

Effects of Mental Health Disorders on Pain and Pain Treatment in Community Nursing Homes and VA Community Living Centers

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Community Nursing Homes and VA Community Living Centers: Rich Contexts for Study of Pain and Pain Treatment

Heavily used health services

At age 50 an up to 59% lifetime chance of nursing home health services use,

(Hurd et al., 2013)

In 2013, U.S., almost 16,000 community nursing homes with 1.7 million beds

(CDC, 2013)

1.4 million U.S. adults receive care in community nursing homes annually

(Kaiser Family Foundation, 2015)

Average daily census in the 132 VA CLC at least 11,000 Veterans

(GAO, 2006; Tsan et al., 2010)

Mixture of short-stay and long-stay health care needs and services

Resident lengths of stay "30 – 40 – 30" mix

Shorter-stay – Rehabilitation, restorative, skilled nursing, psychiatric, dementia, respite, hospice, care

Longer-stay – Longer-term dementia, skilled nursing, maintenance, chronic mental illness, spinal cord injury, care

(VA, 2012)

Separate from inpatient and outpatient health care systems

Physical distance from/independent of nearby health care systems' operations

Minimum Dataset (MDS) Resident Assessments for Study of Pain and Pain Treatment

- MDS federally mandated admission, annual, quarterly, discharge assessment resident' medical conditions, physical and cognitive functioning, mood, and behavior problems
- MDS 2.0 implemented early '90s in community nursing homes, 2002 VA CLCs; used for resident care planning, quality indicator reports, Medicare/Medicaid payments, research
- Mixed evidence for clinical relevance, reliability and validity of MDS 2.0 subscales → 2003 – 2008 revision
 - National consortium experts – form redesign
 - Pilot testing revised form
 - National validation and evaluation → MDS 3.0
 - Improvements: "Resident's voice;" improved reliability and validity subscales
(*Saliba & Buchanan, 2008; Saliba & Buchanan, 2012; Saliba et al., 2012*)
- MDS 3.0 – Implemented October 2010 community nursing homes, July 2012 VA CLCs
- Individual-level, longitudinal information residents' pain, pain treatment, and health and functioning outcomes

Prevalence of Pain and Pain Treatment in Nursing Homes

- **Older adults in the community – pain prevalence**

Up to 50% pain most days, at least 3 months

- **Community nursing home residents – pain prevalence**

Higher than in general community – 49% to 84% persisting pain

- **Pain is associated with depression, lowered sociability, impaired ambulation, impaired sleep, decreased quality of life in nursing homes**

- **But pain often unrecognized and untreated in long-term care settings**

(American Geriatric Society, 2009; Institute of Medicine, 2012)

Prevalence Mental Health Disorder in Nursing Homes

In national community nursing home resident surveys:

- 58% Dementia
- 15 - 18% Serious mental illness
- 30 - 60% Depressive disorder
- 20 - 50% "Any" mental health disorder

(Bagchi et al., 2009; Seitz, 2010)

In 2006 VHA extended care:

- 35% Dementia
- 20% Serious mental illness
- 30% Depression
- 10% Substance use disorder
- 40%-60% Dual diagnoses

(Lemke & Schaefer, 2009)

Rates of mental health disorder in nursing homes may be increasing

(Fullerton et al., 2009)

Mental Health Disorder as Barrier to Effective Health Care

In the general patient population mental health disorder may interfere with effective treatment of of medical conditions such as:

Arthritis - Patients with "psychotic syndromes" 41% less likely to obtain medical treatment for arthritis than patients without such syndromes.

(Redelmeir 1998)

Cardiovascular health - Individuals with serious mental illness are prescribed significantly lower than expected quantities of cardiovascular medication, less likely to obtain certain cardiovascular treatment procedures (angiography) than are patients without mental health disorders.

(Mitchell et al., 2012; Petersen et al., 2003)

Diabetes – Failure to meet diabetes performance measures more common among VA patients with mental health disorders, especially those with SUD, SMI, and personality disorders, than among patients without such disorders; patients with SUD receive less aggressive antiglycemic management than do those without SUD.

(Frayne et al., 2005; Frayne et al., 2014)

Mental Health Disorder as Barrier to Effective Pain Care in Nursing Homes

● Dementia interferes with pain treatment in nursing homes

"Well-documented deficiencies in the assessment and management of pain" for residents with dementia

(e.g., Ersek et al., 2011; Fisher et al., 2002; Reynolds et al., 2008; Won et al., 1999)

● Gender, race, and length of stay may moderate interference of dementia with pain assessment and treatment

Sex and gender differences in pain expression and treatment-seeking

(Bartley & Fillingim, 2013)

Nonwhite residents with dementia were *least likely*, and white residents without dementia were *most likely*, to be reported as having pain

Among residents with dementia and pain, nonwhite residents were more likely than white residents to lack appropriate pain management (i.e., standing orders and/or special services for pain)

(Sengupta et al., 2010)

"Clinical inertia" care providers' reduced responsiveness over time to patients' pain and other medical symptoms

(Berlowitz et al., 2005)

What are the effects of mental health disorders on pain and pain treatment in community nursing homes and VA Community Living Centers (CLCs)?

- (1) Do mental health disorders *other than dementia* interfere with the recognition and reporting of pain in community nursing homes and VA CLCs?
- (2) Do mental health disorders *other than dementia* influence the types of pain treatments obtained by residents in community nursing homes and VA CLCs?
- (3) Do gender race, and length of stay add to the influence of mental health disorder to predict the pain and pain treatments received by community nursing home and VA CLC residents?

Study 1

Psychiatric Disorders and Pain Treatment in Community Nursing Homes

(Brennan & SooHoo, 2014)

Method

Secondary analyses of National Nursing Home Survey (NNHS 2004) data
(Linked Current Resident Questionnaire and Long-term Care Medication Data records)

Sample:

N=13,507 community (non-VA) nursing home residents
Mean age = 80.5 years (SD=12.97)
71% women
88% white

Measures:

Mental Health Disorder: MDS 2.0 ICD-9 codes indicating

Dementia

Serious mental illness

Depression only

Substance use disorder

Dual mental health disorder (2+ above disorders)

Pain: MDS 2.0 *staff-rated* resident pain:

Pain in the last 7 days (0=no, 1=yes)

If pain:

Pain severity (range 0 -10)

Missing/"don't know" pain severity (0=no, 1=yes)

Pain Treatment:

(from NNHS 2004 Current Resident Questionnaire file)

Non-pharmacological pain treatment ("distraction, heat/cold massage, positioning, music therapy, etc.") (0=no, 1=yes)

(from NNHS 2004 Long-term Care Medication Data file National Drug Code therapeutic class codes)

Pharmacological pain treatments:

Non-opioid (e.g., aspirin, acetaminophen, NSAIDs) only
(0=no, 1=yes)

Opioid medication only (0=no, 1=yes)

Both opioid and non-opioid pain medication (0=no, 1=yes)

No pharmacological pain treatment (0=no, 1=yes)

Other: Age, gender, race, length of stay, physical functioning (ADLs score)

Results

Demographic characteristics:

Mean age = 80.5 years (SD=12.97)

71% women

88% white

Percentage NNHS 2004 community nursing home residents with mental health disorder diagnosis:

49% Dementia

35% Depression

14% Serious mental illness

2% Substance use disorder

26% Dual diagnosis with 2+ above

70% 1+ of the MHDxs above

Pain:

Staff-rated

Pain in the last 7 days **25%**

Of those with pain:

Mean pain intensity = **5.14** (range = 0 - 10)

Missing or “don’t know” on pain intensity rating **32%**

Pain Treatment Provided Residents with Pain in the Last 7 Days:

Non-pharmacological **32%**

Pharmacological

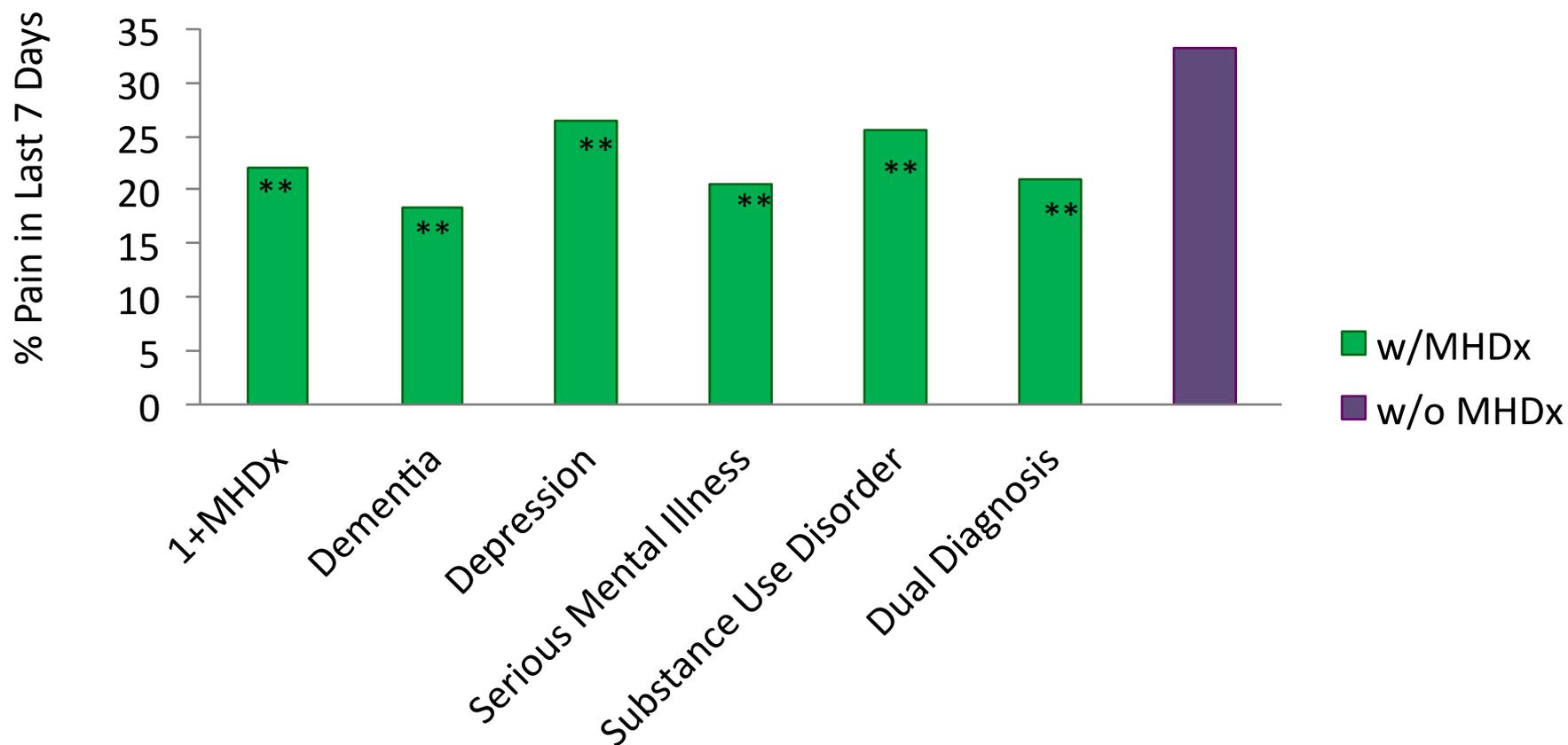
No pain medication **21%**

Non-opioid medication, only **37%**

Opioid medication, only **21%**

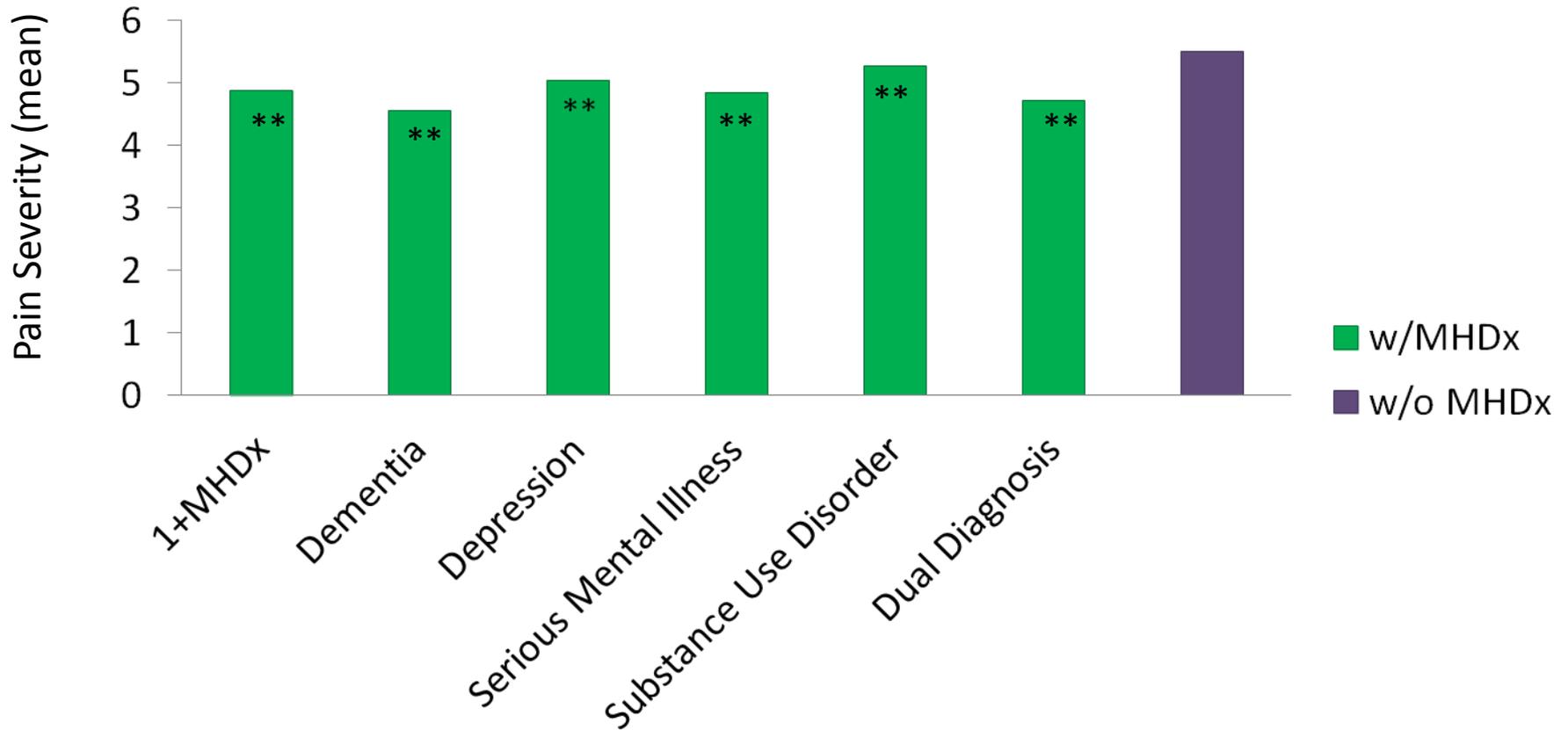
Both non-opioid and opioid pain medication **21%**

Figure 1. Pain in the Last Seven Days among Nursing Home Residents with and without Mental Health Diagnosis (N=13,507)



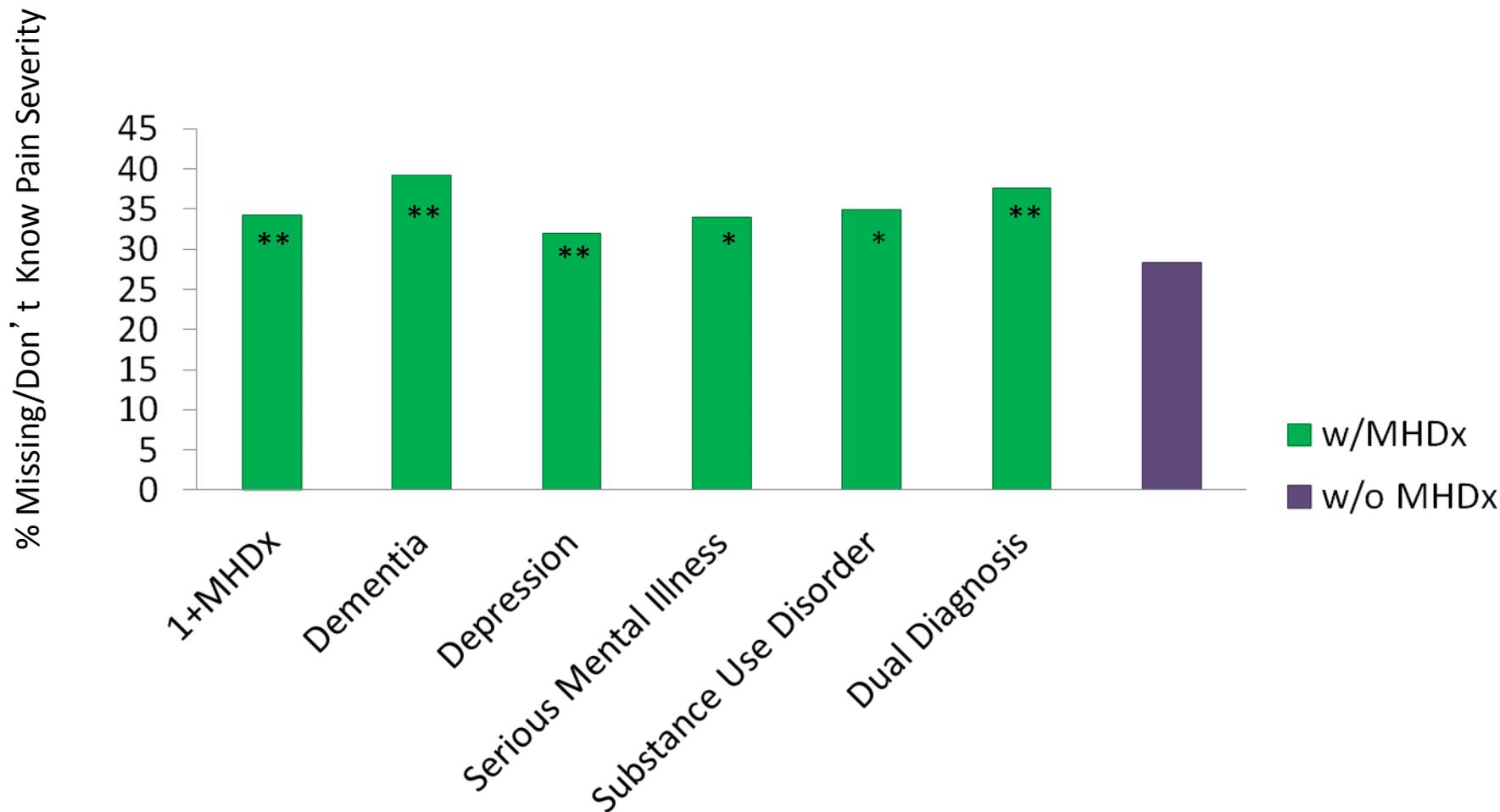
**Adjusted Wald's χ^2 significance at $p \leq .01$, controlling for age, gender, race, and functioning

Figure 2. Pain Severity among Nursing Home Residents with and without Mental Health Diagnosis (N=13,507)



**Adjusted Wald's χ^2 significance at $p \leq .01$, controlling for age, gender, race, and functioning

Figure 3. Missing/Don't Know Pain Severity among Nursing Home Residents with and without Mental Health Diagnosis ($N=13,507$)



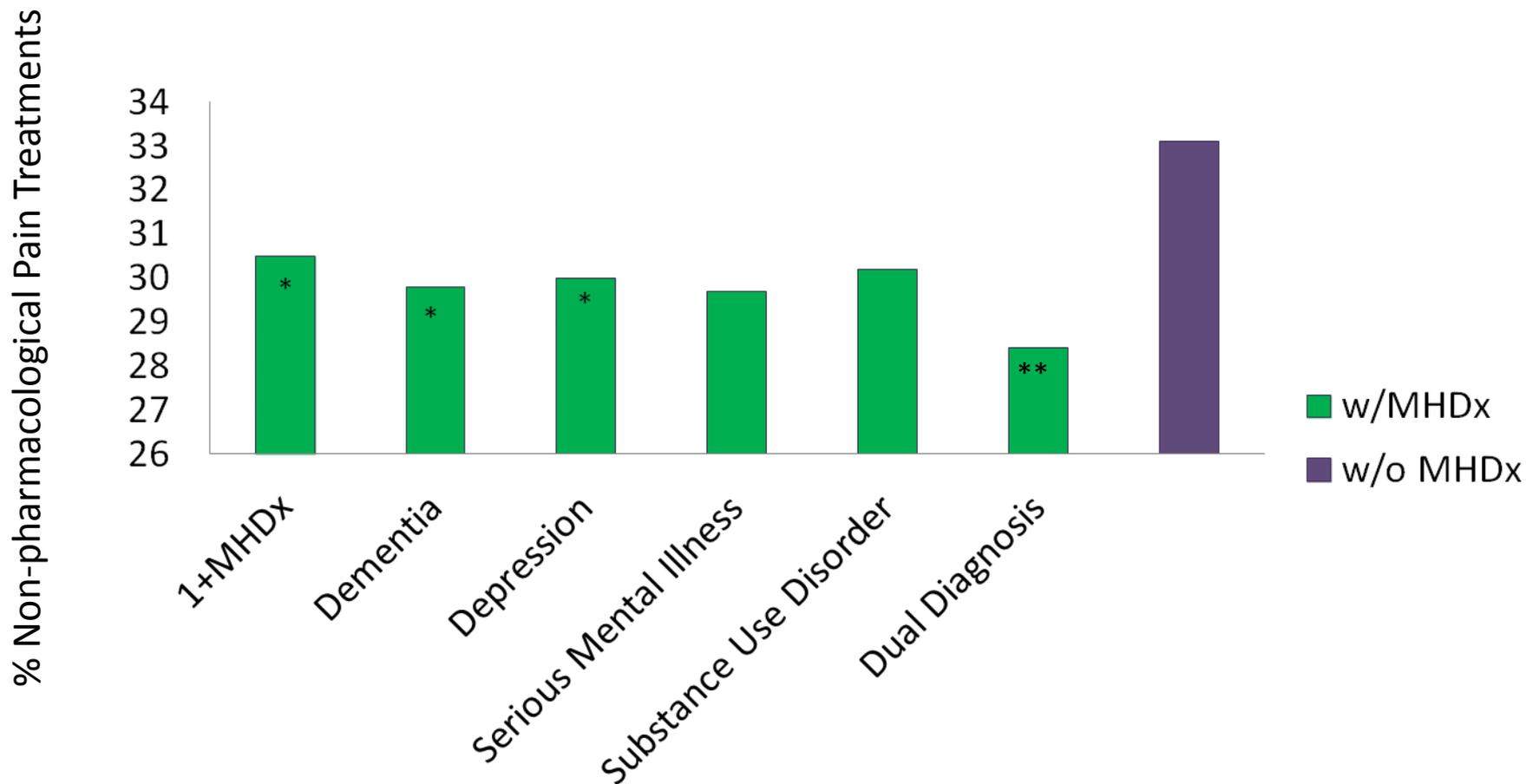
*Adjusted Wald's χ^2 significance at $p \leq .05$, controlling for age, gender, race, and functioning

**Adjusted Wald's χ^2 significance at $p \leq .01$, controlling for age, gender, race, and functioning

Mental Health Disorder & Pain in NNHS 2004

- Residents less likely to be rated by staff as having pain in the last 7 days
- Residents rated by staff as having less severe pain
- Staff more likely to report "missing" or "don't know" pain severity ratings for residents with mental health disorders
- Most of the group differences we found remained statistically significant even after adjusting for resident age, gender, race, and physical functioning

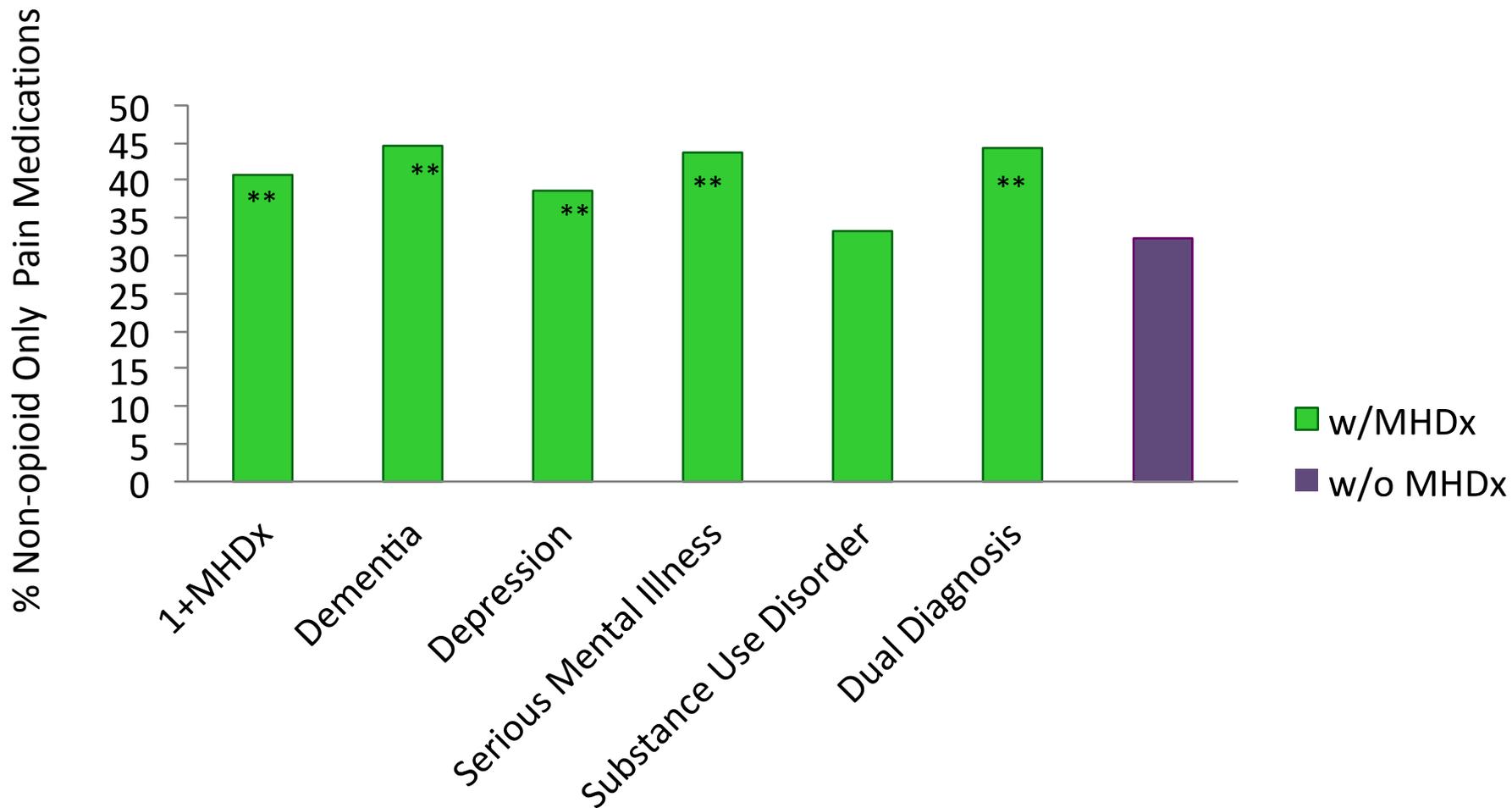
Figure 1. Non-pharmacological Pain Treatments among Nursing Home Residents with Pain, with and without Mental Health Diagnosis



*Adjusted Wald's χ^2 significance at $p \leq .05$ after controlling for age, gender, race and functioning

**Adjusted Wald's χ^2 significance at $p \leq .01$ after controlling for age, gender, race and functioning

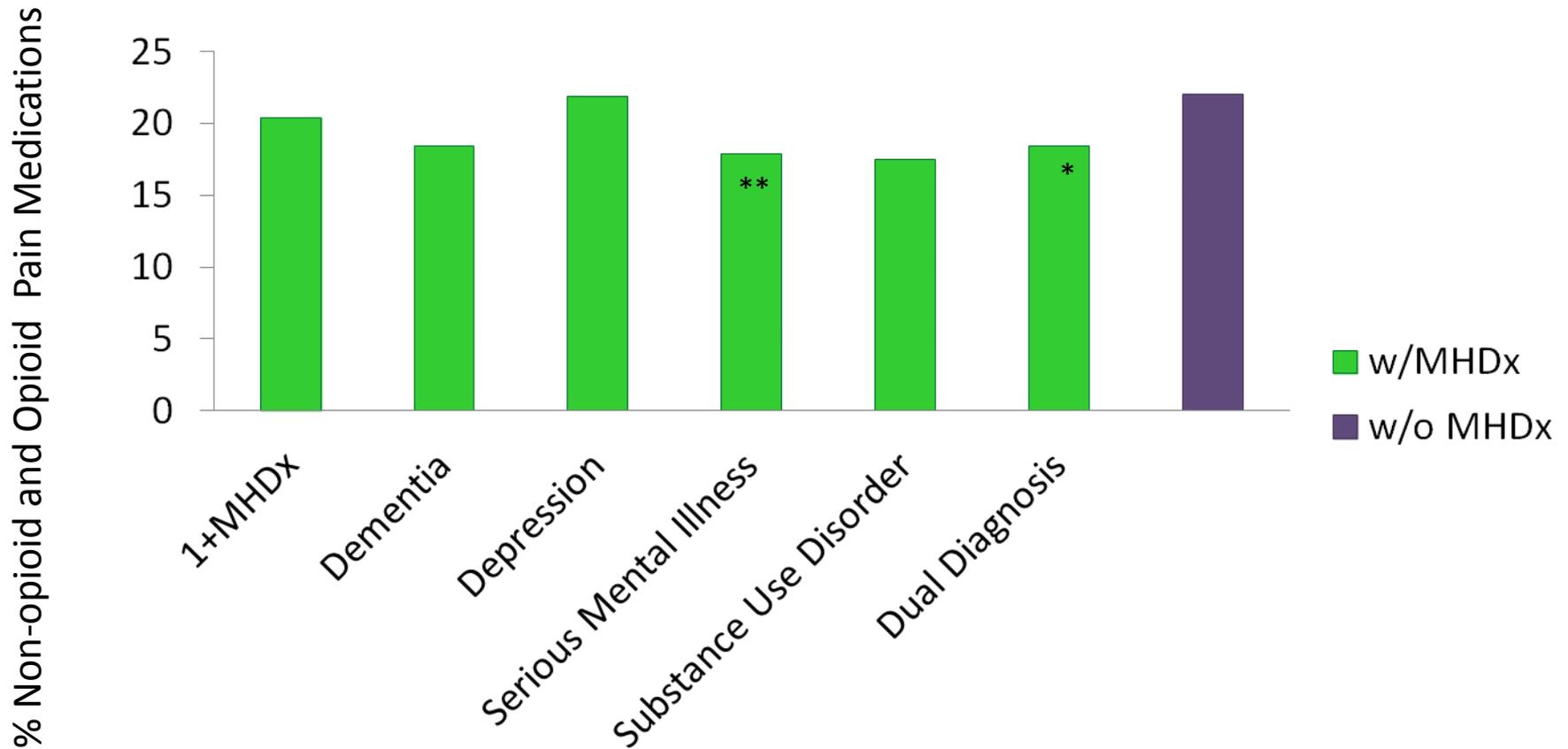
Figure 2. Non-Opioid Only Pain Medications among Nursing Home Residents with Pain, with and without Mental Health Diagnosis



*Adjusted Wald's χ^2 significance at $p \leq .05$ after controlling for age, gender, race and functioning

**Adjusted Wald's χ^2 significance at $p \leq .01$ after controlling for age, gender, race and functioning

Figure 3. Both Non-Opioid and Opioid Pain Medications among Nursing Home Residents with Pain, with and without Mental Health Diagnosis



*Adjusted Wald's χ^2 significance at $p \leq .05$ after controlling for age, gender, race and functioning

**Adjusted Wald's χ^2 significance at $p \leq .01$ after controlling for age, gender, race and functioning

Mental Health Disorder & Pain Treatment in NNHS 2004

- Compared to residents with pain who did not have mental health disorders, residents with pain who had mental health disorders were:

Less likely to obtain *non-pharmacological* pain treatments

More likely to get *non-opioid only* pain medication for their pain

Less likely to get *both opioid and non-opioid* treatments for their pain

- Most of differences found for the individual mental health disorders remained statistically significant even after adjusting for residents' age, gender, race, physical functioning, and pain severity

Figure 1. Mental Health Disorder Diagnosis Combined with Gender on Pain in the Last 7 Days

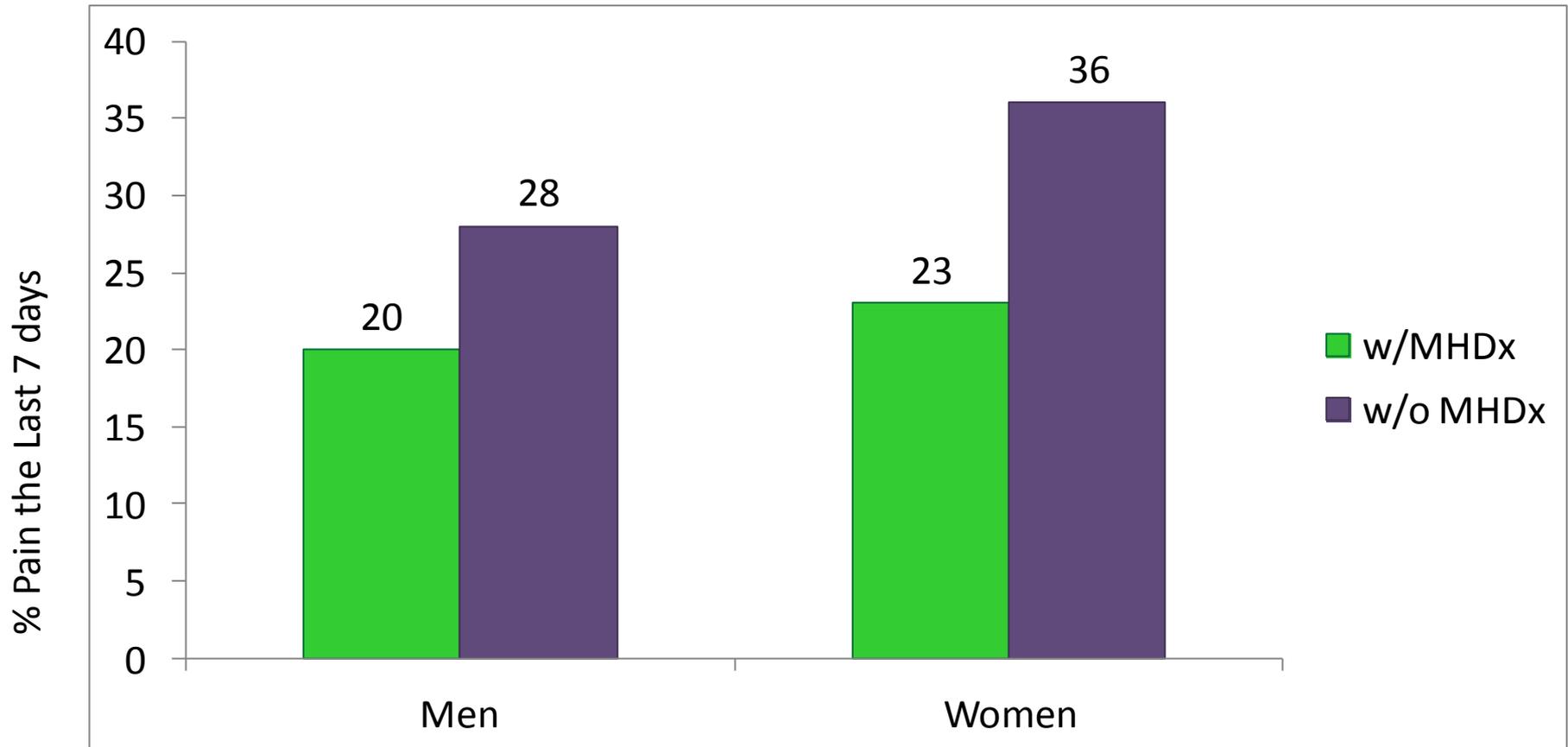


Figure 2. Mental Health Disorder Diagnosis Combined with Race on Pain in the Last 7 Days

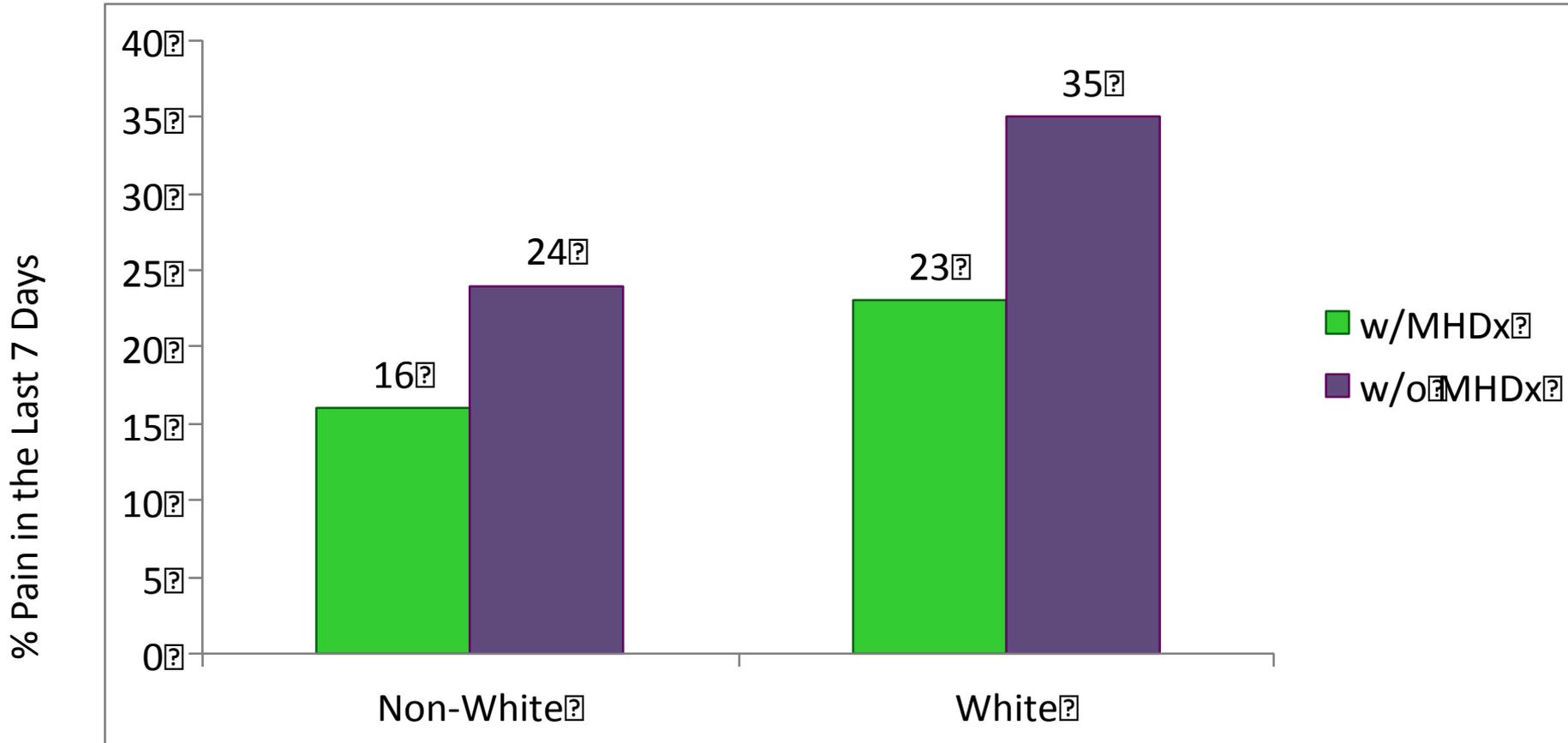


Figure 3. Mental Health Disorder Diagnosis Combined with Length of Stay on Pain in the Last 7 Days

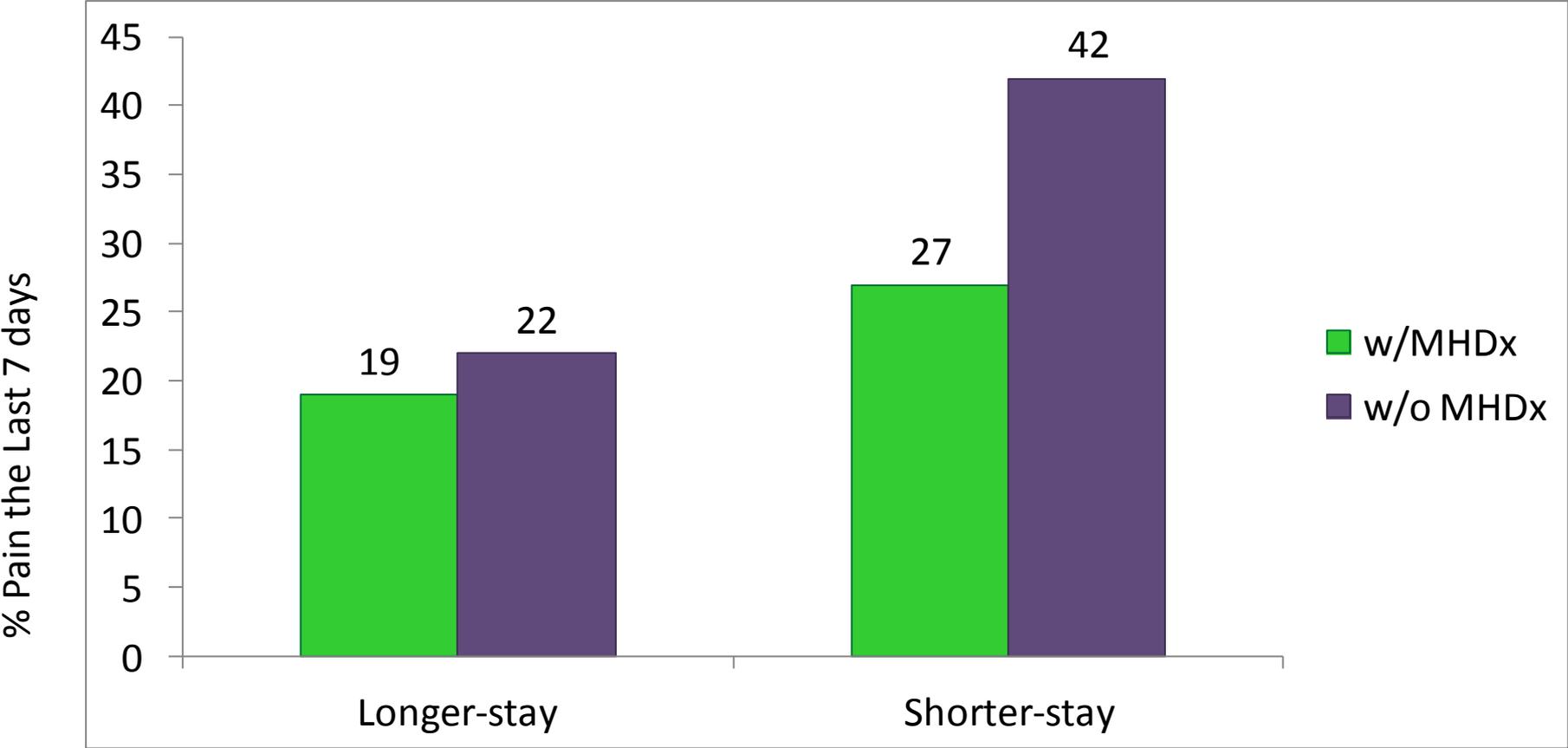
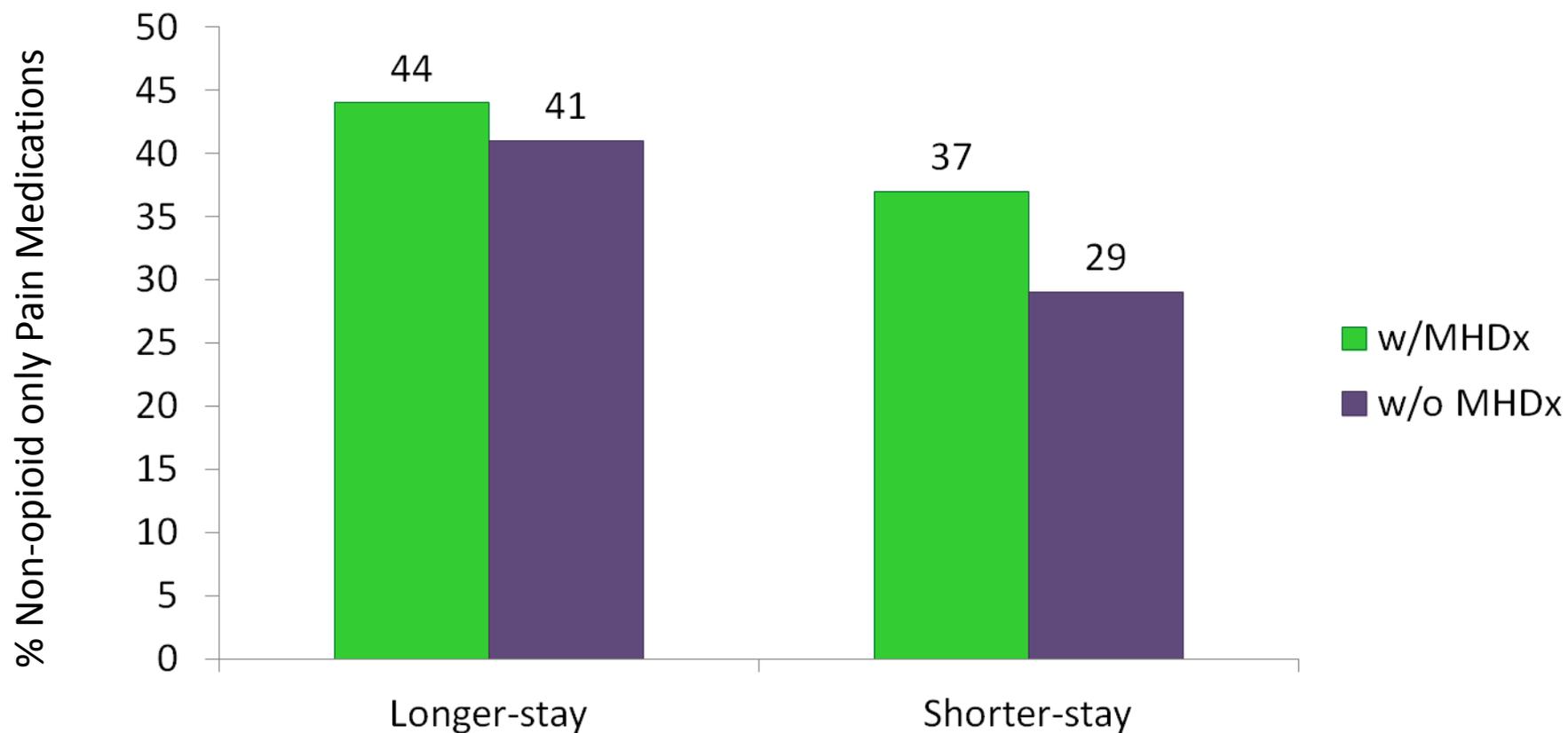


Figure 4. Mental Health Disorder Diagnosis Combined with Length of Stay on Non-Opioid Only Pain Medications



Gender, Race, and Length of Stay x Mental Health Disorder on Pain and Pain Treatment in NNHS 2004

- Men with mental health disorder *least likely*, and women without mental health disorder *most likely*, to be rated as having pain in the last 7 days
- Non-white residents with mental health disorder *least likely*, and white residents without mental health *most likely*, to be rated as having pain in the last 7 days
- Longer-stay residents with mental health disorder *least likely*, and shorter-stay residents without mental health *most likely*, to be rated as having pain in the last 7 days
- Longer-stay residents with mental health disorder *most likely*, and shorter-stay residents without mental health *least likely*, to be provided non-opioid only medication for their pain
- Most of these effects remained statistically significant after adjusting for residents' age, gender, race, physical functioning, and pain severity

Summary Findings Study 1

Results:

- Consistent with previous research: mental health disorder interferes with effective health care
- Extend earlier research to show that mental health disorders *besides dementia* may influence recognition and treatment of pain in community nursing homes
- Congruent with previous research findings showing that gender, race, and length of stay combine with mental health disorder to influence pain recognition and treatment in community nursing homes

But:

- Limitations of the NNHS 2004 MDS 2.0 pain measures (e.g., *staff-rated*; limited dimensions; ambiguity of a "zero" rating; type of pain treatment not tracked)
- Do the results generalize to the VA CLC resident population?

Study 2

Effects of Mental Health Disorder on Pain and Pain Treatment in VA CLCs

(HSR&D IIR 11-083, Brennan PI)

Method

Secondary analyses VA CLC MDS 3.0 resident assessment records

Sample: N=10,706 unique VA CLC residents

1 to 7+ MDS 3.0 resident assessments from July, 2012 to July, 2013

Mean age = 72 years (SD=12.6, range= 19 - 105)

3.6 % women

76 % white

Measures:

Mental Health Disorder

Checked on MDS 3.0 “active disorder” checklist or “active disorder” ICD-9 codes indicating:

Dementia

Serious mental illness

Depression

PTSD

Substance use disorder

Pain

N=8,300 "self-reporting capable" residents, MDS 3.0 *self-reported* pain

Had pain at any time in the last 5 days (0=no, 1=yes)

If had pain:

Time spent in pain, last 5 days (range 1="rarely" to 4 "constantly")

Numeric pain rating (NPR), worst pain, last 5 days (range 0 -10)

Pain made it hard to sleep at night, last 5 days (0=no, 1=yes)

Pain made it hard to do usual activities, last 5 days (0=no, 1=yes)

Pain treatments, last 5 days

Staff-noted, preceding pain interview:

Non-pharmacological (0=no, 1=yes)

Scheduled pain medication (0=no, 1=yes)

As-needed pain medication (0=no, 1=yes)

Results

Demographic characteristics:

Mean age = 71.3 years (SD=12.6)

3.7 % women

76% white

Percentage with mental health disorder diagnosis:

Dementia **24%**

Serious mental illness **18%**

Depression **28%**

PTSD **12%**

Substance use disorder **4%**

Dual diagnosis
(2+ dx above) **23%**

Pain:

Pain in the last 5 days **65%**

Of those with pain:

Time spent in pain = mean **2.82** (range = 1 “rarely” to 4 “constantly”)

Pain interferes with sleep **40%**

Pain interferes with day-to-day activities **46%**

Numeric Pain Rating (NPR) = mean **6.4** (range= 0 - 10)

Pain Treatment Provided Residents with Pain in the Last 5 Days:

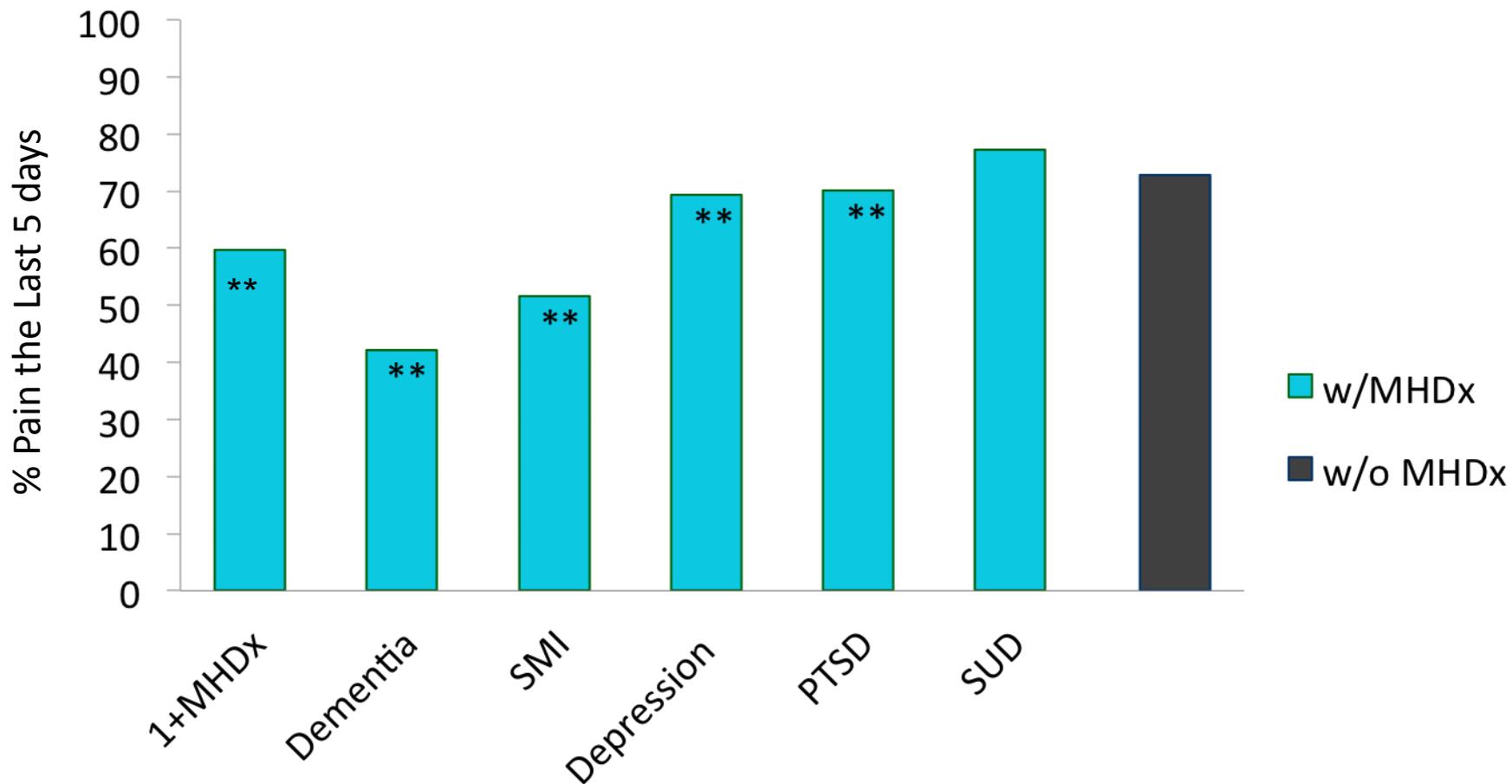
No pain treatment **6.5%**

Non-pharmacological **44%**

Scheduled pain medication **59%**

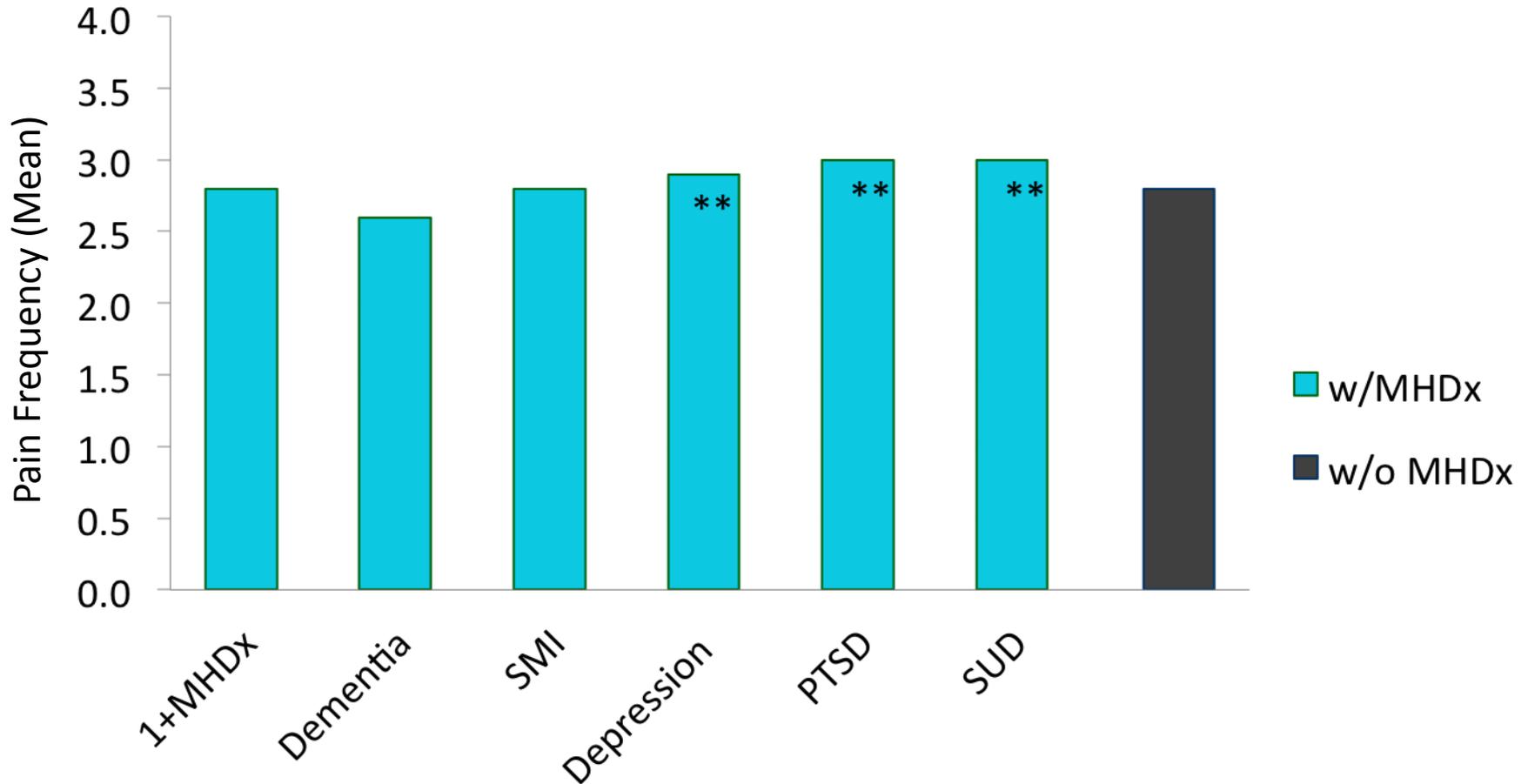
As-needed pain medication **81%**

Figure 1. Self-Reported Pain in the Last 5 Days among Residents with and without Mental Health Disorders (N=8,300)



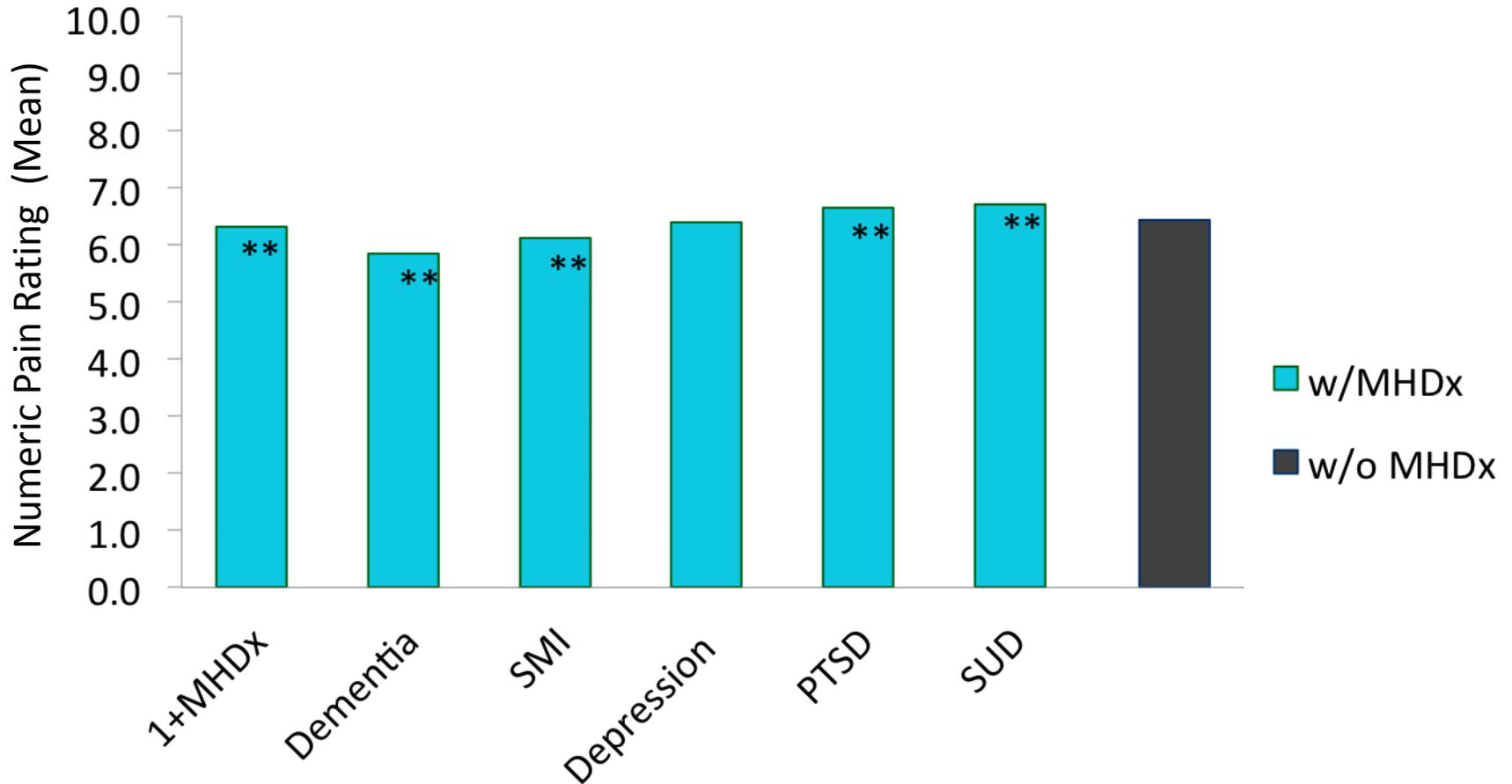
**Adjusted Wald's X^2 significance at $p \leq .01$, controlling for age, gender, race, and ADLs

Figure 2. Self-Reported Pain Frequency among Residents Reporting Pain in Last 5 Days with and without Mental Health Disorders (N=5,272)



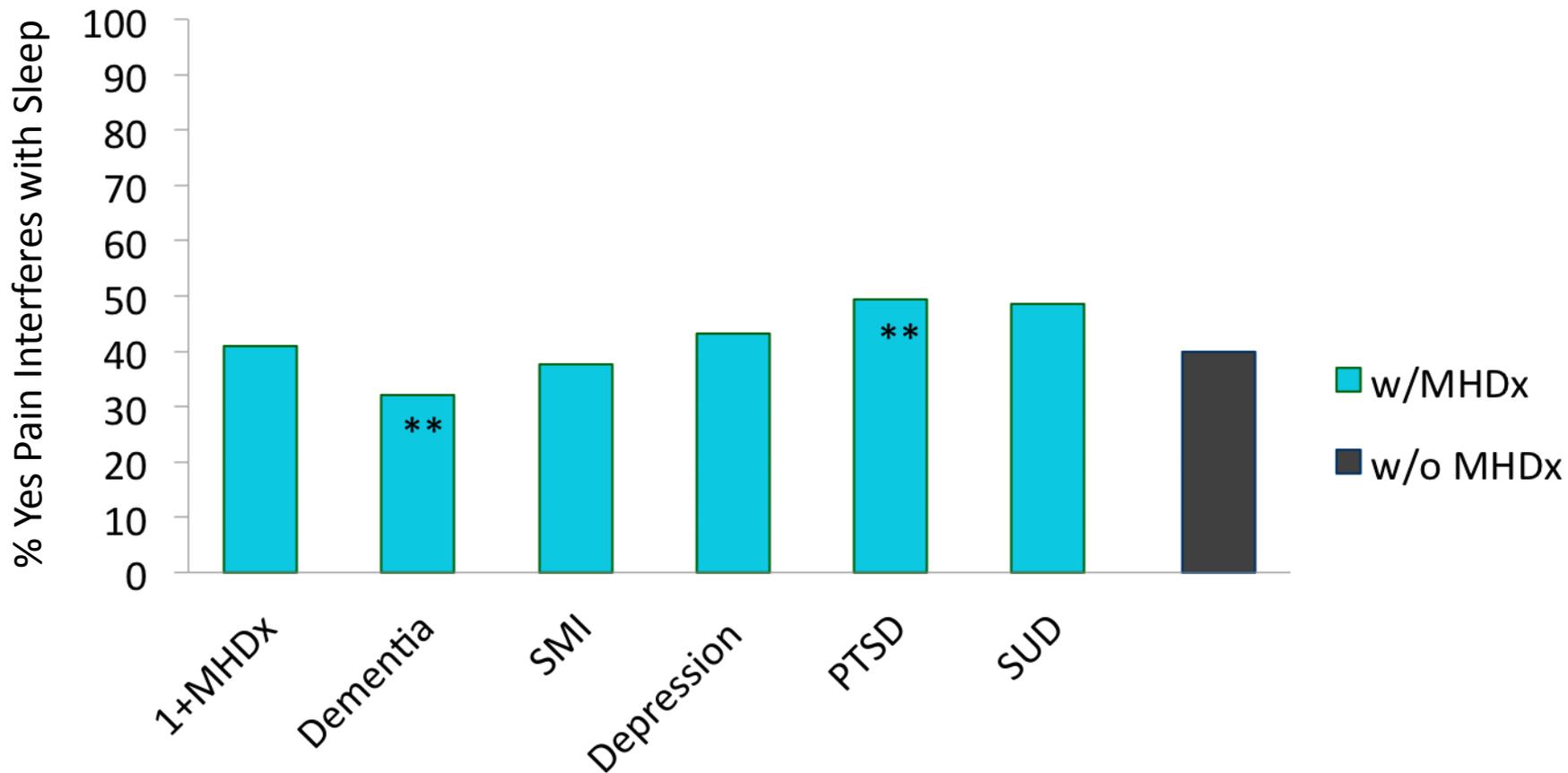
**Adjusted Wald's χ^2 significance at $p \leq .01$, controlling for age, gender, race, and ADLs

Figure 3. Self-Reported Numeric Pain Rating among Residents Reporting Pain in Last 5 Days with and without Mental Health Disorders (N=5,272)



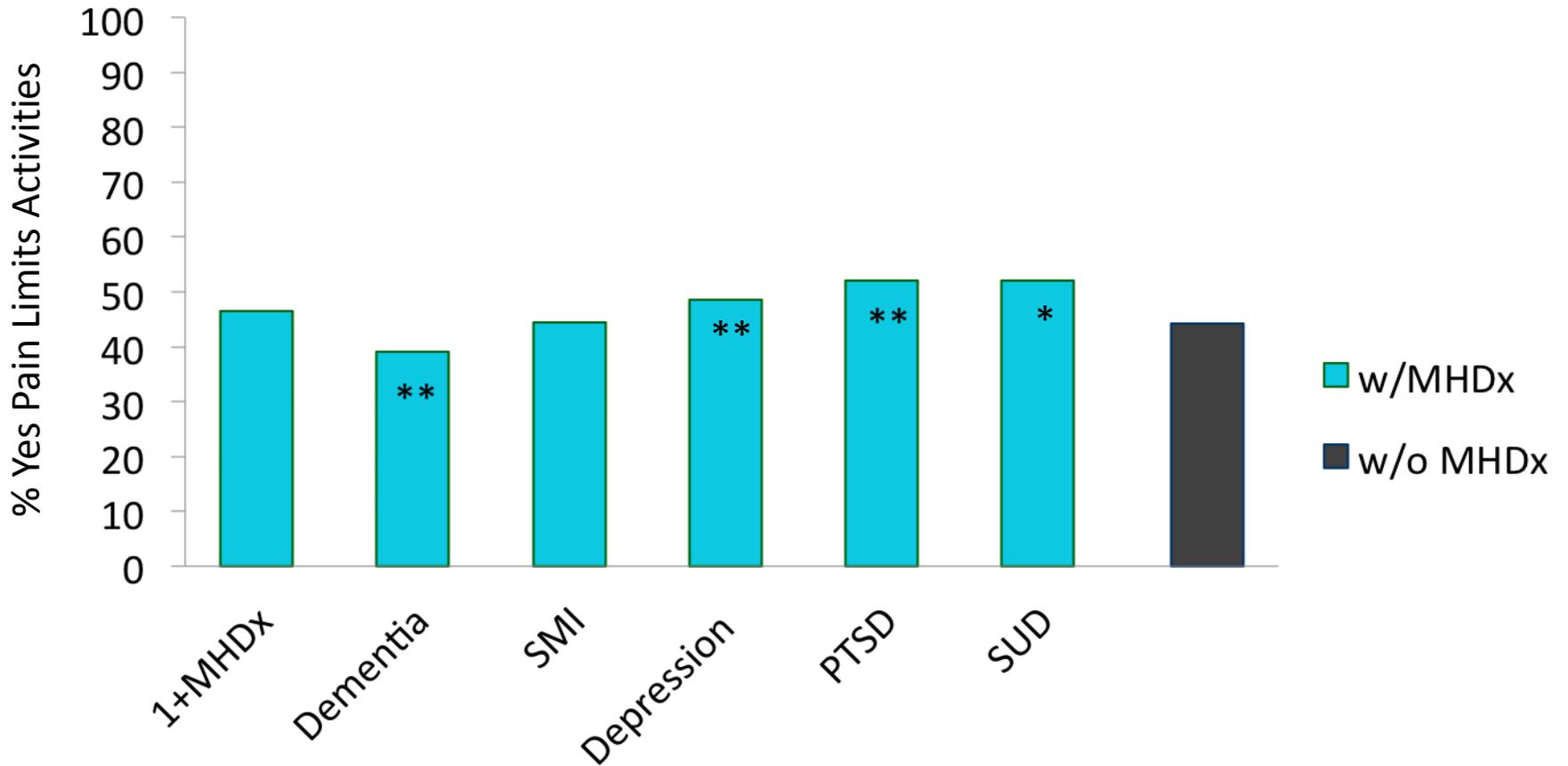
**Adjusted Wald's χ^2 significance at $p \leq .01$, controlling for age, gender, race, and ADLs

Figure 4. Self-Reported Pain Interfering with Sleep among Residents Reporting Pain in Last 5 Days with and without Mental Health Disorders (N=5,272)



**Adjusted Wald's X^2 significance at $p \leq .01$, controlling for age, gender, race, and ADL

Figure 5. Self-Reported Pain Limits Activities among Residents Reporting Pain in Last 5 Days with and without Mental Health Disorders (N=5,272)



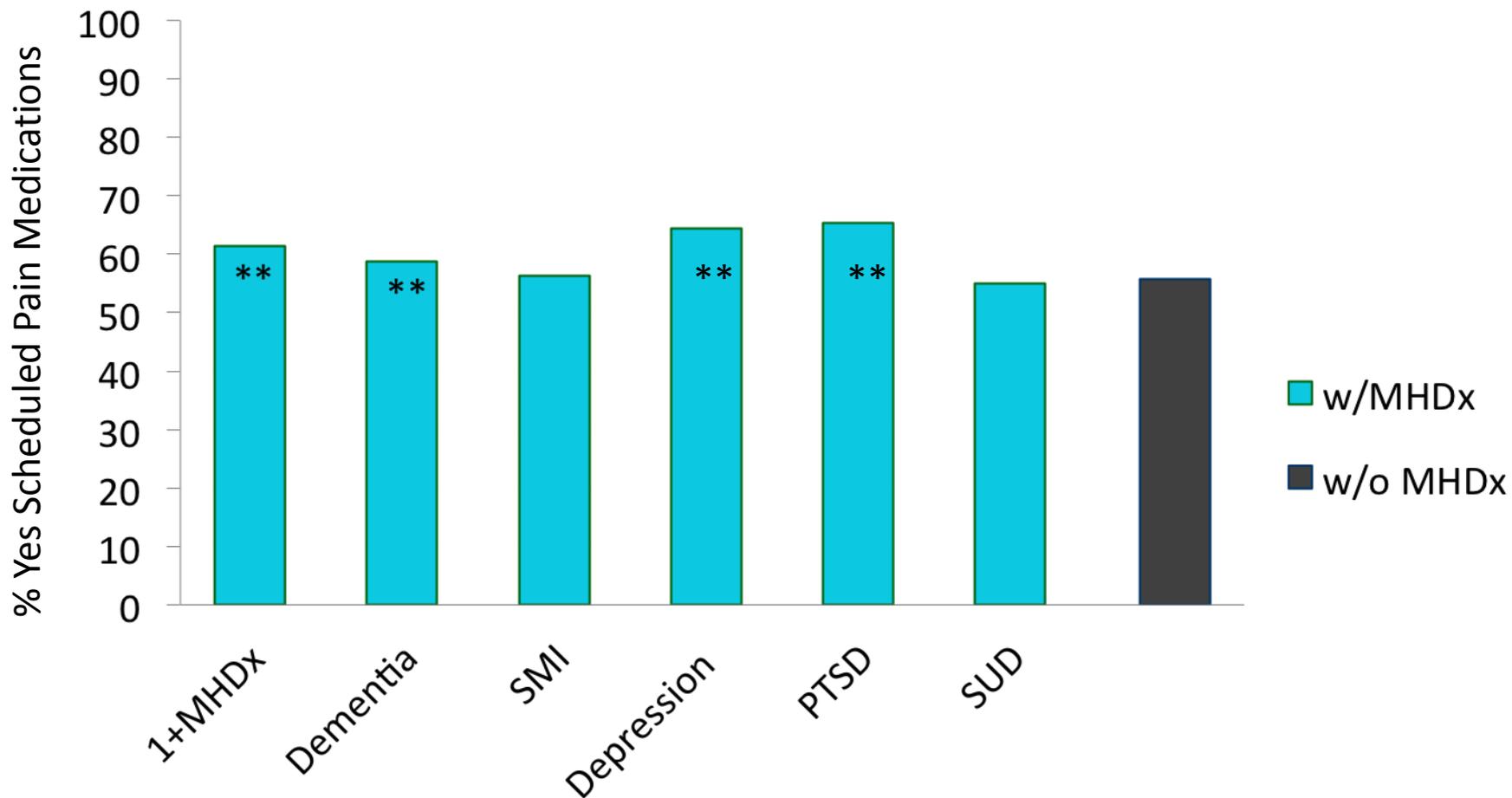
*Adjusted Wald's X^2 significance at $p \leq .05$, controlling for age, gender, race, and ADLs

**Adjusted Wald's X^2 significance at $p \leq .01$, controlling for age, gender, race, and ADLs

Mental Health Disorder & Pain Self-Reports – VA CLCs

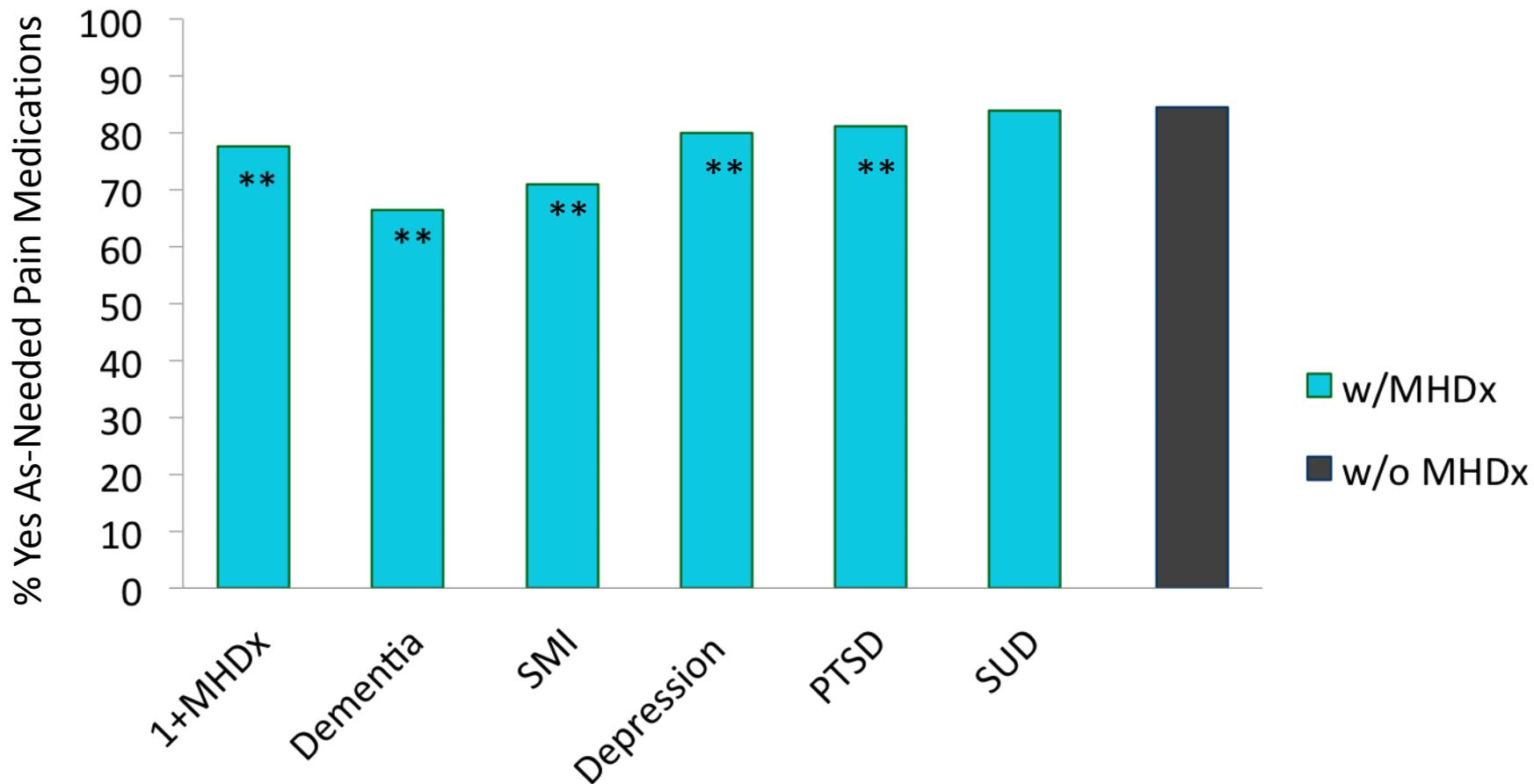
- *Much more* pain captured by the MDS 3.0 resident self-report method
- Residents with mental health disorders generally less likely to self-report pain in the last 5 days, *but pattern varies by mental health disorder*
 - Dementia and SMI *least likely* to self-report pain
 - Depression and PTSD *slightly lower* likelihood
 - SUD *more likely* to self-report pain
- Of residents with pain, those with depression, PTSD, and SUD diagnoses report *spending more time in pain* than do residents without mental health disorder diagnosis
- Of residents with pain, those with dementia and SMI report *lower pain intensity*, but those with PTSD and SUD report *higher pain intensity*, than do residents without mental health disorder diagnosis
- Of residents with pain, those with dementia are *less likely*, and those with depression, PTSD, and SUD *more likely*, to report that pain interferes with their sleep and day-to-day activities, than are residents without mental health disorder diagnosis
- Most differences remained statistically significant after adjusting for residents' age, gender, race, and physical functioning

Figure 1. Scheduled Pain Medications among Residents Reporting Pain in Last 5 Days with and without Mental Health Disorders (N=5,272)



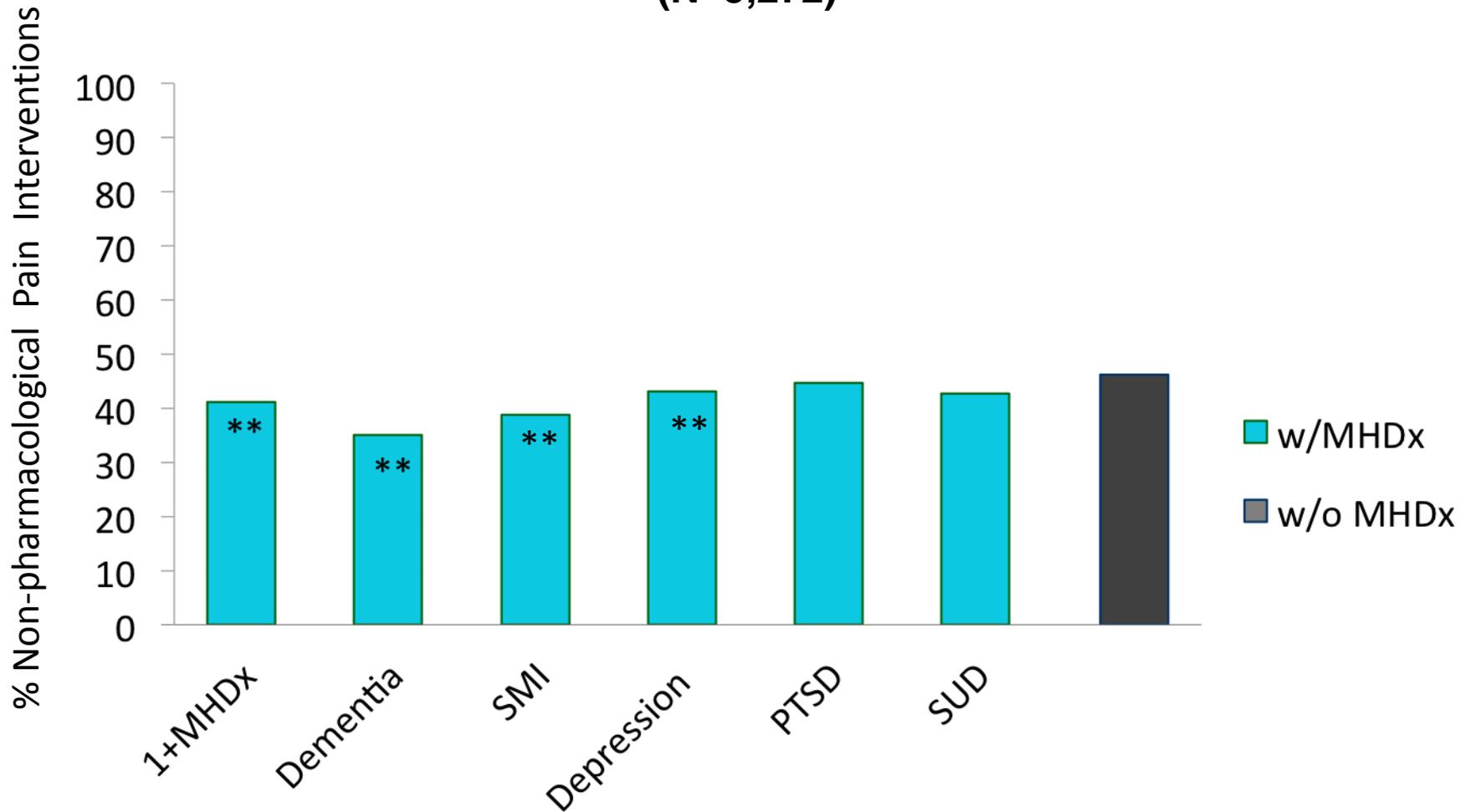
**Adjusted Wald's X^2 significance at $p \leq .01$, controlling for age, gender, race, and ADLs

Figure 2. As-needed Pain Medications among Residents Reporting Pain in Last 5 Days with and without Mental Health Disorders (N=5,272)



**Adjusted Wald's X^2 significance at $p \leq .01$, controlling for age, gender, race, and ADLs

Figure 3. Non-pharmacological Pain Interventions among Residents Reporting Pain in Last 5 Days with and without Mental Health Disorders (N=5,272)



**Adjusted Wald's X^2 significance at $p \leq .01$, controlling for age, gender, race, and ADLs

Mental Health Disorder & Pain Treatment – VA CLCs

Compared to residents with pain who do not have mental health disorder diagnoses:

- Residents with dementia, depression, and PTSD diagnoses somewhat *more likely* to obtain scheduled pain medication
- Residents with dementia, SMI, depression, and PTSD *less likely* to be given "as needed" pain orders
- Residents with mental health disorder diagnoses *less likely* to obtain non-pharmacological treatments for their pain
- Most of these differences remained statistically significant after controlling for residents' age, gender, race, and physical functioning

Figure 1A. Mental Health Disorder Diagnosis Combined with Gender on Pain in the Last 7 Days – NNHS 2004

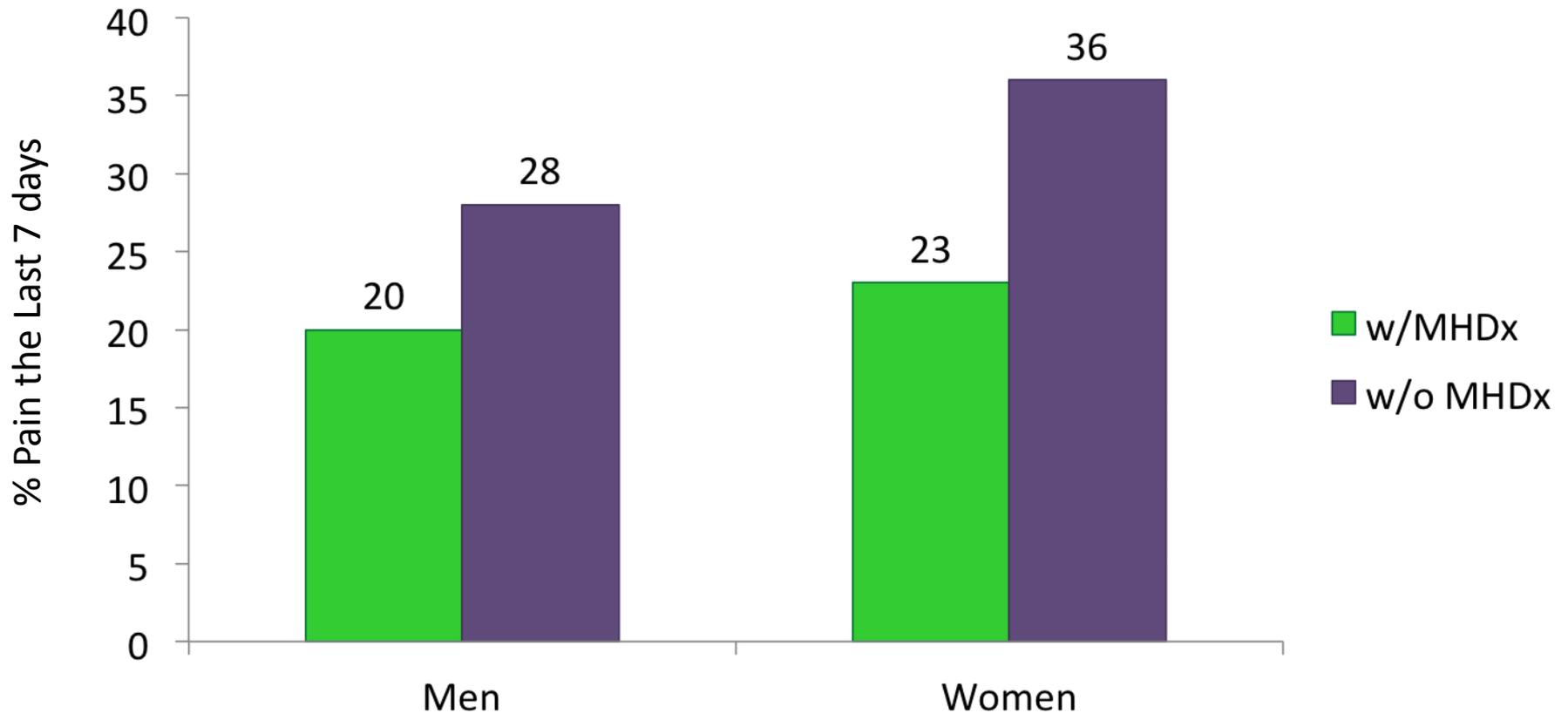


Figure 1B. Mental Health Disorder Diagnosis Combined with Gender on Pain in the Last 5 Days – VA CLCs

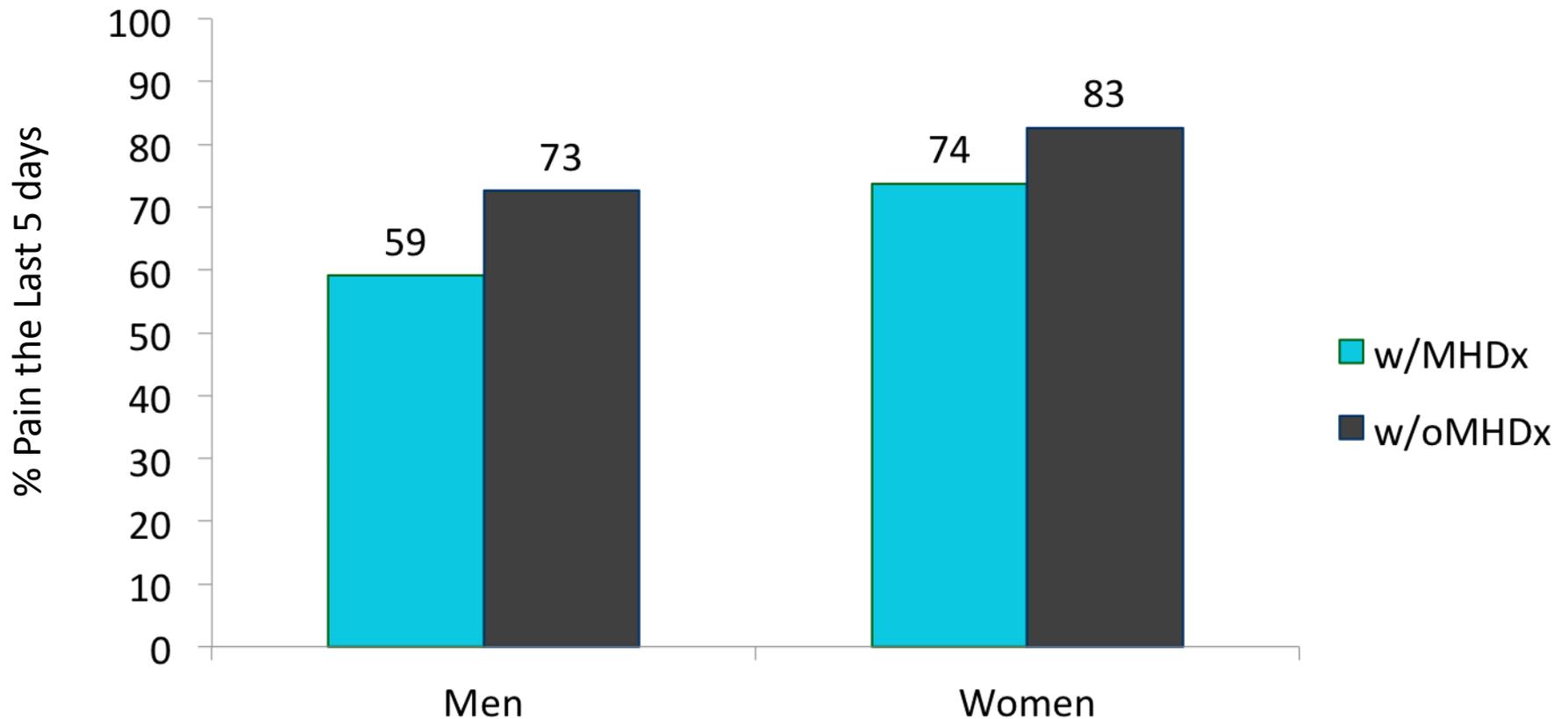


Figure 2A. Mental Health Disorder Diagnosis Combined with Race on Pain in the Last 7 Days – NNHS 2004

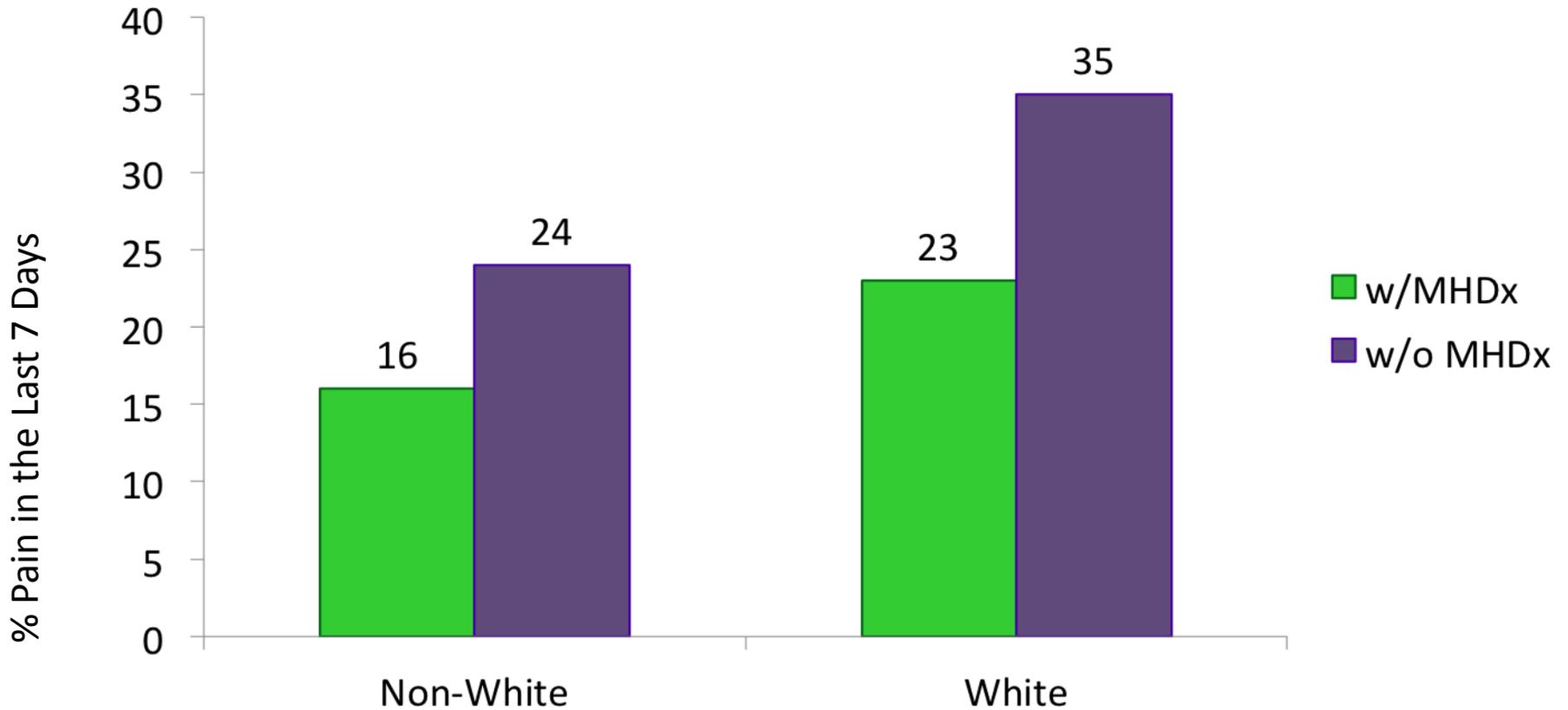


Figure 2B. Mental Health Disorder Diagnosis Combined with Race on Pain in the Last 5 Days – VA CLCs

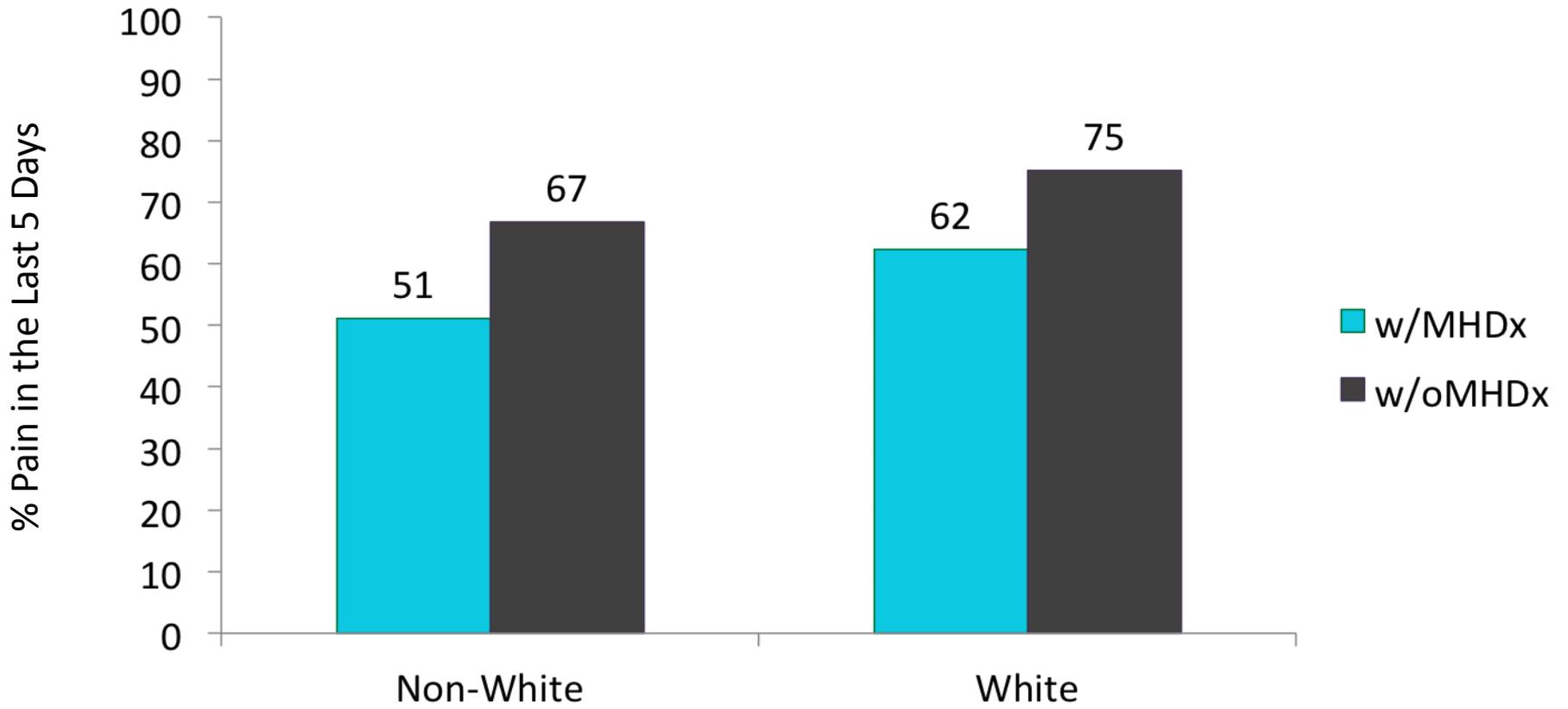


Figure 3A. Mental Health Disorder Diagnosis Combined with Length of Stay on Pain in the Last 7 Days - NNHS 2004

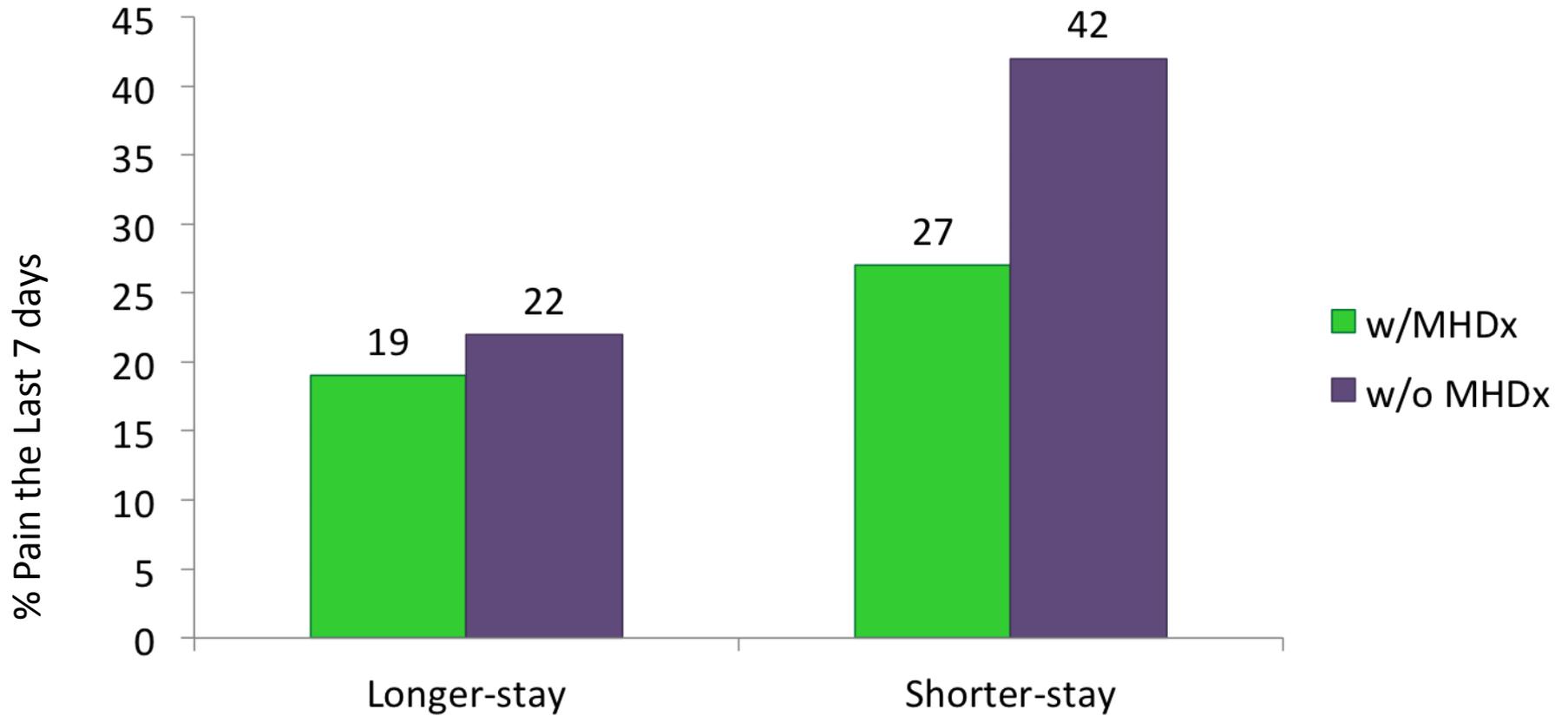


Figure 3B. Mental Health Disorder Diagnosis Combined with Length of Stay on Pain in the Last 5 Days – VA CLCs

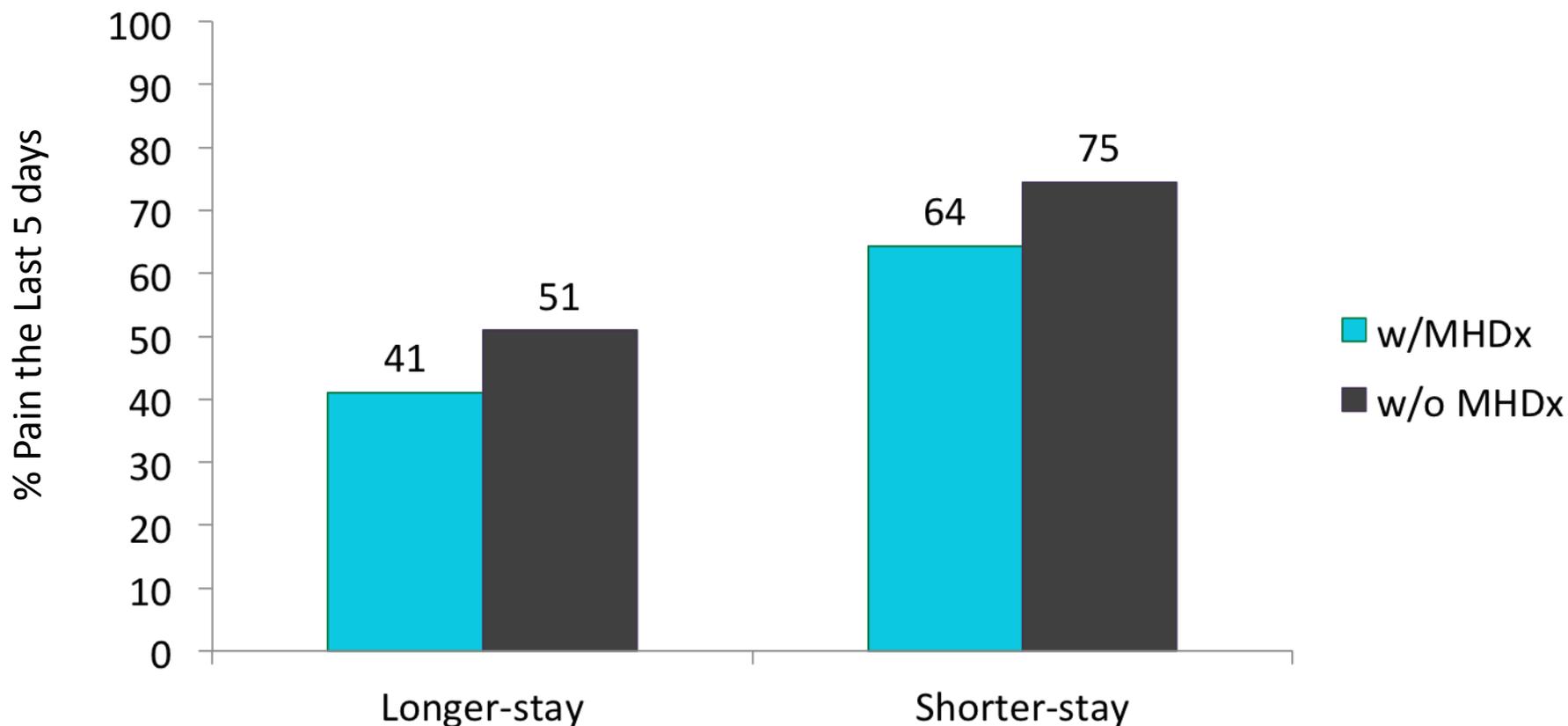


Figure 4A. Mental Health Disorder Diagnosis Combined with Length of Stay on Non-Opioid Only Pain Medications VA CLCs

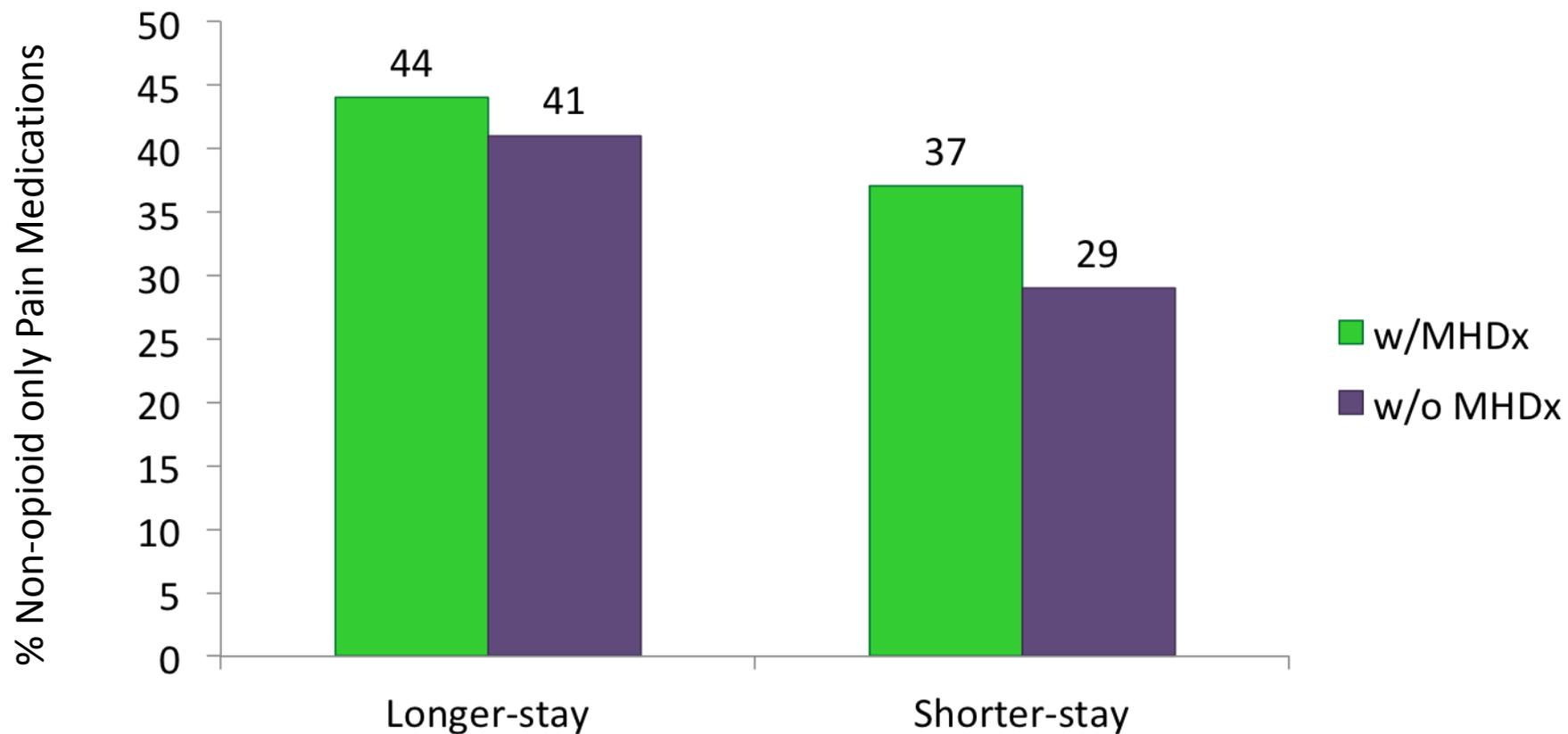
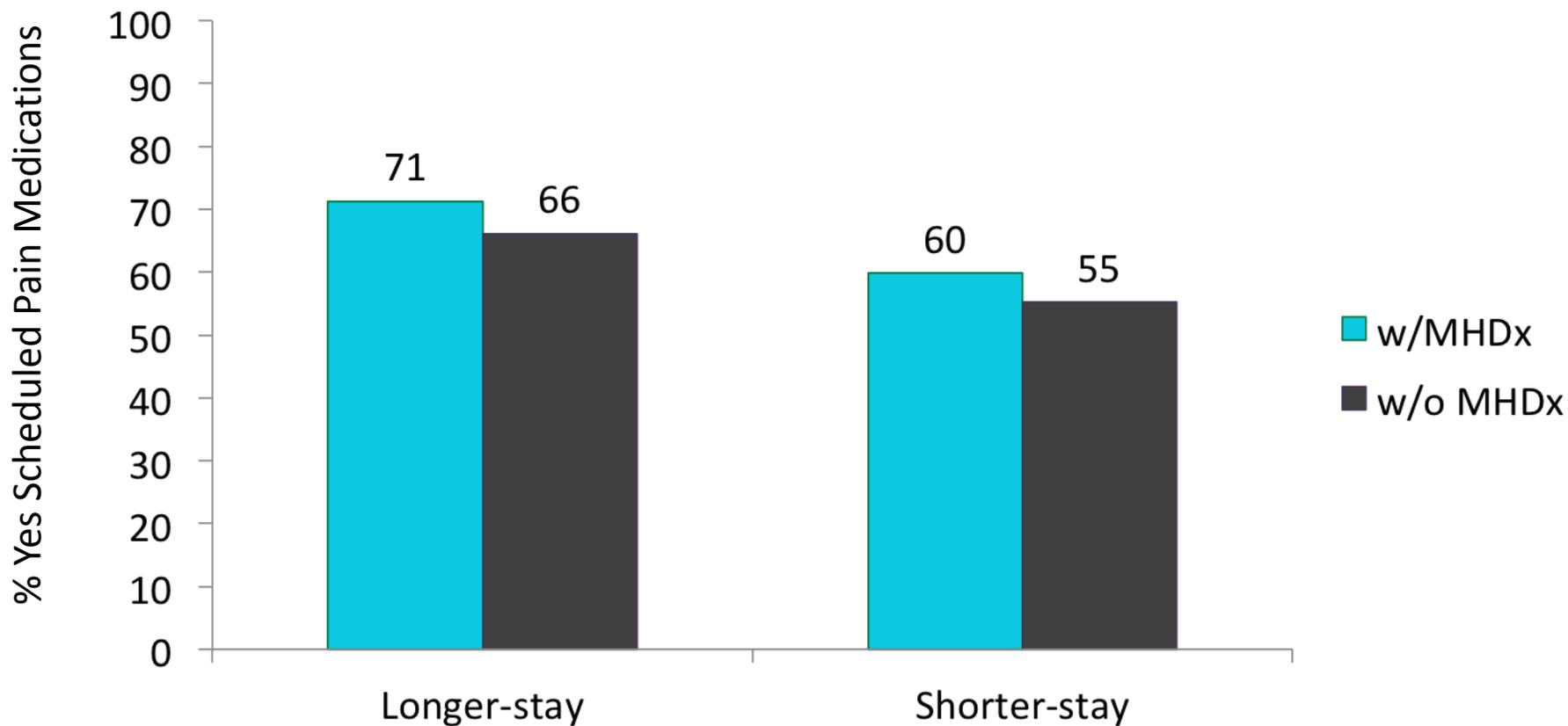


Figure 4B. Mental Health Disorder Diagnosis Combined with Length of Stay on Scheduled Pain Medications



Gender, Race, and Length of Stay x Mental Health Disorder VA CLCs

Replicate several findings in the NNHS 2004 data:

- Men with mental health disorder *least likely*, and women without mental health disorder *most likely*, to be rated as having pain in the last 5 days
- Non-white residents with mental health disorder *least likely*, and white residents without mental health *most likely*, to be rated as having pain in the last 5 days
- Longer-stay residents with mental health disorder *least likely*, and shorter-stay residents without mental health *most likely*, to be rated as having pain in the last 5 days
- Length of stay also combines with mental health disorder to influence pain treatments, such as likelihood of obtaining scheduled pain medication

What are the effects of mental health disorders on pain and pain treatment in community nursing homes and VA Community Living Centers (CLCs)?

- (1) Mental health disorders *other than dementia* appear to influence the *recognition and reporting of pain* in community nursing homes and VA Community Living Centers
- (2) Mental health disorders *other than dementia* appear to influence the *types of pain treatments* obtained by residents in community nursing homes and VA CLCs
- (3) Gender race, and length of stay add to or modify the influence of mental health disorder on pain and pain treatments in these settings

But Why?

- **Mental health disorders influence the recognition and reporting of pain in community nursing homes and VA Community Living Centers**

Resident-level:	Mental health disorders themselves (<i>e.g., Zales et al., 2015</i>) Effects of psychoactive medications Cognitive and communication problems (<i>e.g., Frayne et al., 2005; 2014</i>)
Resident-staff interactions:	Completion of the MDS 3.0 pain interview
Facility/system-level:	High staff turnover, Lack of consistent staff assignment (Jones, 2004)

● **Mental health disorders influence the types of pain treatments obtained by residents in community nursing homes and VA CLCs**

Resident-level: Limits on self-advocacy for pain treatment
Communication/cognitive problems interfere with nonpharm treatment
Polypharmacy (AGS, 2009)

Provider-level: Bias against "difficult" patients (e.g., Frayne et al., 2005; 2014)
Bias against residents with substance use disorder (Oliver et al., 2012)
Challenging balancing act: risk of adverse medication outcomes
vs. risk of uncontrolled pain (Brennan & SooHoo, 2014)
"Start low, stay low" problem (Hanlon et al., 2009)

Facility/
system-level: Limitations evidence base, resources to deliver, non-pharmacological,
more resident-centered pain treatments

● **Gender, race, and length of stay add to the influence of mental health disorder to predict the pain and pain treatments in community nursing homes and VA CLCs**

Resident-level: Sex differences in experience and expression of pain
(e.g., men's "stoicism") *(Bartley & Fillingim, 2013)*
Ethnic differences in pain sensitivity and pain coping *(Green et al., 2003)*
Longer-stay residents' increase in comorbidities, frailty, and
number of medications

Provider-level: Sex- and race-based disparities in pain care decision-making
(Green et al., 2003)
"Clinical inertia," over time decreased responsiveness to patients'
symptoms *(Berlowitz et al., 1998)*

Facility-level: Limitations evidence base, resources to deliver, non-pharmacological and
better "resident-fitted" pharmacological pain treatments

Next Steps

- Determine resident-level factors (e.g., communication problems, cognitive functioning, behavioral problems) that may account for the influence of mental health disorder on pain self-reports and pain treatments in community nursing homes and VA CLCs.
- Determine implications of residents' mental health disorders for their short-term (3-month) pain, pain treatments, and pain treatment outcomes, and for the longer-term (12-month) course of self-reported pain and pain treatment outcomes.

Questions?