugging in, the estimating equation is:

$$E[y_i|z_{i1}, z_{i2}] = \delta_1 z_{i1} + \gamma_1 x_i + \psi v_{i2} x_i + \eta v_{i2}. \tag{5}$$

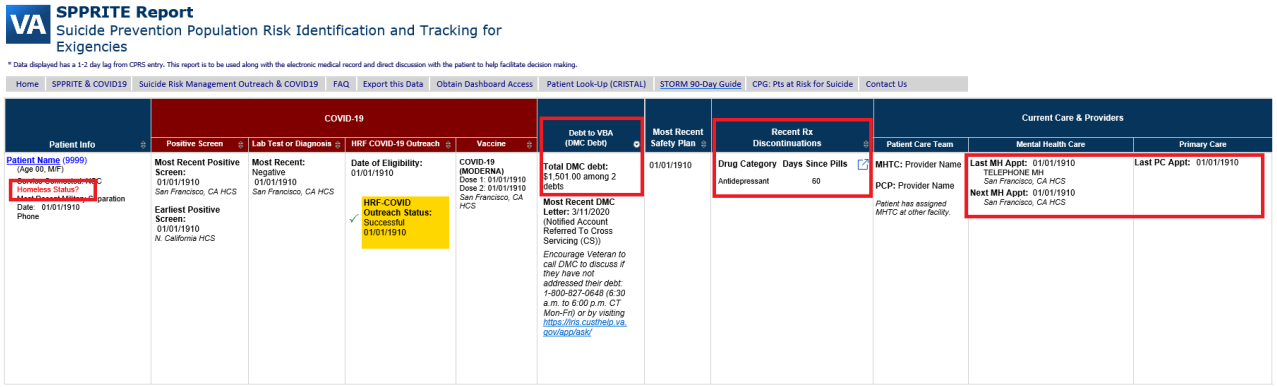
Equation 5 can be estimated by an OLS regression of y_i on $z_{1i}, x_i, \hat{v}_{i2}$, and $\hat{v}_{i2} x_i$ where

$\hat{v}_{i2}$ is the residual from the first stage. The interaction term is the random coefficient on x_i. There are also the additional assumptions that the covariance between endogenous variable and its idiosyncratic impact are independent of the exogenous instruments, and that the first-stage effects of examiner tendencies are homogenous. The homogeneity assumption can be relaxed using the methods developed in Masten and Torgovitsky (2016), with very similar results (Figure C.7).

Of course, one cannot recover individual-specific treatment effects g_{i1}, but its relationship with the endogenous variable x_i can be estimated (e.g., its sign). We adapt this linear model by splitting veterans' first-stage residuals into quantiles. Operationally, we first regress veteran benefits on examiner propensity and the standard controls from our baseline analyses. Next, we bin residuals into five quintiles. Finally, we regress veteran outcomes on benefits, residual quintile bins, the interaction of the two, and controls. The estimated coefficients on the interaction terms are plotted in Figure 5 along with the baseline 2SLS estimate. In Figure C.7, we also estimate a related correlated random coefficients model following Masten and Torgovitsky (2016), which yields similar results. Overall, it appears that the returns to additional benefits are concentrated among those who tend to receive low levels of benefits, including importantly those on the margin of denial.

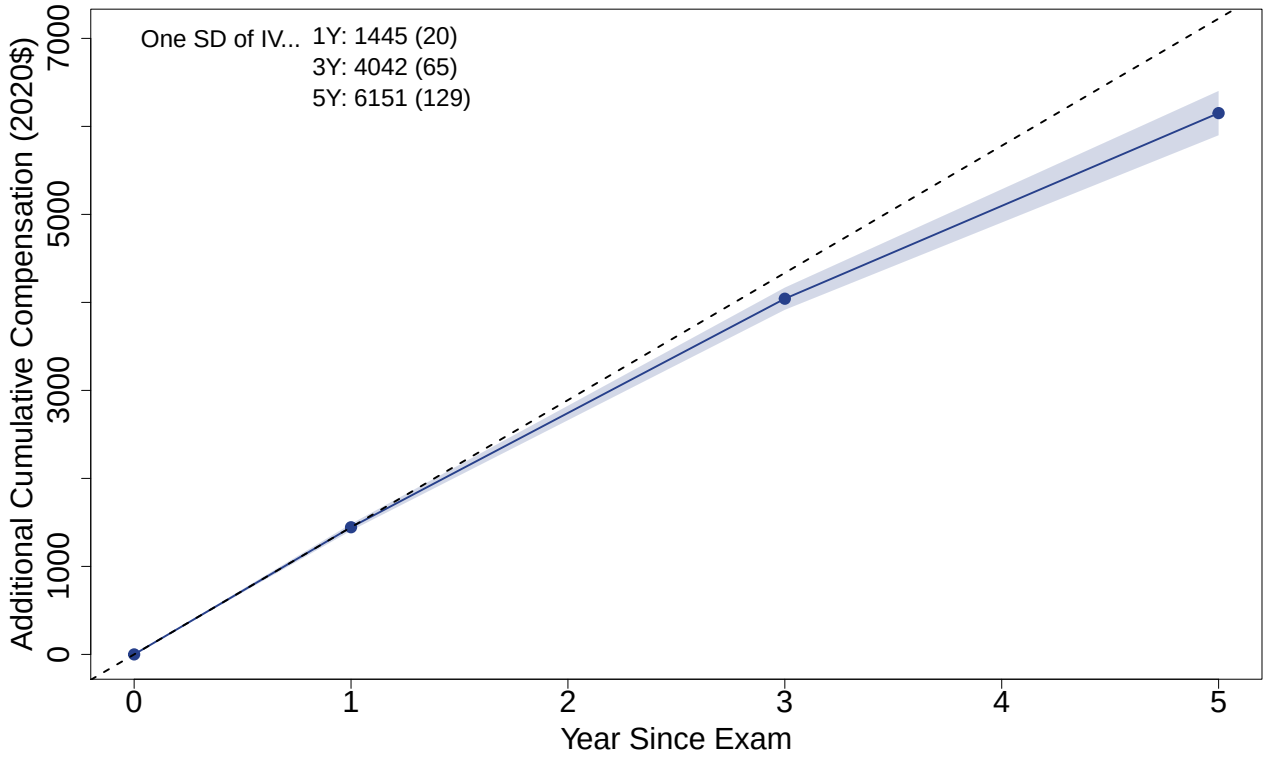
C. Additional Exhibits

Figure C.1: Example of VA clinical dashboard (with patient with no PHI/PII) utilizing the same data we use



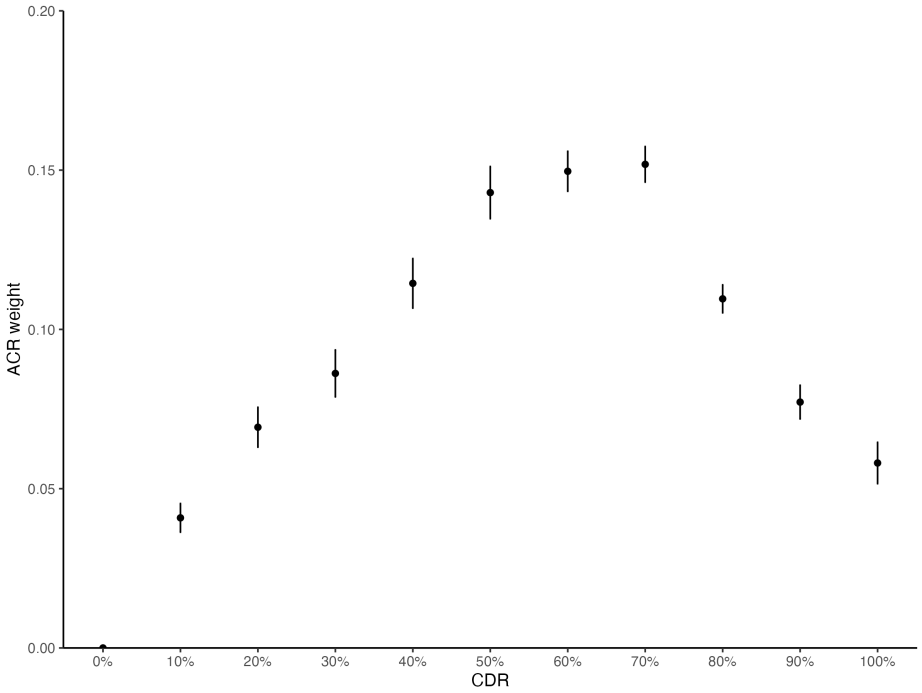
Notes: This figure displays part of the VA SPPRITE dashboard (for a fake patient with PHI/PII removed) used by clinicians and mental health specialists for suicide prevention. The boxed red regions highlight patient information that use the same definition and data as we do in our paper. Moving from left to right: homelessness, VA debt, medication adherence, and appointments. Note that this is not the only dashboard where our outcomes share data with (for example, medication possession ratios are used in 12 different dashboards). Moreover, many of our variables also feed official VA metrics and predictive algorithms (such as a suicide risk prediction algorithm).

Figure C.2: Impact of Examiner Tendency on Cumulative Compensation and its Persistence



Notes: This figure displays the impact of one standard deviation higher-tendency examiner on total cumulative VA DC compensation over different time horizons (e.g., 1, 3, and 5 year post-exam). The displayed coefficients and 95% confidence intervals are from first stage regressions of cumulative compensation on standardized IV and controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. The mean 1, 3, and 5 year cumulative compensation amounts are 15,090; 48,060; and 83,182, and the first stage F-statistics are 5,218; 3,953; and 2,182, respectively. Robust standard errors, clustered at the station level, are reported in paratheses.

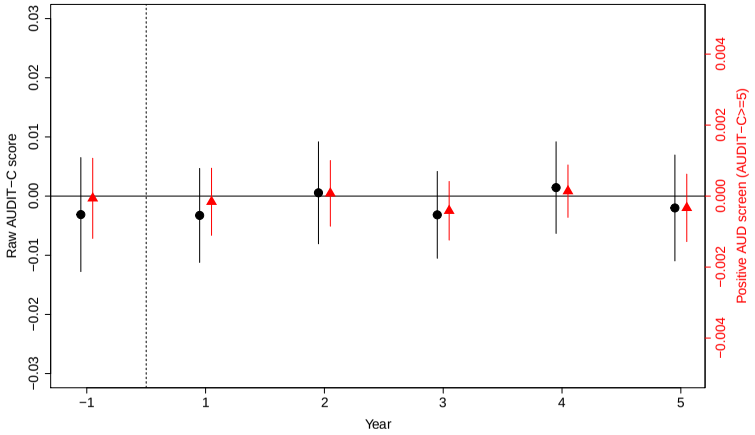
Figure C.3: Variation in benefit levels induced by examiner tendency



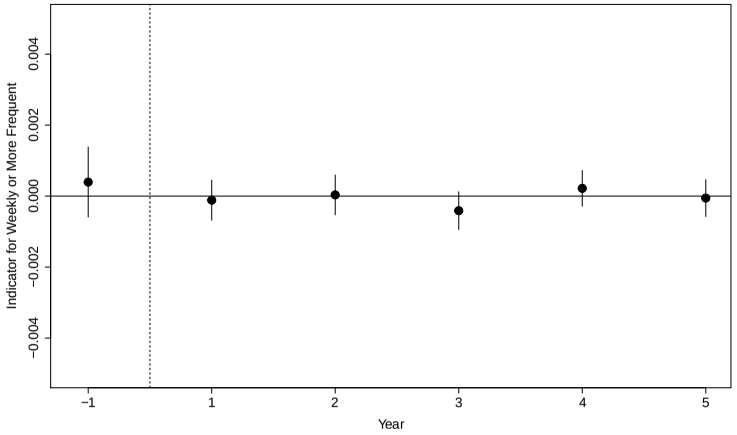
Notes: This figure plots the average causal response (ACR) weights for our examiner tendency instrument, derived from a series of regressions of the form $1[CDR_i > c] = a_0^c + a_1^c Z_{i,j(i)} + X_i a_2^c + e_i^c$, where X_i include our standard control variables and station-year fixed effects. CDRs translate one-to-one to benefits. For example, for a single veteran without dependents in 2020, the schedule is: 10% = \$142.29; 20% = 281.27; 30% = 435.69; 40% = 627.61; 50% = 893.43; 60% = 1,131.68; 70% = 1,426.17; 80% = 1,657.80; 90% = 1,862.96; 100% = 3,106.04.

Figure C.4: Panel Mental Health Outcomes: Alcohol use disorder, alcohol consumption, and depression

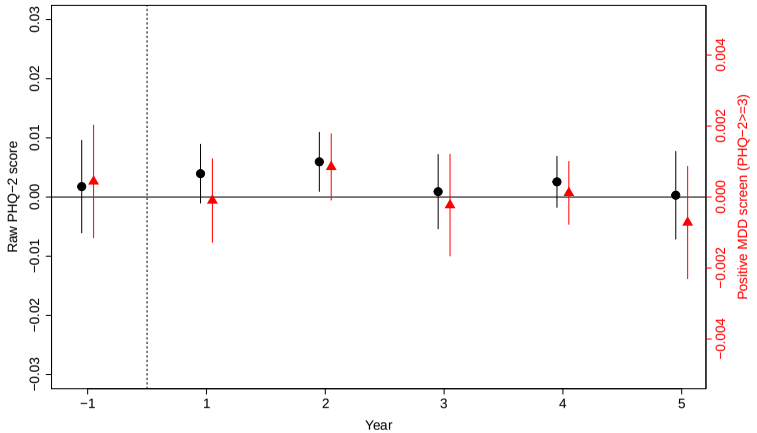
(a) Alcohol Use Disorder Screen



(b) Binge Drinking: How often did you have six or more drinks on one occasion in the past year? (weekly or almost daily)

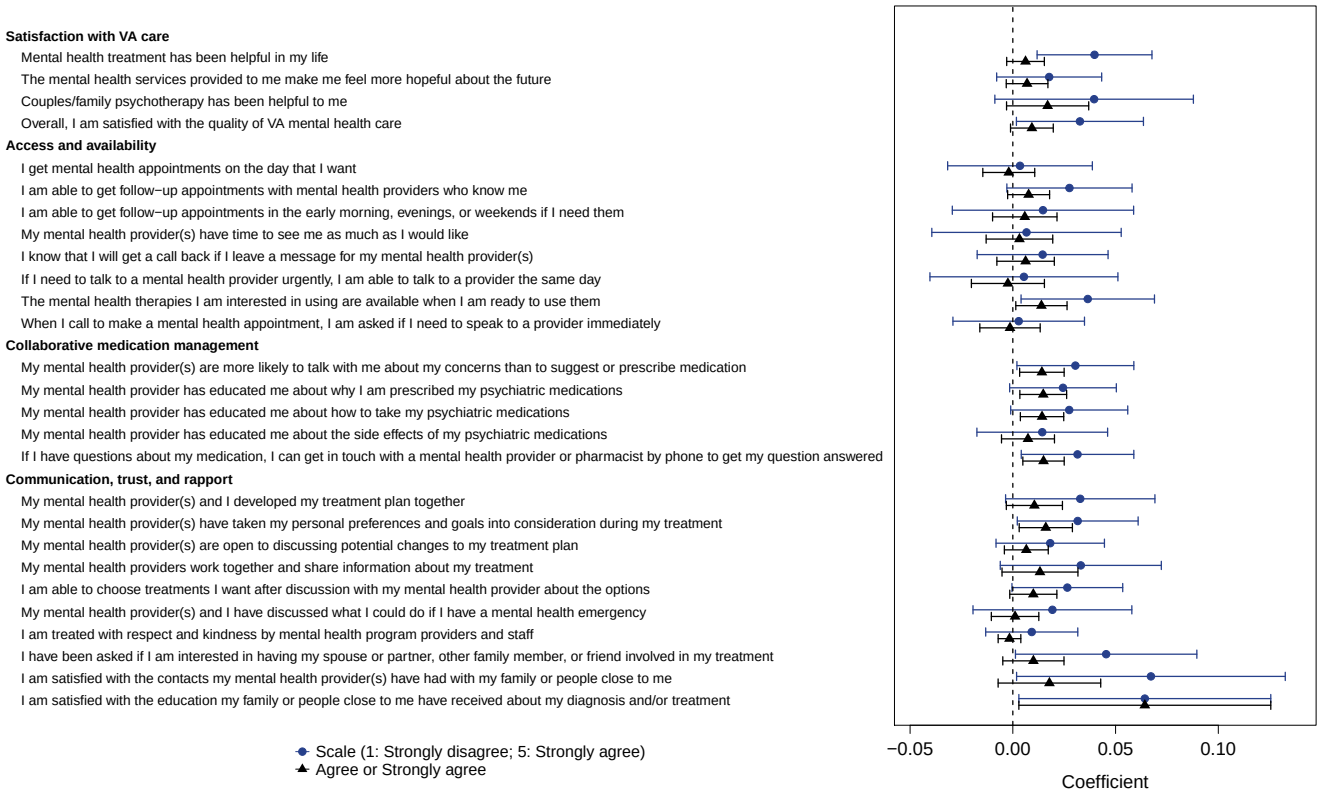


(c) Major Depressive Disorder Screen



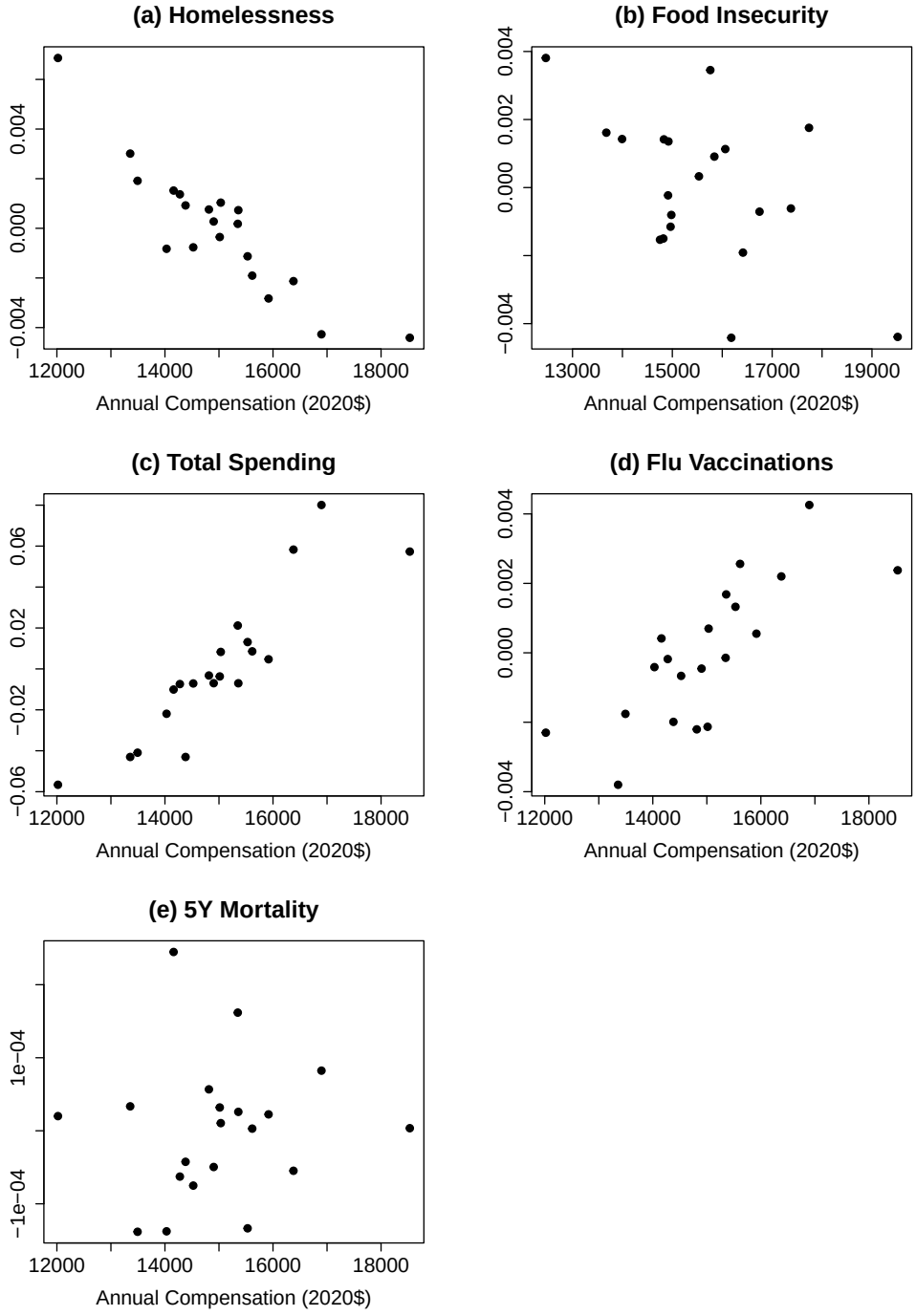
Notes: This figure displays estimated 2SLS coefficients from Equation 1 for alcohol use disorder (AUDIT-C questionnaire; panel a), a proxy for weekly binge drinking (AUDIT-C question 3; panel b), and major depressive disorder screens (PHQ-2 questionnaire; panel c), estimated separately for each 365 day period relative to the initial disability claim (one year prior and five years post). Benefit compensation amounts are scaled to units of an additional $1,000 per year for interpretability. The black circles (left y-axis) correspond to the average raw questionnaire response as the outcome variable and the red triangles (right y-axis) correspond to screening "positive" as the outcome variable. All regressions are estimated on samples of veterans that are alive for the entire five years following the claim. In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. Mean AUDIT-C score and positive AUD screen rate (panel a) in the prior year are 2.04 and 14%; mean binge drinking at a weekly or more frequent (panel b) in the prior year is 7.6%, and mean PHQ-2 score and positive MDD screen rate (panel c) in the prior year are 1.54 and 23%. Analysis samples are not balanced; the number of observations range from 235,024 to 501,028 for panels a and b, and 171,028 to 323,036 for panel c.

Figure C.5: Veteran Satisfaction Survey Responses: Discrete Responses and Agree/Strongly Agree



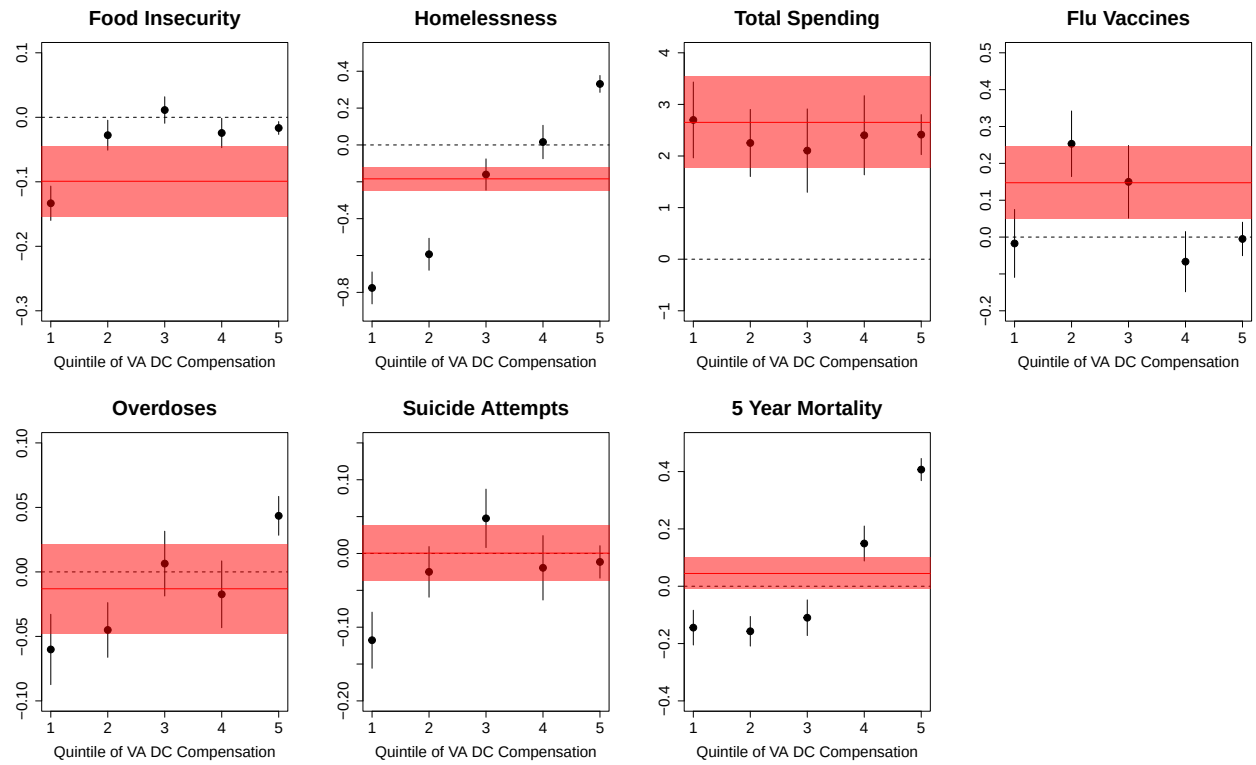
Notes: This figure displays the estimated coefficients of separate 2SLS regressions of individual survey question response (1 to 5 scale of strongly disagree to strongly agree; blue circle) OR survey response of at least agree (black triangle) on disability benefit compensation. The impact of $1,000 on completing the survey (response bias) is 0.00017 (SE=0.00011) and statistically insignificant at the 10% level. The sample size is 1,401 veterans, which reflects the randomly selected veterans from 2017-2020 who completed the survey within five years of first claiming mental disorder disability. Regression coefficients and 95% confidence intervals (robust standard errors are clustered at the station-level) are graphed. In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Veterans who are not selected for the survey, do not complete the survey, or skip the question are dropped.

Figure C.6: Exploring Nonlinearities in the Impacts of Disability Compensation



Notes: This figure explores non-linear impacts of VA DC by plotting binscatters of select outcomes on VA DC compensation. The average residualized outcome is plotted against average residualized compensation benefit amount based on each veterans' examiner tendency (within a station-year). The mean annual compensation amount is added back to the residualized compensation amounts, but the outcome variables remain demeaned. The residualization process includes station-by-year fixed effects along with controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period.

Figure C.7: Heterogeneous Impacts of Disability Compensation: Masten and Torgovitsky (2016)



Notes: This figure investigates heterogeneous impacts of disability compensation on our main outcomes, using a correlated random coefficients approach following Masten and Torgovitsky (2016); Benson et al. (2022). We use 50 conditional ranks, and 50 bootstrap samples to compute standard errors.

Table C.1: Top 10 Rated Disabilities

				Disability Rating:						
	# Veterans	Age	1 Year Mortality	Average	SD	$\geq 30\%$	$\geq 50\%$	$\geq 70\%$	$=100\%$	Δ Rating (5 Year)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tinnitus	2,434,637	52.50	0.009	10.00	0.16	0	0	0	0	0
Limitation of flexion, knee	1,236,109	41.57	0.003	10.30	3.79	0.01	0	0	0	0.18
Paralysis of the sciatic nerve	1,166,288	54.48	0.017	14.34	7.99	0.05	0.01	0	0	0.95
PTSD	1,149,921	48.91	0.010	50.11	20.68	0.95	0.66	0.32	0.05	5.88
Lumbosacral or cervical strain	980,696	38.92	0.003	14.22	7.60	0.06	0	0	0	0.94
Limitation of motion of the ankle	604,127	41.38	0.003	10.78	4.72	0	0	0	0	−0.09
Limitation of motion of the arm	569,208	41.52	0.003	19.83	5.28	0.03	0	0	0	0.02
Degenerative arthritis of the spine	480,835	47.82	0.005	15.18	8.78	0.08	0	0	0	1.09
Hearing loss	467,397	73.14	0.028	28.19	23.42	0.41	0.18	0.09	0.04	1.58
Diabetes mellitus	437,942	65.92	0.035	19.02	6.09	0.02	0.01	0	0	0.62

Notes: This table reports statistics of the top 10 disabilities that were newly rated by the VA between 2005-2020 ranked by the number of veterans with each disability (column 1). Columns 2 and 3 display the average age of veterans at the time of the claim and the fraction that die within one year of the time of the claim. Columns 4 to 9 displays statistics of the initial disability claim. Column 10 reports the average growth of the disability rating over five years (in percentage point levels); e.g., a growth of 1 means that claim's rating percentage increased up by one point over five years.

Table C.3: Select Outcomes Without Non-Attrition Restrictions

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	2.36***	−0.07***	−0.06*	−0.04**	−0.001	−0.01	0.002
	(0.36)	(0.02)	(0.03)	(0.02)	(0.004)	(0.01)	(0.01)
Mean Dep Var (×100)	669.48	7.76	2.17	1.55	0.31	0.94	1.42
N=	867,016	867,016	64,405	279,564	867,016	663,692	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	2.54***	−0.16***	−0.10***	−0.10***	−0.01	−0.001	0.04
	(0.45)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
Mean Dep Var (×100)	897.62	14.22	2.41	1.58	1.32	2.90	8.07
N=	626,523	626,523	126,244	282,793	626,523	565,225	626,523

Notes: This table reports estimated 2SLS coefficients of select main outcomes without restrictions on non-attrition. That is, unlike the main tables which are estimated only on the sample of veterans who are alive for the entire outcome period, these regressions are estimated on the sample of all veterans, including those who die before the end of the outcome period. The coefficients are scaled by 100 for interpretability and readability. Total utilization dollars is estimated following Chen and Roth (2024) log transformation of average cost as the dependent variable with $x = 0.1$ (i.e., extensive margin is modeled at 10 log points). All regressions include station-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.4: OLS of Select Outcomes on Disability Compensation Benefit Amount

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	3.68***	−0.01***	−0.03***	−0.02***	0.01***	0.02***	0.01***
	(0.06)	(0.004)	(0.005)	(0.003)	(0.001)	(0.002)	(0.002)
Mean Dep Var (×100)	674.70	7.75	2.17	1.56	0.30	0.91	1.42
N=	854,873	854,873	64,035	276,121	854,873	654,967	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	3.94***	0.01***	−0.04***	−0.05***	0.03***	0.08***	0.06***
	(0.07)	(0.01)	(0.01)	(0.004)	(0.002)	(0.004)	(0.004)
Mean Dep Var (×100)	908.27	14.33	2.41	1.68	1.23	2.89	8.07
N=	576,677	576,677	124,180	261,448	576,677	522,847	626,523

Notes: This table reports estimated coefficients from Equation 1 from an OLS estimation for select main outcomes. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts (in 2020 dollars) are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. All regressions are estimated on samples of veterans that are alive for the entire outcome period. Total utilization dollars is estimated following Chen and Roth (2024) log transformation of average cost as the dependent variable with $x = 0.1$ (i.e., extensive margin is modeled at 10 log points). All regressions include station-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.5: Impact of Examiner Tendency on Subsequent Appeals, Increases, and New Claims

	Dependent variable: (×100)							
	Appeal		Increase		New MH Claims		New Non-MH Claims	
	1Y	5Y	1Y	5Y	1Y	5Y	1Y	5Y
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1 SD of Examiner IV	−0.03***	−0.09***	0.16***	−0.45***	0.12*	0.04	0.12*	0.04
	(0.01)	(0.01)	(0.06)	(0.10)	(0.07)	(0.05)	(0.07)	(0.05)
Mean Dep Var (×100)	0.16	0.61	6.98	20.88	0.47	0.69	0.47	0.90
N=	854,873	576,677	854,873	576,677	854,873	576,677	854,873	576,677

Notes: This table reports estimated coefficients of a reduced form regression of the impact of examiner tendency on various subsequent disability claim related outcomes: whether the veteran appeals the initial (index) mental health disability claim (columns 1 and 2), whether the veteran files for an increased rating on the mental health disability (columns 3 and 4), the number of new MH disability claims filed (columns 5 and 6), and the number of new non-MH disability claims filed (columns 7 and 8). Odd (even) numbered columns report one-year (five-year) outcomes. The explanatory variable is the standardized examiner tendency instrument. The coefficients are scaled by 100 for interpretability and readability. All regressions include station-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.6: Reduced Form Regressions of Select Outcomes on Examiner Tendency

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 SD of Examiner IV	3.46***	−0.10***	−0.09*	−0.06**	−0.002	−0.01	0.003
	(0.54)	(0.02)	(0.05)	(0.03)	(0.01)	(0.001)	(0.01)
Mean Dep Var (×100)	674.70	7.75	2.17	1.56	0.30	0.91	1.42
N=	854,873	854,873	64,035	276,121	854,873	654,967	867,016

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	Total Util $	Homeless-ness	Food Insecurity	# Debt Collection	Overdose Poisoning	Suicide Event	All-Cause Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 SD of Examiner IV	3.09***	−0.23***	−0.13***	−0.14***	−0.02	0.001	0.06
	(0.55)	(0.04)	(0.04)	(0.03)	(0.02)	(0.02)	(0.04)
Mean Dep Var (×100)	908.27	14.33	2.41	1.68	1.23	2.89	8.07
N=	576,677	576,677	124,180	261,448	576,677	522,847	626,523

Notes: This table reports estimated coefficients from a reduced form regression of select main outcomes on standardized examiner tendency instrumental variable. The impact of a standard deviation increase in examiner tendency on benefit compensation amounts are presented in Figure 2. The coefficients are scaled by 100 for interpretability and readability. All regressions are estimated on samples of veterans that are alive for the entire outcome period. Total utilization dollars is estimated following Chen and Roth (2024) log transformation of average cost as the dependent variable with $x = 0.1$ (i.e., extensive margin is modeled at 10 log points). All regressions include station-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.7: Frandsen et al. (2023) Test of Null of Exclusion and Monotonicity

	Disability Rating Threshold for Binary Treatment:		
	$\geq 30\%$	$\geq 50\%$	$\geq 70\%$
	(1)	(2)	(3)
Fit-based test	> 0.999	> 0.999	> 0.999
Slope-based test	0.980	0.974	> 0.999

Notes: This table presents results from the test proposed in Frandsen et al. (2023) for the null hypothesis that the monotonicity and exclusion restrictions hold. The p-values are reported for both the fit-based and slope-based tests with five year mortality rate as the outcome variable. The treatment is discretized into binary treatments based on three thresholds: 30%, 50%, and 70% disability rating.

Table C.8: Subsample First Stages

	Cumulative Benefit (2020$)			
	1 Year	5 Year	Mean Yr1 Benefit	N=
Subsample:	(1)	(2)	(3)	(4)
Full Sample	1,444.9***	6,150.9***	15,090	867,016
	(19.7)	(128.6)		
Sex: Female	1,472.1***	6,125.7***	16,055	93,706
	(39.7)	(259.8)		
Sex: Male	1,439.1***	6,149.7***	14,965	761,167
	(20.7)	(139.6)		
Race: White (Non-Hispanic)	1,411.7***	6,006.9***	15,014	517,099
	(22.2)	(145.4)		
Race: Black	1,535.2***	6,466.2***	15,429	192,099
	(41.4)	(271.6)		
Race: API, Hispanic, Native	1,459.0***	6,373.9***	14,888	93,452
	(33.0)	(215.8)		
Age: < 45	1,399.0***	5,905.5***	14,841	317,213
	(29.1)	(169.0)		
Age: ≥ 45	1,468.4***	6,284.2***	15,228	537,660
	(27.5)	(170.0)		
Type: Anxiety Disorders	1,556.8***	6,594.7***	14,740	528,399
	(28.2)	(161.3)		
Type: Mood Disorders	1,423.7***	6,566.7***	16,092	176,207
	(48.4)	(309.4)		
Type: Other Disorders	1,374.3***	6,137.2***	16,590	80,780
	(61.1)	(366.9)		
Predicted Benefit: Top Tercile	1,525.10***	6,699.4***	17,736	285,315
	(24.9)	(145.9)		
Predicted Benefit: Middle Tercile	1,408.3***	6,016.9***	14,869	285,018
	(24.5)	(154.6)		
Predicted Benefit: Bottom Tercile	1,325.9***	5,722.2***	12,641	284,540
	(43.9)	(236.5)		

Notes: This table reports estimated coefficients from first stage regressions of one year and cumulative five year disability compensation benefit (in 2020 dollars) on standardized examiner tendency instrument for various subsamples, displayed in rows. Columns 1 and 2 report the estimated first stage coefficients. Column 3 and 4 display the average first year benefit amount and sample size for each subsample. Predicted benefit amount (in the first year) is fit using pre-examination covariates from Figure 3a. The regressions are estimated on veterans who are alive over the entire outcome period. In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.9: VA Debt: Number of Collections and Balances by Type

		Collection Balance ($)			
	Number of Collections	Q1	Median	Mean	Q3
Education benefits	18,750	125	555	1,452	1,633
Disability compensation & pension	3,597	1,902	5,782	13,283	15,038
Vocational training and employment	378	338	804	1,372	1,680
Home loan guaranty	159	10,310	19,727	21,713	30,423

Notes: This table summarizes the number of debt collections and collection balances by type of debt. Education loans include Chapter 33 Post-9/11 GI Bill education benefits (tuition, housing, books and fees, relocation fees) and debt is usually triggered when the veteran drops out of school or stops attending school full-time. Disability compensation and pension debt is usually triggered when a veteran's dependent situation changes. Vocational training and employment programs pay veterans for employment training and debt can accrue if the veteran disenrolls early. Home loan guaranty programs provide assistance with purchasing homes (e.g., no downpayment, favorable interest rates, loan guaranty, etc.) and debt can accrue if for instance, the veteran falls behind mortgage payments. Incorrect overpayment can also result in debt for all four types.

Table C.10: 5-Year Utilization Effects: Dealing with Zeros

Panel A. Utilization in Levels

	2SLS				Poisson 2SLS			
	Total	Outpat	Inpat	MH OP	Total	Outpat	Inpat	MH OP
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$1,000 per year	328.29**	305.73***	23.36	25.46	0.0070**	0.0096***	0.0002	0.0023
	(156.82)	(82.05)	(72.70)	(27.84)	(0.0033)	(0.0025)	(0.0058)	(0.0031)
Mean Dep Var	$45,009	$32,304	$11,853	$9,545	$45,009	$32,304	$11,853	$9,545
Implied Prop. Effect	0.0073	0.0095	0.0020	0.0027	0.0070	0.0064	0.0003	0.0023
N=	576,677	576,677	576,677	576,677	576,677	576,677	576,677	576,677

Panel B. Extensive Margin Impacts

	Total	Outpat	Inpat	MH OP
	(1)	(2)	(3)	(4)
$1,000 per year	0.001*	0.001***	0.002	0.003***
	(0.0002)	(0.0002)	(0.0010)	(0.0010)
Mean Dep Var	0.960	0.960	0.243	0.778
N=	576,677	576,677	576,677	576,677

Panel C. Explicit Calibration of Extensive Margin Following Chen and Roth (2024)

	Dependent variable: Outpatient Spending			
	(1)	(2)	(3)	(4)
$1,000 per year	2.50***	2.51***	2.63***	2.76***
	(0.38)	(0.38)	(0.39)	(0.41)
Extensive margin value (x)	0	0.1	1	2
N=	576,677	576,677	576,677	576,677

Notes: This exhibit shows the output of three exercises that deal with zeros and skewed distribution in 5-year healthcare utilization, following Chen and Roth (2024). Panel A estimates utilization in levels using 2SLS (columns 1-4) and Poisson 2SLS (columns 5-8). Implied effects are reported for OLS ($\hat{\beta}/E[benefits]$) and Poisson ($exp(\hat{\beta}) - 1$). Panel B provides extensive margin (using indicators for any utilization) impacts of an additional $1,000 per year. Panel C probes sensitivity of the outpatient spending outcome in Table 3 with $m(Y)$ as an outcome, where $m(Y)$ is $\log(y)$ for positive values of y and $-x$ for $y = 0$. Different x values are shown.

Table C.11: Elasticities of Demand for Healthcare, using Chen and Roth (2024) Log Transformations

	Dependent variable: Log (Total Utilization)	
	Benefits Elasticity	Income Elasticity†
	(1)	(2)
Log(Benefits)	0.12***	
	(0.02)	
Log(Benefits+Avg Income)		1.08***
		(0.16)
†: Without accounting for labor market effects of disability income		

Notes: This table reports benefits (column 1) and income (column 2) elasticities of demand for healthcare. Column 1 reports the coefficient of a (Chen and Roth, 2024) log utilization-log benefits specification and column 2 reports the coefficient of a log-utilization-log benefits plus average veteran income specification. All Chen and Roth (2024) log transformation explicitly models the extensive margin at 10 log points (i.e., $x = 0.1$). Note that the income elasticity does not account for labor market effects of disability income which are well-established (Autor and Duggan, 2003). See text for our preferred estimate where we conduct back-of-envelope calculates using causal estimates of the effect of VA disability income on veteran employment from Autor et al. (2016). In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.12: 5-Year Medication Possession Ratios by Drug Class

	Dependent variable: (×100)				
	Anti-depressants	Anti-psychotics	Sedatives/ Hypnotics	Statins	Hypertensive Drugs
	(1)	(2)	(3)	(4)	(5)
$1,000 per year	0.027	0.039	0.049	0.074**	0.114***
	(0.032)	(0.057)	(0.066)	(0.033)	(0.038)
Mean Dep Var (×100)	80.12	82.01	72.95	86.15	87.80
N=	308,218	86,656	152,210	184,692	192,361

Notes: This table reports 2SLS estimates of the effect of disability compensation on 5-year medication possession ratios by drug class. MPRs are drug episode duration-weighted averages, which are only defined for individuals who fill at least the same drug (irrespective of dose) twice; see Appendix A for more details on outcome variable definitions. The coefficients are scaled by 100 for interpretability and readability. All regressions are estimated on samples of veterans that are alive for the entire outcome period. All regressions include station-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.13: Utilization Effects for Sample With Actual and Expected Zero Medical Copayments

	Dependent variable: (×100)					
	Total Util $		Outpat Util $		Inpat Util $	
	Actual	Expected	Actual	Expected	Actual	Expected
	(1)	(2)	(3)	(4)	(5)	(6)
$1,000 per year	1.82***	2.66***	1.83***	2.72***	1.54	0.97
	(0.51)	(0.46)	(0.45)	(0.41)	(1.30)	(1.08)
Mean Dep Var (×100)	$39,368	$35,957	$28,407	$26,727	$10,961	$9,230
N=	511,216	516,329	511,216	516,329	511,216	516,329

Notes: This table reports 2SLS estimates of the effect of disability compensation on healthcare utilization (extensive margin calibrated log transformation of Chen and Roth, 2024) for veterans whom examiner tendency should only impact disability income and not VHA medical copayments. Veterans with a combined disability rating of at least 10% have no copayments for medical care and thus the instrument does not affect the cost of healthcare. The 2SLS regressions are estimated on the sample with realized disability ratings of at least 10% and sample with predicted disability rating of at least 10% using veteran observables (demographics, income, period of service, prior medical comorbidities; see Figure 3a) in the odd and even columns, respectively. Predicted disability rating is estimated via a logistic regression and the response threshold value is selected to match the number of veterans who actually receive at least 10% disability. The coefficients are scaled by 100 for interpretability and readability. All regressions are estimated on samples of veterans that are alive for the entire outcome period. All regressions include station-by-year fixed effects and five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period; robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.14: Healthcare Utilization and Distance to Nearest VA Primary Care Clinic

	Dependent variable: Utilization (×100)	
	1-Year	5-Year
	(1)	(2)
Distance to VA: [5,10) mi	−13.12	−12.95
	(8.22)	(10.24)
Distance to VA: [10,25) mi	−39.00***	−40.00***
	(8.22)	(10.45)
Distance to VA: 25+ mi	−43.39***	−31.09***
	(11.06)	(12.00)
$1,000 per year	1.57***	1.57**
	(0.49)	(0.59)
$1,000 per year × Distance to VA: [5,10) mi	0.27	0.31
	(0.52)	(0.60)
$1,000 per year × Distance to VA: [10,25) mi	1.23**	1.41**
	(0.52)	(0.60)
$1,000 per year × Distance to VA: 25+ mi	1.36*	0.82
	(0.71)	(0.71)
Mean Dep Var (× 100)	671.41	901.61
N=	663,133	401,753

Notes: This table reports 2SLS estimates of the effect of disability compensation benefits on healthcare utilization (measured via extensive margin calibrated log transformation of Chen and Roth, 2024) by driving distance to the nearest VA primary care clinic. Distance to the nearest VA primary care station (in miles) is calculated by the VA Planning Systems Support Group (PSSG) which mains location files for veterans enrolled in VHA care using information from the US Postal Service National Change of Address File; this data is available starting in 2009. We use the distance observed in the year *prior* to the veteran's disability claim in the interaction to avoid endogenous moves driven by benefit compensation. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder,and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.15: Utilization Among Medicare and VA Dual-Eligible Population

Panel A. 1-Year Outcomes

	Dependent variable: Encounters (×100)	
	VA	Medicare
	(1)	(2)
$1,000 per year	7.69***	0.97
	(2.59)	(0.84)
Mean Dep Var (×100)	1,569.00	145.23
N=	157,648	157,648

Panel B. 5-Year Outcomes

	Dependent variable: Encounters (×100)	
	VA	Medicare
	(1)	(2)
$1,000 per year	60.18***	−2.27
	(18.42)	(3.83)
Mean Dep Var (×100)	7,925.41	621.43
N=	76,752	76,752

Notes: This table reports estimated 2SLS coefficients from Equation 1 for number of VHA (column 1) and Medicare (column 2) outpatient encounter days for veterans over the age of 65. Medicare claims data is available between 2011-2019. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.16: Starting and Completing Prolonged Exposure (PE) Therapy

Panel A. 1-Year Outcomes

	Dependent variable: Encounters (×100)			
	1-Year		5-Year	
	Start PE	Complete PE | Start	Start PE	Complete PE | Start
	(1)	(2)	(3)	(4)
$1,000 per year	−0.003	3.31*	−0.01	0.98
	(0.01)	(1.96)	(0.01)	(0.68)
Mean Dep Var (×100)	0.52	83.77	0.79	86.55
N=	207,077	1,374	193,657	2,037

Notes: This table reports estimated 2SLS coefficients from Equation 1 for starting and completing prolonged exposure therapy for PTSD. One-year and five-year outcomes are displayed. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. Prolonged exposure therapy is a form of behavioral psychotherapy for PTSD strongly encouraged by the VHA in recent years. It includes repeated retelling of the underlying trauma and gradual exposure to objects and situations that remind the patient of the trauma or feel dangerous. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.17: Mortality and Cause of Death

Panel A. 1-Year Outcomes

	Dependent variable: (×100)						
	All-Cause	Cancer	Heart Disease	Chronic Low. Respiratory	External Causes	Suicide	Overdose
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	0.0022	−0.0096**	0.0091*	−0.0030	−0.0066**	−0.0034*	−0.0017
	(0.0091)	(0.0043)	(0.0053)	(0.0020)	(0.0033)	(0.0018)	(0.0023)
Mean Dep Var (×100)	1.421	0.367	0.314	0.072	0.164	0.048	0.054
N=	867,416	767,658	767,658	767,658	767,658	767,658	767,658

Panel B. 5-Year Outcomes

	Dependent variable: (×100)						
	All-Cause	Cancer	Heart Disease	Chronic Low. Respiratory	External Causes	Suicide	Overdose
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1,000 per year	0.0445	0.0065	0.0495**	0.0078	0.0126	−0.0007	−0.0018
	(0.0284)	(0.0190)	(0.0193)	(0.0125)	(0.0104)	(0.0062)	(0.0066)
Mean Dep Var (×100)	8.070	2.106	1.939	0.502	0.807	0.219	0.268
N=	626,523	463,910	463,910	463,910	463,910	463,910	463,910

Notes: This table reports estimated 2SLS coefficients from Equation 1 for mortality outcomes. One-year and five-year outcomes are displayed in panels A and B, respectively. Benefit compensation amounts are scaled to units of an additional $1,000 per year and the coefficients are scaled by 100 for interpretability and readability. Cause of death is constructed from CDC's National Death Index Plus data until the end of 2018. Cancer, heart disease, external causes, and chronic lower respiratory disease are the four leading causes of death in the United States. Suicide and overdoses deaths are a (non-exhaustive) subset of external causes of death. the All regressions include station-by-year fixed effects and baseline controls in the text; standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01

Table C.18: Heterogeneity of 5-Year Main Outcomes

	Dependent variable: (×100)											
	Util	Flu	HCV	MPR	Food	Homeless	Debt	Suicide	Pain	SBP	DBP	Mortality
$1,000 per year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Male	2.53***	0.14***	0.30***	0.05**	−0.09***	−0.20***	−0.10***	−0.02	−1.61***	1.16	−2.15	0.04
	(0.44)	(0.05)	(0.07)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.41)	(2.17)	(2.30)	(0.03)
Female	2.47***	0.19	0.42**	−0.03	−0.19	−0.09	−0.20**	0.12*	−0.07	−3.09	−6.30*	0.07
	(0.83)	(0.12)	(0.20)	(0.07)	(0.12)	(0.14)	(0.09)	(0.07)	(0.96)	(3.94)	(3.52)	(0.05)
White (Non-Hispanic)	2.38***	0.13*	0.24***	0.03	−0.09***	−0.20***	−0.08***	0.02	−1.45***	0.78	−2.93	0.04
	(0.56)	(0.07)	(0.07)	(0.02)	(0.03)	(0.04)	(0.02)	(0.02)	(0.41)	(2.58)	(3.06)	(0.04)
Black	2.71***	0.25***	0.37***	0.01	−0.16*	−0.26***	−0.21***	−0.02	−1.66*	1.40	−2.76	0.06
	(0.49)	(0.09)	(0.11)	(0.04)	(0.09)	(0.10)	(0.05)	(0.04)	(0.90)	(3.39)	(1.86)	(0.05)
Other Race/Ethnicity	2.73***	0.18***	0.42***	0.06*	−0.11*	−0.16***	−0.15***	−0.02	−1.29*	0.76	−1.70	0.06
	(0.46)	(0.06)	(0.11)	(0.04)	(0.06)	(0.06)	(0.04)	(0.03)	(0.67)	(2.65)	(1.62)	(0.04)
Age < 45	3.04***	0.17***	0.45***	0.06	−0.14***	−0.28***	−0.23***	0.01	−1.41**	0.76	−4.71*	0.01
	(0.60)	(0.05)	(0.12)	(0.05)	(0.05)	(0.07)	(0.05)	(0.04)	(0.59)	(2.65)	(2.71)	(0.02)
Age ≥ 45	2.15***	0.15**	0.25**	0.04*	−0.08**	−0.12***	−0.02**	−0.01	−1.51***	0.73	−1.54	0.06
	(0.43)	(0.06)	(0.10)	(0.02)	(0.04)	(0.04)	(0.01)	(0.02)	(0.45)	(2.48)	(2.23)	(0.04)
Income < $30,000	2.23***	0.14***	0.26***	0.05**	−0.12***	−0.21***	−0.13***	−0.01	−1.48***	0.29	−2.90	0.07**
	(0.42)	(0.05)	(0.08)	(0.02)	(0.04)	(0.04)	(0.02)	(0.02)	(0.46)	(2.31)	(2.17)	(0.03)
Income ≥ $30,000	3.39***	0.19**	0.44***	0.03	0.01	−0.12*	−0.05	−0.005	−1.61***	0.64	−1.82	−0.02
	(0.67)	(0.09)	(0.10)	(0.05)	(0.03)	(0.07)	(0.04)	(0.03)	(0.55)	(3.34)	(3.40)	(0.05)
PTSD Claims	2.30***	0.19***	0.28***	0.05**	−0.07**	−0.20***	−0.09***	−0.02	−1.68***	−0.48	−1.87	0.02
	(0.42)	(0.05)	(0.08)	(0.02)	(0.03)	(0.04)	(0.02)	(0.02)	(0.38)	(2.43)	(2.26)	(0.03)
Non-PTSD Claims	2.74***	0.08	0.40***	0.08**	−0.16***	−0.12	−0.15***	0.04	−1.21*	2.19	−4.15	0.13**
	(0.71)	(0.08)	(0.10)	(0.04)	(0.06)	(0.08)	(0.04)	(0.04)	(0.67)	(3.31)	(2.96)	(0.06)

Notes: This table reports estimated 2SLS coefficients from Equation 1 for our main 5-year outcomes (columns) for separate subsamples (rows). Moving from left (column 1) to right (column 12) the outcomes are: log of 1+ total utilization, annual flu vaccinations, any hepatitis C screen, average medication possession ratio, homelessness, number of VA Debt collections (referrals to Treasury), suicide, self-reported pain score, systolic blood pressure, diastolic blood pressure, and all-cause mortality. All regressions are estimated on samples of veterans that are alive for the entire outcome period. In addition to station-by-year fixed effects, all regressions include controls for five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

Table C.19: Inference

	Dependent variable: (×100)						
	Total Util $ (1)	Homeless-ness (2)	Food Insecurity (3)	# Debt Collection (4)	Overdose Poisoning (5)	Suicide Event (6)	All-Cause Mortality (7)
Baseline estimates	2.51***	−0.18***	−0.10***	−0.11***	−0.01	0.0001	0.04
	(0.43)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
Belloni et al. 2012	2.68***	−0.23***	−0.09***	−0.09***	−0.02	0.0001	0.02
	(0.46)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.03)
Anderson-Rubin CI	[1.65, 3.33]	[−0.25, −0.12]	[−0.15, −0.05]	[−0.15, −0.07]	[−0.05, 0.02]	[−0.04, 0.04]	[−0.01, 0.11]

Notes: All rows present the causal impact of an extra $1,000 of VA DC benefits on select main outcomes. The first row presents the our main 2SLS estimates using our baseline continuous examiner propensity instrumental variable. The second row follows the procedure in Belloni et al. (2012) by selecting optimal instruments via LASSO and then conducting post-LASSO with many instruments. LASSO selects 354 examiners (out of 1,749, or 20.2%). Robust standard errors are clustered at the station-level. The third row displays Anderson and Rubin (1949) confidence intervals. *p<0.1; **p<0.05; ***p<0.01.

Table C.20: Outcomes by Mental Health Combined Disability Rating and Residualized Benefits

	5-Year Outcomes:						
	Food	Homeless	Spending	Flu	Overdose	Suicide	Mortality
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mental Health Combined Disability Rating:							
0	0.033	0.167	47,722	0.362	0.013	0.026	0.099
10	0.012	0.079	33,734	0.332	0.006	0.014	0.065
30	0.016	0.093	38,859	0.359	0.008	0.020	0.065
50	0.021	0.130	46,409	0.376	0.011	0.028	0.068
70	0.025	0.175	54,742	0.375	0.016	0.043	0.068
100	0.030	0.280	87,798	0.398	0.033	0.077	0.128
Residualized Benefits Quintile:							
1	0.039	0.218	53,374	0.362	0.016	0.032	0.089
2	0.021	0.115	40,576	0.354	0.009	0.020	0.082
3	0.018	0.100	39,351	0.360	0.008	0.020	0.075
4	0.020	0.114	43,712	0.371	0.010	0.026	0.068
5	0.024	0.172	59,795	0.380	0.018	0.047	0.089

Notes: This table reports sample means for main 5-year outcomes by combined disability rating (CDR) for mental disabilities only (i.e., applying the same formula that sums individual disabilities into a convex combined disability, but using mental disabilities only) and residualized benefits quintile from the first stage of the control function approach (i.e., quintile bins from Figure 5).

D. Disability Benefit Questionnaires

In this appendix we present details of the mental health disability benefit questionnaire (DBQ), explore the underlying source of examiner variation (e.g., what drives differences in our tendency IV?), and probe exclusion restriction concerns. The DBQ is a form which closely mimics the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and is used by the examiner to perform the examination starting in 2010. The form includes guidance for the examination along with spaces for structured and free-text responses. The completed form is then passed on to an administrative rater who assigns a final rating based on a rubric mandated by the Code of Federal Regulations. The first page of a mental health DBQ can be found in Figure D.1. We observe 384,965 (44.4% of our baseline sample) completed and digitized DBQs.

D.1 Occupational and Social Impairment

A particularly salient section of the DBQ appears near the end: Occupational and Social Impairment (OSI; see Figure D.2a). This section asks the examiner is "best summarize the veteran's level of occupational and social impairment with regards to all mental diagnoses" on a seven-item scale. One can see how clinical judgment and interpretation along these blurred lines may lead to certain examiners making different choices when faced with similarly "occupationally and socially impaired" veterans. We return to this point later.

In addition to serving as a succinct summary, the individual response options (i.e., boxes) almost maps verbatim to the rater rubric in Figure D.2b. For example, the third box of the OSI reads "occupational and social impairment due to mild or transient symptoms which decrease work efficiency and ability to perform occupational tasks only during periods of significant stress, or symptoms controlled by medication" which is exactly the rating description for a 10% disability rating in the rater rubric. Therefore, we should expect the OSI response to have predictive power in the veteran's disability rating and their realized benefit compensation amount.

D.2 Free-Text Response

In addition to structured responses like the OSI, there is a final free-text "Remarks, if any" section where the examiner can leave residual comments that do not fit into the structured sections, similar to a clinical note. We extract the text from this section from all 384,965 DBQs.

D.3 OSI Has Predictive Power

We empirically check that the OSI responses have predictive power in the veteran's realized benefit compensation amount. Table D.2 display the output of a regression of realized benefit amount on veteran characteristics (column 1) and veteran characteristics with OSI responses (column 2). We see that the R-squared jumps from 0.107 to 0.193 just by including the OSI responses. This implies that much of the variation in examiner tendency measured by

realized disability compensation benefits (our instrumental variable) is driven by underlying differences in how examiners' OSI responses.

D.4 Testing Exclusion Restriction Using Free-Text

As mentioned in the main text, one way to probe the exclusion restriction is to make use of the examiners' free-text remarks. For example, more careful examiners may leave longer text responses or examiners with inappropriate behavior (e.g., not believing the veteran's experiences, stigmatizing their disability, etc.) may leave more negative sentiment. We measure the sentiment and word count of the "remarks" section response. We use a lexicon-based sentiment analysis to obtain (positive/negative) polarity.[9] A histogram of the word count and sentiment polarity can be found in Figure D.3.

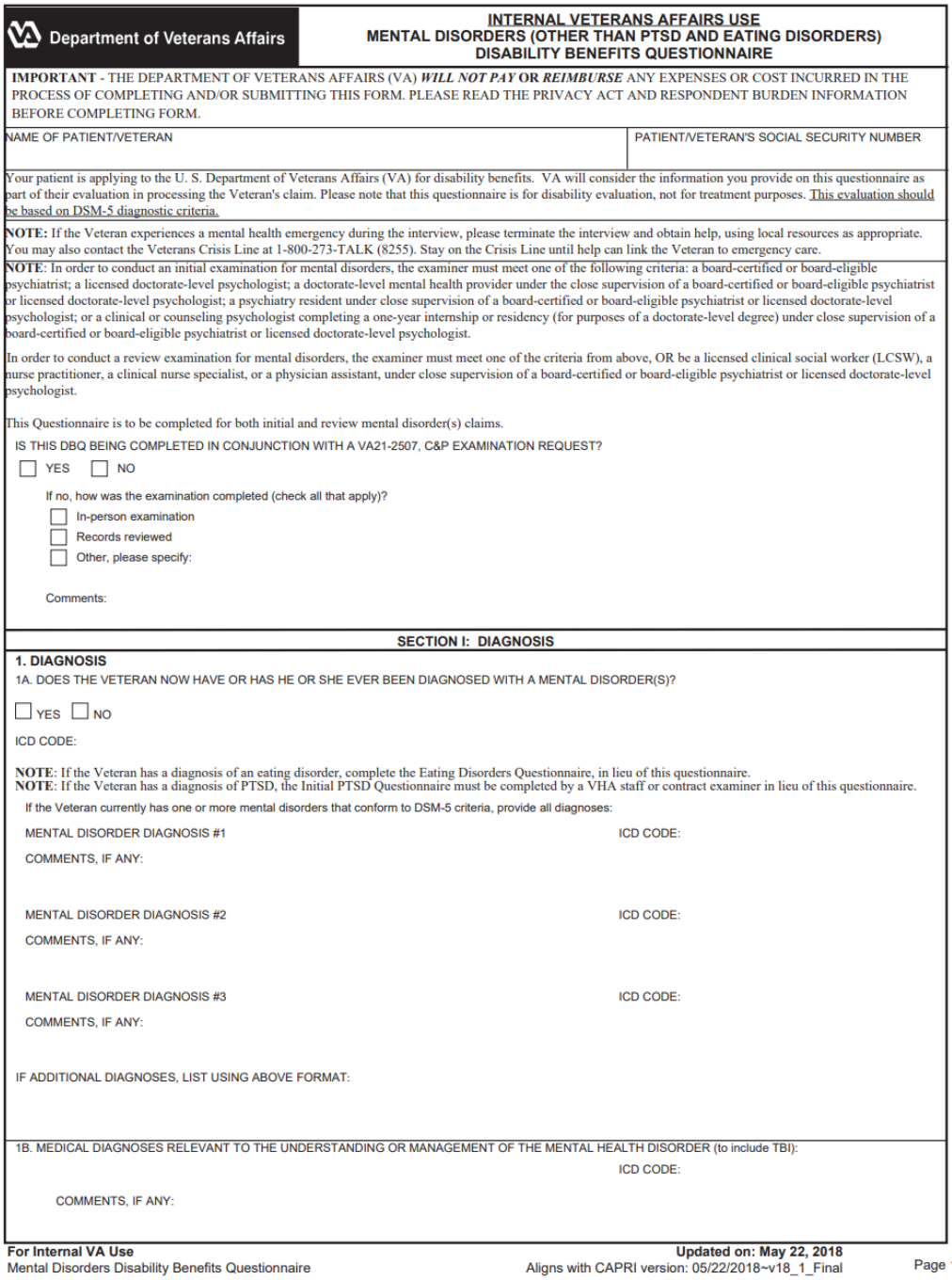
Columns 3 and 4 of Table D.2 show that the two dimensions of the free-text have very little predictive power beyond veteran characteristics and beyond veteran characteristics and OSI response (the R-squared do not change). We conclude from this exercise that examiner behavior and actions during the examination—to the extent they are captured by the free-text sentiment and word count—are unlikely to have any meaningful influence on veteran outcomes.

D.5 Testing Monotonicity Assumption Using OSI Thresholds

The multi-valued responses of the OSI section prescribe a simple monotonicity test. Examiners whom we measure as having higher average tendency (via veterans' realized disability benefit compensation amounts) should also have higher tendencies along the entire OSI spectrum. In other words, examiners who are more likely to check off boxes 4 or above, should also be more likely to check off boxes 1 or above. We build six OSI threshold instrumental variables using indicator variables for checking off at least a certain box using the same leave-out procedure detailed in Appendix E, and correlate each of them with our average-tendency baseline instrument. The result of this exercise can be found in Figure D.4; each of the six OSI threshold instruments are strongly correlated with our baseline measure of examiner tendency.

[9]Specifically, we use the Syuzhet lexicon: https://cran.r-project.org/web/packages/syuzhet/index.html.

Figure D.1: First Page of a Mental Health Disability Benefit Questionnaire (DBQ) Form



Department of Veterans Affairs

INTERNAL VETERANS AFFAIRS USE
MENTAL DISORDERS (OTHER THAN PTSD AND EATING DISORDERS)
DISABILITY BENEFITS QUESTIONNAIRE

IMPORTANT - THE DEPARTMENT OF VETERANS AFFAIRS (VA) ***WILL NOT PAY*** **OR** ***REIMBURSE*** ANY EXPENSES OR COST INCURRED IN THE PROCESS OF COMPLETING AND/OR SUBMITTING THIS FORM. PLEASE READ THE PRIVACY ACT AND RESPONDENT BURDEN INFORMATION BEFORE COMPLETING FORM.

NAME OF PATIENT/VETERAN | PATIENT/VETERAN'S SOCIAL SECURITY NUMBER

Your patient is applying to the U. S. Department of Veterans Affairs (VA) for disability benefits. VA will consider the information you provide on this questionnaire as part of their evaluation in processing the Veteran's claim. Please note that this questionnaire is for disability evaluation, not for treatment purposes. This evaluation should be based on DSM-5 diagnostic criteria.

NOTE: If the Veteran experiences a mental health emergency during the interview, please terminate the interview and obtain help, using local resources as appropriate. You may also contact the Veterans Crisis Line at 1-800-273-TALK (8255). Stay on the Crisis Line until help can link the Veteran to emergency care.

NOTE: In order to conduct an initial examination for mental disorders, the examiner must meet one of the following criteria: a board-certified or board-eligible psychiatrist; a licensed doctorate-level psychologist; a doctorate-level mental health provider under the close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist; a psychiatry resident under close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist; or a clinical or counseling psychologist completing a one-year internship or residency (for purposes of a doctorate-level degree) under close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist.

In order to conduct a review examination for mental disorders, the examiner must meet one of the criteria from above, OR be a licensed clinical social worker (LCSW), a nurse practitioner, a clinical nurse specialist, or a physician assistant, under close supervision of a board-certified or board-eligible psychiatrist or licensed doctorate-level psychologist.

This Questionnaire is to be completed for both initial and review mental disorder(s) claims.

IS THIS DBQ BEING COMPLETED IN CONJUNCTION WITH A VA21-2507, C&P EXAMINATION REQUEST?

☐ YES ☐ NO

If no, how was the examination completed (check all that apply)?

☐ In-person examination
☐ Records reviewed
☐ Other, please specify:

Comments:

SECTION I: DIAGNOSIS

1. DIAGNOSIS

1A. DOES THE VETERAN NOW HAVE OR HAS HE OR SHE EVER BEEN DIAGNOSED WITH A MENTAL DISORDER(S)?

☐ YES ☐ NO

ICD CODE:

NOTE: If the Veteran has a diagnosis of an eating disorder, complete the Eating Disorders Questionnaire, in lieu of this questionnaire.
NOTE: If the Veteran has a diagnosis of PTSD, the Initial PTSD Questionnaire must be completed by a VHA staff or contract examiner in lieu of this questionnaire.

If the Veteran currently has one or more mental disorders that conform to DSM-5 criteria, provide all diagnoses:

MENTAL DISORDER DIAGNOSIS #1 ICD CODE:

COMMENTS, IF ANY:

MENTAL DISORDER DIAGNOSIS #2 ICD CODE:

COMMENTS, IF ANY:

MENTAL DISORDER DIAGNOSIS #3 ICD CODE:

COMMENTS, IF ANY:

IF ADDITIONAL DIAGNOSES, LIST USING ABOVE FORMAT:

1B. MEDICAL DIAGNOSES RELEVANT TO THE UNDERSTANDING OR MANAGEMENT OF THE MENTAL HEALTH DISORDER (to include TBI):

ICD CODE:

COMMENTS, IF ANY:

For Internal VA Use **Updated on: May 22, 2018**
Mental Disorders Disability Benefits Questionnaire Aligns with CAPRI version: 05/22/2018~v18_1_Final Page 1

Notes: The first page of a sample mental health disability benefit questionnaire (DBQ) form. Note that the instructions of the form explicitly clarify that the form is for evaluation purposes only and not for treatment purposes. It also states that the evaluation should be based on DSM-5 diagnostic criteria and must be perform by board-certified psychiatrist, licensed doctorate-level psychologist, or a trainee that is closely supervised by a board-certified psychiatrist/licensed doctorate-level psychologist.

Figure D.2: Mental Health Disabilities: DBQ scale and rater rubric

(a) DBQ OSI scale

SECTION IV - OCCUPATIONAL AND SOCIAL IMPAIRMENT

4A. WHICH OF THE FOLLOWING BEST SUMMARIZES THE VETERAN'S LEVEL OF OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH REGARDS TO ALL MENTAL DIAGNOSES? *(Check only one)*

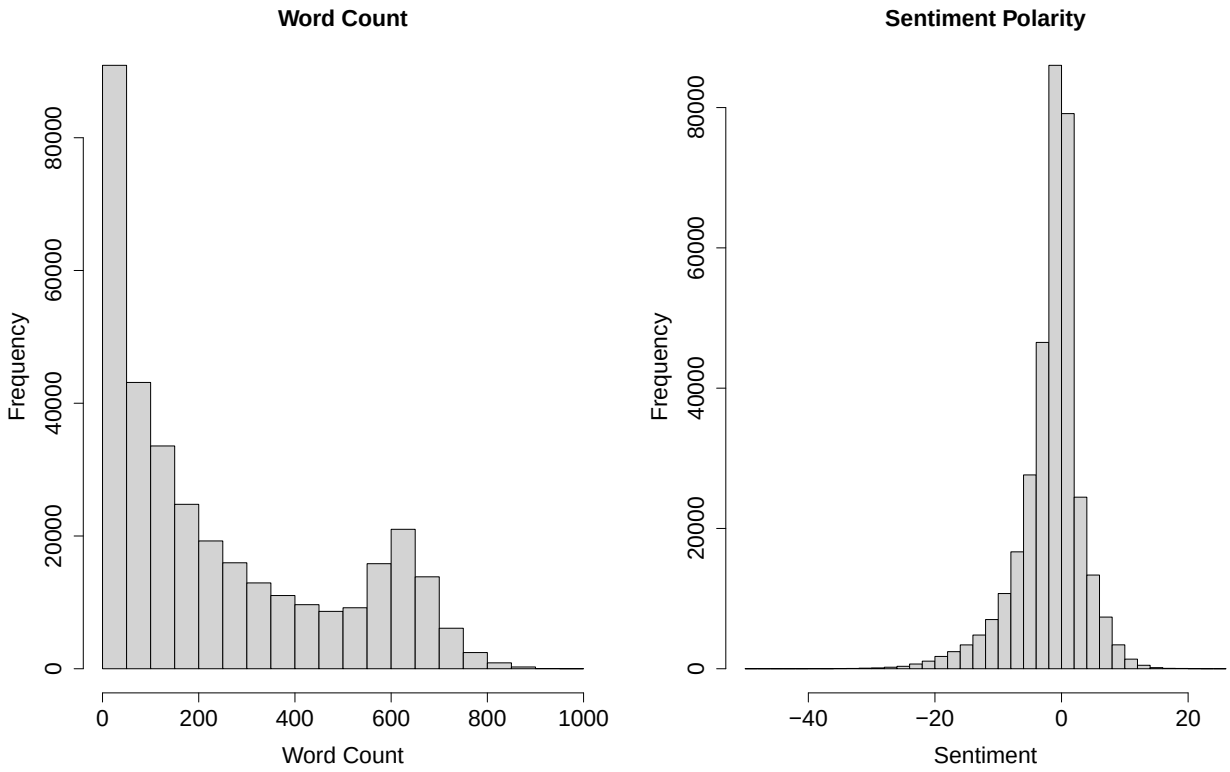
- ☐ NO MENTAL DISORDER DIAGNOSIS
- ☐ A MENTAL CONDITION HAS BEEN FORMALLY DIAGNOSED, BUT SYMPTOMS ARE NOT SEVERE ENOUGH EITHER TO INTERFERE WITH OCCUPATIONAL AND SOCIAL FUNCTIONING OR TO REQUIRE CONTINUOUS MEDICATION
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT DUE TO MILD OR TRANSIENT SYMPTOMS WHICH DECREASE WORK EFFICIENCY AND ABILITY TO PERFORM OCCUPATIONAL TASKS ONLY DURING PERIODS OF SIGNIFICANT STRESS, OR SYMPTOMS CONTROLLED BY MEDICATION
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH OCCASIONAL DECREASE IN WORK EFFICIENCY AND INTERMITTENT PERIODS OF INABILITY TO PERFORM OCCUPATIONAL TASKS, ALTHOUGH GENERALLY FUNCTIONING SATISFACTORILY, WITH NORMAL ROUTINE BEHAVIOR, SELF-CARE AND CONVERSATION
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH REDUCED RELIABILITY AND PRODUCTIVITY
- ☐ OCCUPATIONAL AND SOCIAL IMPAIRMENT WITH DEFICIENCIES IN MOST AREAS, SUCH AS WORK, SCHOOL, FAMILY RELATIONS, JUDGMENT, THINKING AND/OR MOOD
- ☐ TOTAL OCCUPATIONAL AND SOCIAL IMPAIRMENT

(b) Rater rubric

	Rating
Total occupational and social impairment, due to such symptoms as: gross impairment in thought processes or communication; persistent delusions or hallucinations; grossly inappropriate behavior; persistent danger of hurting self or others; intermittent inability to perform activities of daily living (including maintenance of minimal personal hygiene); disorientation to time or place; memory loss for names of close relatives, own occupation, or own name.	100
Occupational and social impairment, with deficiencies in most areas, such as work, school, family relations, judgment, thinking, or mood, due to such symptoms as: suicidal ideation; obsessional rituals which interfere with routine activities; speech intermittently illogical, obscure, or irrelevant; near-continuous panic or depression affecting the ability to function independently, appropriately and effectively; impaired impulse control (such as unprovoked irritability with periods of violence); spatial disorientation; neglect of personal appearance and hygiene; difficulty in adapting to stressful circumstances (including work or a worklike setting); inability to establish and maintain effective relationships.	70
Occupational and social impairment with reduced reliability and productivity due to such symptoms as: flattened affect; circumstantial, circumlocutory, or stereotyped speech; panic attacks more than once a week; difficulty in understanding complex commands; impairment of short- and long-term memory (e.g., retention of only highly learned material, forgetting to complete tasks); impaired judgment; impaired abstract thinking; disturbances of motivation and mood; difficulty in establishing and maintaining effective work and social relationships.	50
Occupational and social impairment with occasional decrease in work efficiency and intermittent periods of inability to perform occupational tasks (although generally functioning satisfactorily, with routine behavior, self-care, and conversation normal), due to such symptoms as: depressed mood, anxiety, suspiciousness, panic attacks (weekly or less often), chronic sleep impairment, mild memory loss (such as forgetting names, directions, recent events).	30
Occupational and social impairment due to mild or transient symptoms which decrease work efficiency and ability to perform occupational tasks only during periods of significant stress, or symptoms controlled by continuous medication.	10
A mental condition has been formally diagnosed, but symptoms are not severe enough either to interfere with occupational and social functioning or to require continuous medication.	0

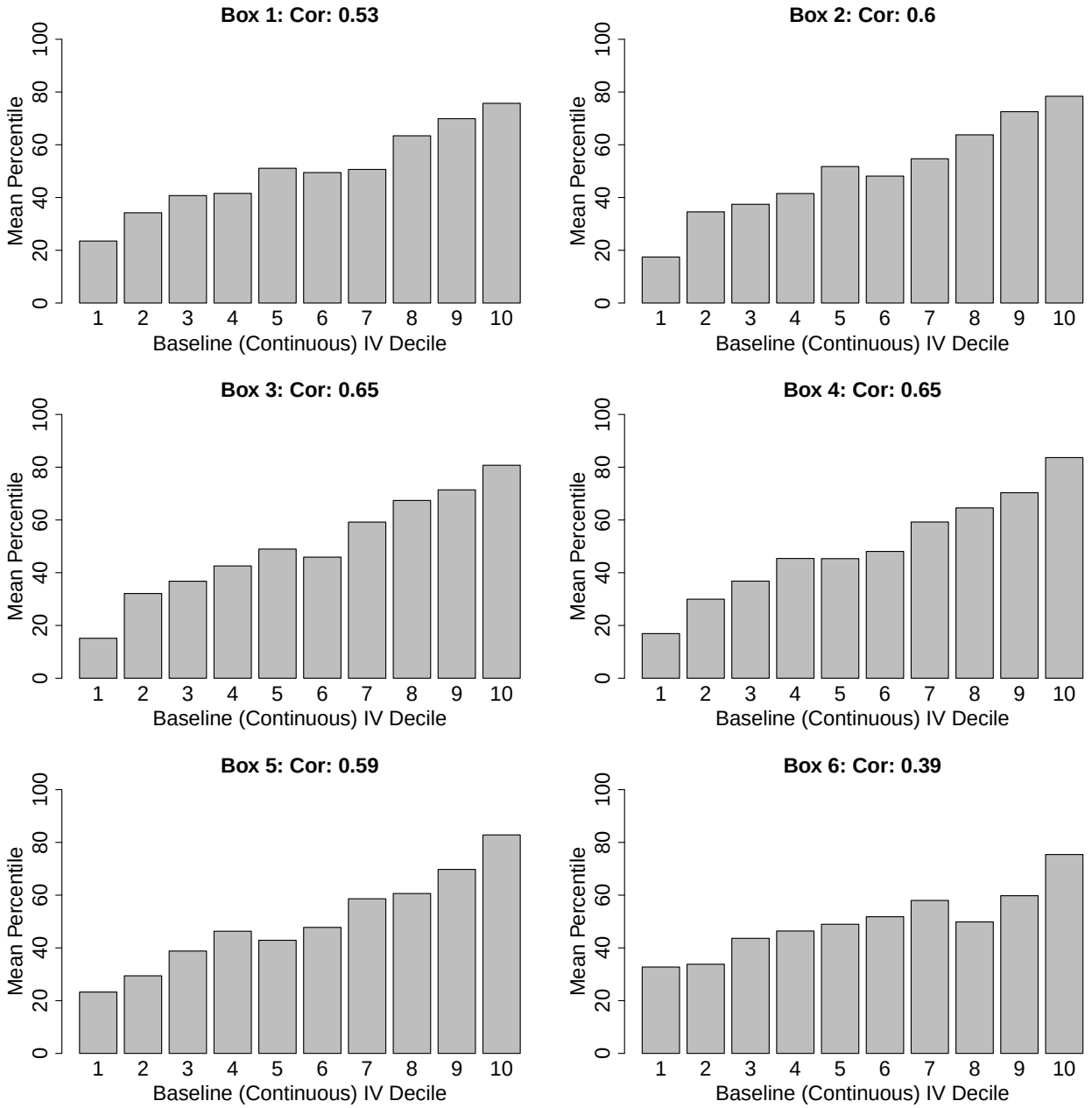
Notes: Figure (a) displays the Section IV–Occupational and Social Impairment Section of the Disability Benefit Questionnaire. Figure (b) displays the administrative rater's rubric for mental health claims from Code of Federal Regulations §4.130: Scheduling of ratings-mental disorders (https://ecfr.io/Title-38/Section-4.130). The OSI section and the rater rubric map very closely.

Figure D.3: Histogram of Sentiment and Word Count of Free-Text Remarks DBQ Section



Notes: This figure plots the histogram of word count (left panel) and sentiment (right panel) of the final free-text "Remarks, if any" section of the DBQs. The Syuzhet lexicon is used.

Figure D.4: Binary Threshold IV Measures versus Baseline IV



Notes: This figure probes the monotonicity assumption by reducing the examiner's decision to their occupational and social impairment (OSI) response—we demonstrate OSI response has strong predictive power in explaining realized compensation benefits in Table D.2—and testing whether more higher tendency examiners have higher tendency across the entire OSI range. We examine the correlation between examiner threshold-tendencies constructed using different binary response dependent variables versus our baseline (continuous) tendency measure for each examiner. Six examiner IVs are constructed as in Equation 3 and Equation 4 without the leave-out using an indicator corresponding to ticking strictly above each box (e.g., an indicator variable for coding strictly above box 1 in the DBQ would correspond to the first figure). Examiner tendency deciles are calculated for each of the six threshold instruments and the baseline instrument and correlations are displayed.

Table D.1: Combined Disability Rating Schedule: Monthly VA DC Payments

CDR	Monthly Payments
10%	142.29
20%	281.27
30%	435.69
40%	627.61
50%	893.43
60%	1,131.68
70%	1,426.17
80%	1,657.80
90%	1,862.96
100%	3,106.04

Notes: This table displays the tax-free monthly VA DC payments for each combined disability rating for a single veteran with no dependents in 2020. See https://www.va.gov/disability/compensation-rates/veteran-rates/past-rates-2020/ for more details.

Table D.2: Disability Benefit Compensation Amount and Information in DBQs

	Dependent variable: Benefit Amount			
	Veteran Characteristics	+ OSI Boxes	+ Free-Text	+ OSI Boxes + Free-Text
	(1)	(2)	(3)	(4)
OSI Box: 2		1,394.32***		1,396.61***
		(158.71)		(158.45)
OSI Box: 3		3,421.50***		3,420.75***
		(168.11)		(166.52)
OSI Box: 4		5,904.04***		5,898.72***
		(192.98)		(190.79)
OSI Box: 5		8,596.90***		8,592.40***
		(198.44)		(195.28)
OSI Box: 6		12,035.13***		12,032.46***
		(247.53)		(243.19)
OSI Box: 7		16,924.42***		16,929.85***
		(596.36)		(591.53)
Sentiment			−268.84***	−38.04
			(71.05)	(44.71)
Word Count			−196.74**	−190.71***
			(100.05)	(60.58)
Baseline controls and FEs	Yes	Yes	Yes	Yes
R-squared	0.107	0.193	0.108	0.193
N=	331,248	331,248	331,248	331,248

Notes: This table reports the estimated coefficients of first-year benefit compensation amount (in 2020 dollars) on information scraped from examination Disability Benefit Questionnaires (DBQ). Column 1 corresponds to a regression of benefit amount on station-by-year fixed effects and baseline controls (five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period). Column 2 adds the occupational and social impairment (OSI) response to the set of fixed effects and baseline controls. Column 3 adds the standardized sentiment and standardized word count from the free-text section to the set of fixed effects and baseline controls. Column 4 includes all covariates. Robust standard errors are clustered at the station-level. *p<0.1; **p<0.05; ***p<0.01.

E. Instrument Construction

We construct our benefits instrument as the average first-year compensation amounts of other veterans examined by the focal veteran's examiner, following Dahl et al. (2014). In constructing this measure, we leave out the veteran him/herself (i.e., we use the "jack-knife" mean); we also focus attention on examinations occurring in the same station-year (our data cover 128 stations across 16 years). Constructing the measure this way circumvents potential concerns around non-random examiner assignment across space or time: for example, sicker veterans may live near VA stations with higher-tendency examiners, or the composition of claimants and examiners may be evolving together over time. This choice focuses our comparisons on veterans at risk of being assigned to the same set of mental health examiners within the *same VA station in the same year*.

Specifically, to summarize mental health examiners' tendencies, we link details on the disability examination (location, time, examiner) with the veteran's first-year mental health ratings and construct a measure of their implied benefits from these ratings.[10] Next, we construct residualized benefit amounts of veteran i, denoted as b_i^*:

$$b_i^* \equiv Benefits_i - \gamma \mathbf{X}_i = Z_{ij} + \varepsilon_i \tag{3}$$

where $\mathbf{X}_i$ contains station-by-year fixed effects, as well as other veteran characteristics predictive of benefit amounts. The veteran characteristics in $\mathbf{X}_i$—which we show later are *not* essential for quasi-random assignment, but are included for statistical precision—include five-year age bins, gender, race, marital status, period of service, theater of combat operations, Agent Orange and radiation exposure indicators, year of military discharge, indicators of prior-year depression, suicide, substance use disorder, and homelessness, and the veteran's Elixhauser comorbidity score based on a one-year look-back period. Note that this residual b_i^* contains our measure of examiner tendency Z_{ij} as well as an idiosyncratic veteran-level error term ε_i.

Finally, for each veteran, we construct the leave-out average tendency of examiner j across all of j's examinations, denoted by $\mathbb{K}(j)$, as:

$$Z_{ij} = \frac{1}{N_j - 1} \sum_{i' \in \{\mathbb{K}(j) \setminus i\}} b_{i'}^* \tag{4}$$

where N_j is the total number of examinations performed by examiner j. We use this leave-out measure of tendency because regressing outcomes on examiner tendency constructed *without* leaving out veteran i would introduce bias, as the same estimation error would appear on both sides of the regression. We then use this predicted examiner tendency measure Z_{ij} as an instrument for $Benefits_i$. Robust standard errors are clustered at the station-level.

[10] We use the individual disability records to construct annual CDRs that we then map to dollar amounts. Since we do not observe veteran dependent information, we impute veterans' compensation amount as if they were single. Dependent information plays a much smaller role than CDR in determining compensation.