Simsurveys

US Pain Foundation 2022 Patient Survey

Validation Study: Simulated Data vs. Published Results

Reference: US Pain Foundation, 'A Chronic Pain Crisis' (March–April 2022)

Published: n = 2,275 chronic pain patients (convenience sample) | Simulated: n = 2,275 simulated respondents

February 21, 2026

Executive Summary

This report presents a validation study comparing simulated survey data generated by Simsurveys against published results from the US Pain Foundation's 2022 "A Chronic Pain Crisis" survey. The original study surveyed 2,275 chronic pain patients recruited from the US Pain Foundation community between March 29 and April 12, 2022. It is one of the largest patient-reported surveys on chronic pain management, provider relationships, and treatment barriers in the United States.

A principled subset of 17 questions was selected across three thematic clusters: Mental Health & Stigma (4 questions), Patient-Provider Relationship (7 questions), and Treatment Experience (6 questions). Questions were selected by cluster rather than individually to avoid cherry-picking bias. All questions are single-select. One question (Q38) uses a filtered base of opioid users only.

Simsurveys generated 2,275 synthetic respondents using its consumer simulation model with custom demographic quotas matching the original study's population: 87% female / 13% male, age distribution skewing 45–64 (62%), and suburban-majority location (52% suburban, 26% rural, 20% urban). Targeting criteria described the respondent profile as chronic pain patients with long-duration, high-impact pain who are active in treatment and engaged with pain advocacy communities.

Alignment is assessed using Kullback–Leibler (KL) Divergence, which measures distributional similarity between published and simulated response distributions. All 17 questions are single-select, so KL divergence is the appropriate metric. KL values below 0.15 indicate strong distributional alignment where insights from simulated data would lead to substantively equivalent conclusions as the published data.

The model demonstrates strong alignment on binary questions (average KL ~0.02 for stigma and treatment questions) and correct directional ordering across all questions. The primary systematic pattern is over-estimation of symptom frequency for anxiety and depression (Q19/Q20), and central tendency bias on ordinal provider-relationship scales where the model gravitates toward middle options and underweights extremes. These patterns represent calibration opportunities rather than fundamental model limitations.

KL Divergence Summary

ID	Question	Cluster	KL Div	Status
Q19	How often do you feel anxiety-like symptoms?	Mental Health & Stigma	0.105	✓ Good
Q20	How often do you feel depression-like symptoms?	Mental Health & Stigma	0.128	✓ Good
Q21	Do you feel stigmatized because of pain?	Mental Health & Stigma	0.007	✓ Good
Q22	Do you feel stigmatized by your health care providers?	Mental Health & Stigma	0.000	✓ Good
Q25	Are you currently seeing any health care professional for...	Patient-Provider Relat...	0.007	✓ Good
Q27	Does your current HCP help you understand different optio...	Patient-Provider Relat...	0.053	✓ Good
Q28	Do you feel your current HCP listens and validates your s...	Patient-Provider Relat...	0.016	✓ Good
Q29	Do you feel comfortable discussing new treatments with yo...	Patient-Provider Relat...	0.007	✓ Good
Q30	Do you feel you are a team with your current HCP when it ...	Patient-Provider Relat...	0.011	✓ Good
Q31	How much do you trust your providers' ability to manage y...	Patient-Provider Relat...	0.034	✓ Good
Q32	Are you hopeful that you will achieve the goals of your p...	Patient-Provider Relat...	0.070	✓ Good
Q35	Are you currently taking prescription medications for pain?	Treatment Experience	0.004	✓ Good
Q37	Do you currently take opioid medications?	Treatment Experience	0.007	✓ Good
Q38	Have you faced barriers to obtaining your opioid medicati...	Treatment Experience	0.015	✓ Good
Q41	Have you ever signed a pain contract?	Treatment Experience	0.003	✓ Good
Q43	Have you ever been asked to take a urine drug test (UDT)?	Treatment Experience	0.016	✓ Good
Q54	Is there any side effect that would prevent you from taki...	Treatment Experience	0.000	✓ Good

Average KL Divergence: 0.029 | Median: 0.011

KL Divergence < 0.15 = strong alignment | 0.15–0.30 = moderate | > 0.30 = review needed
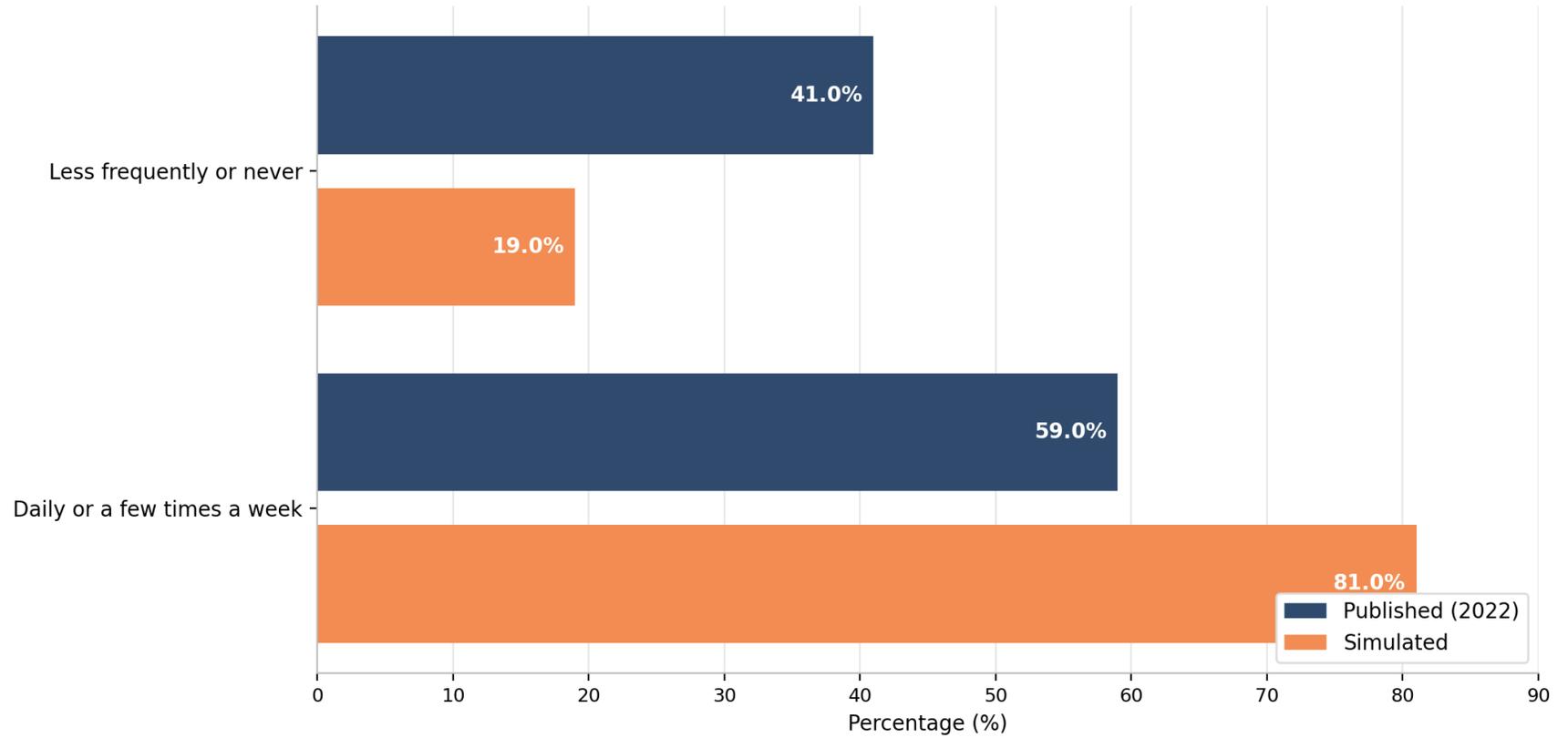
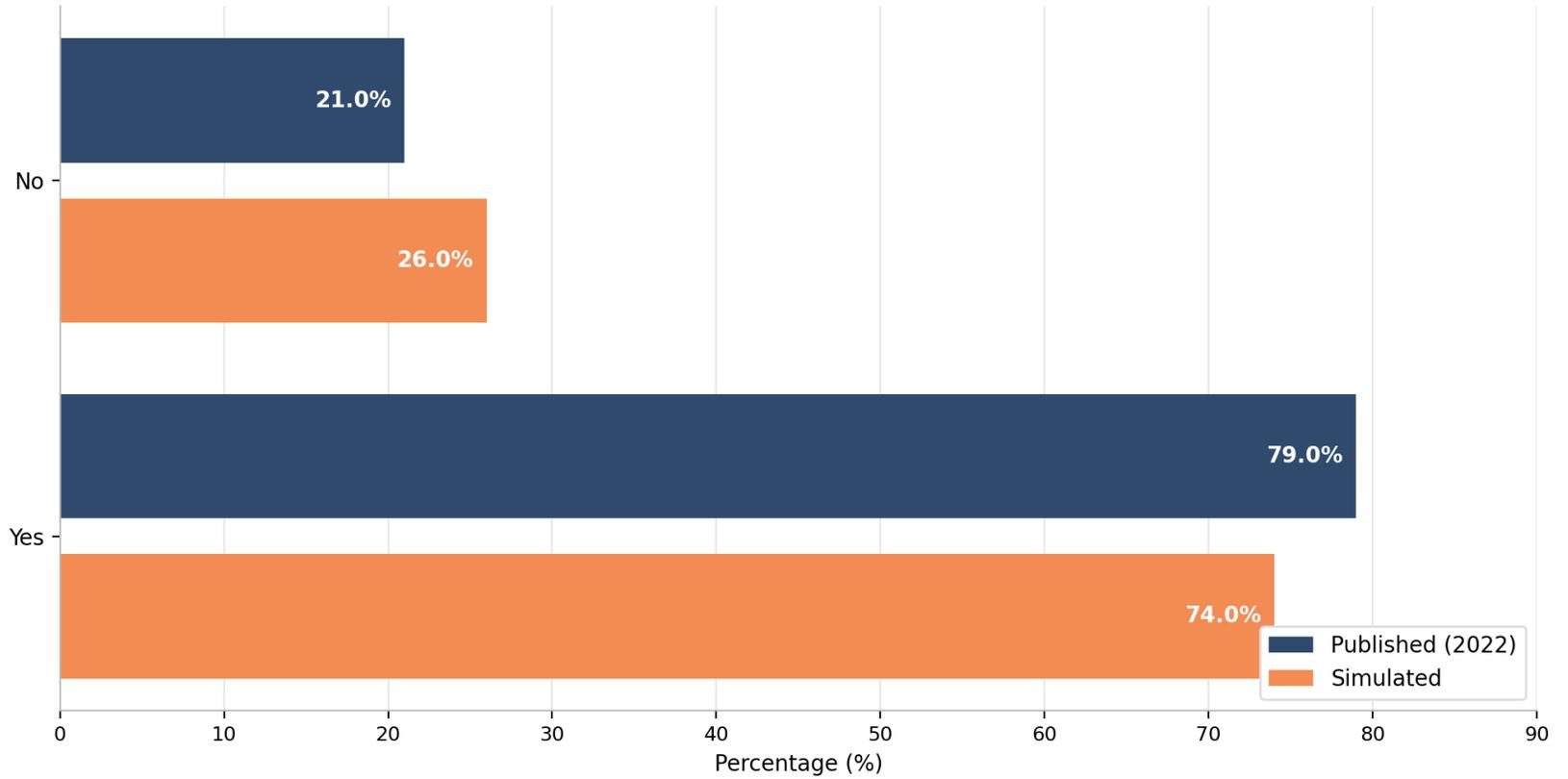## How often do you feel anxiety-like symptoms?

KL Divergence = 0.105
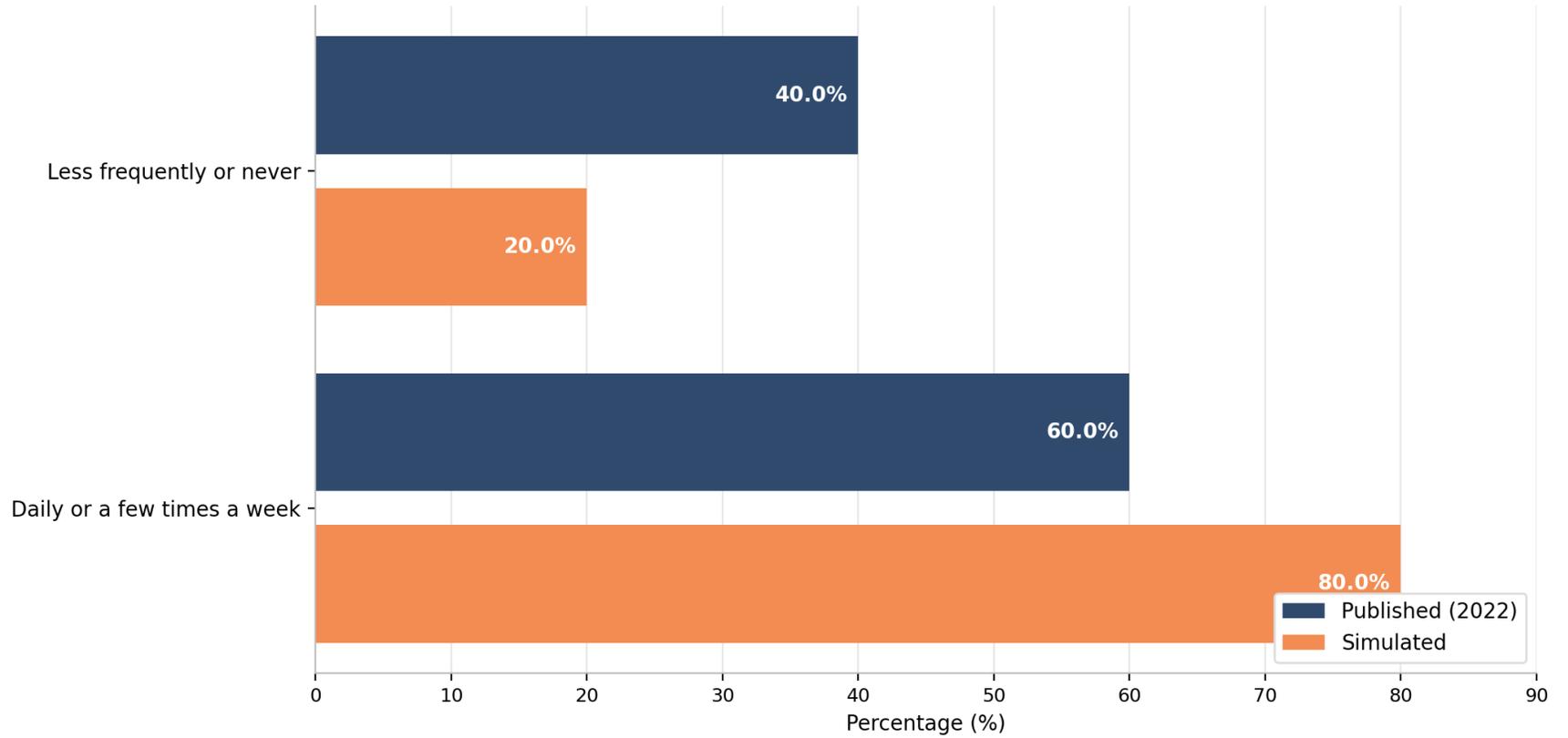
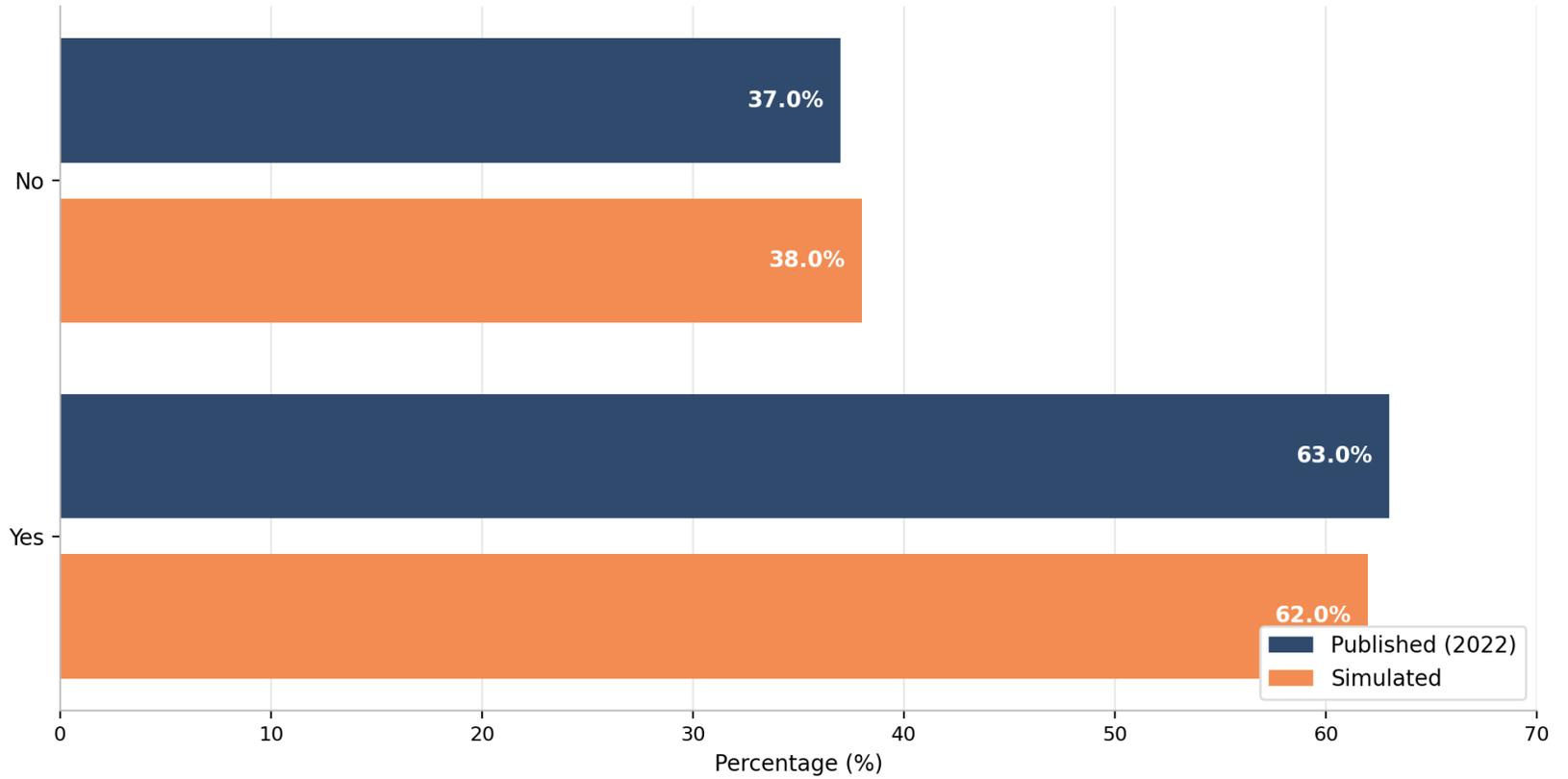## How often do you feel depression-like symptoms?

KL Divergence = 0.128

Do you feel stigmatized because of pain?
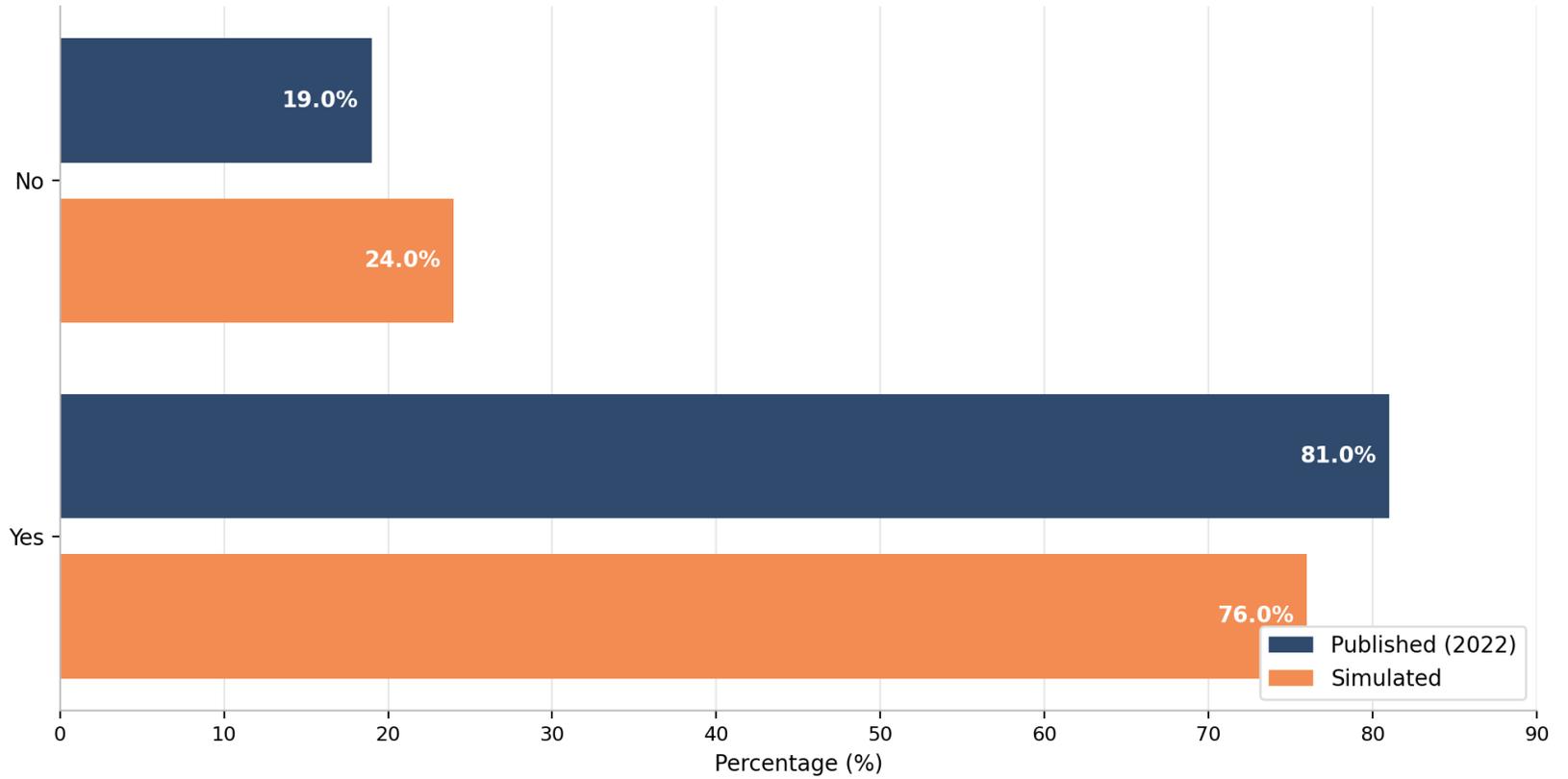
KL Divergence = 0.007

Percentage (%)

- No: 21.0% (Published 2022), 26.0% (Simulated)
- Yes: 79.0% (Published 2022), 74.0% (Simulated)

Legend: Published (2022), Simulated

Do you feel stigmatized by your health care providers?

KL Divergence = 0.000

Are you currently seeing any health care professional for pain?

KL Divergence = 0.007

Does your current HCP help you understand different options for managing your chronic pain?

KL Divergence = 0.053
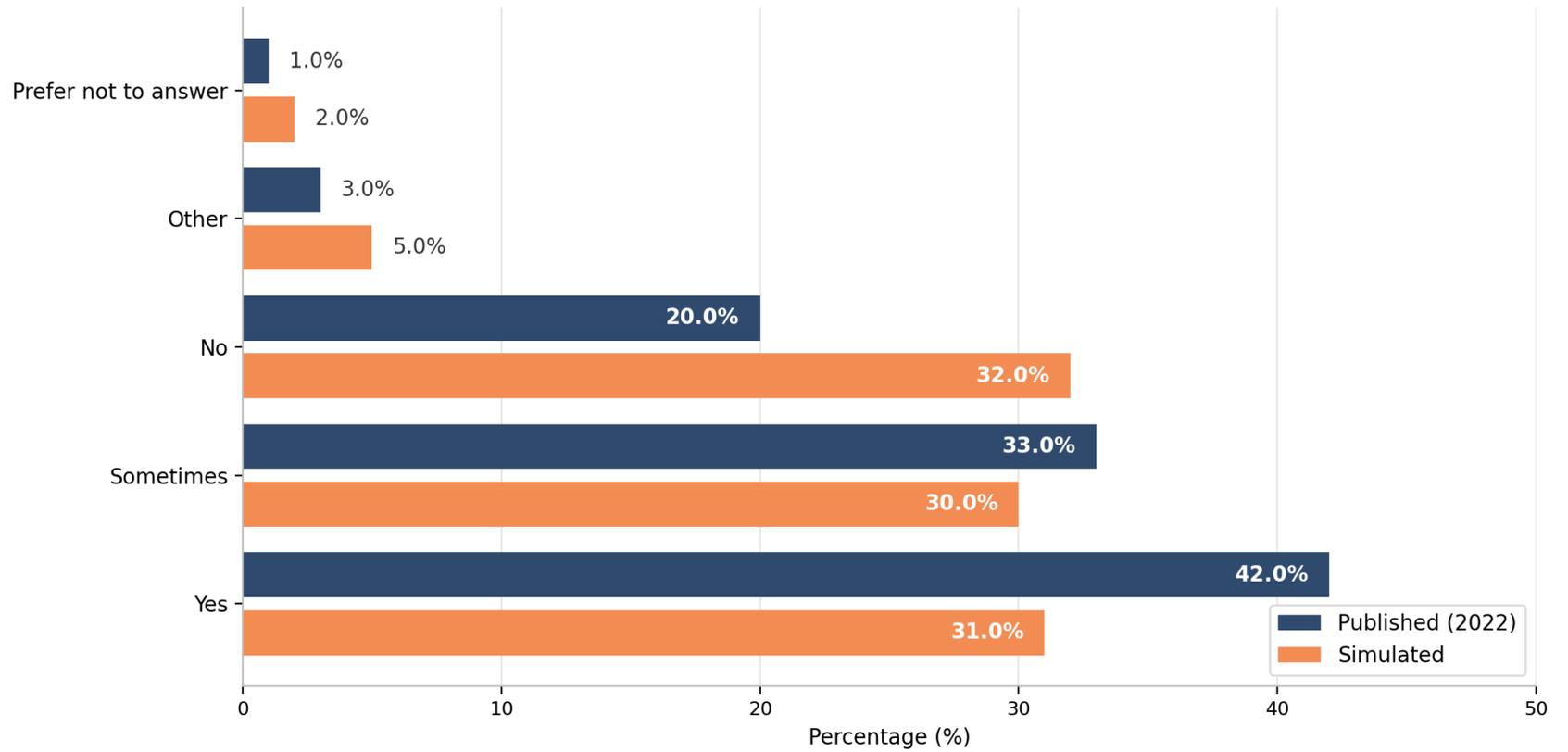
Do you feel your current HCP listens and validates your symptoms, concerns, and pain?
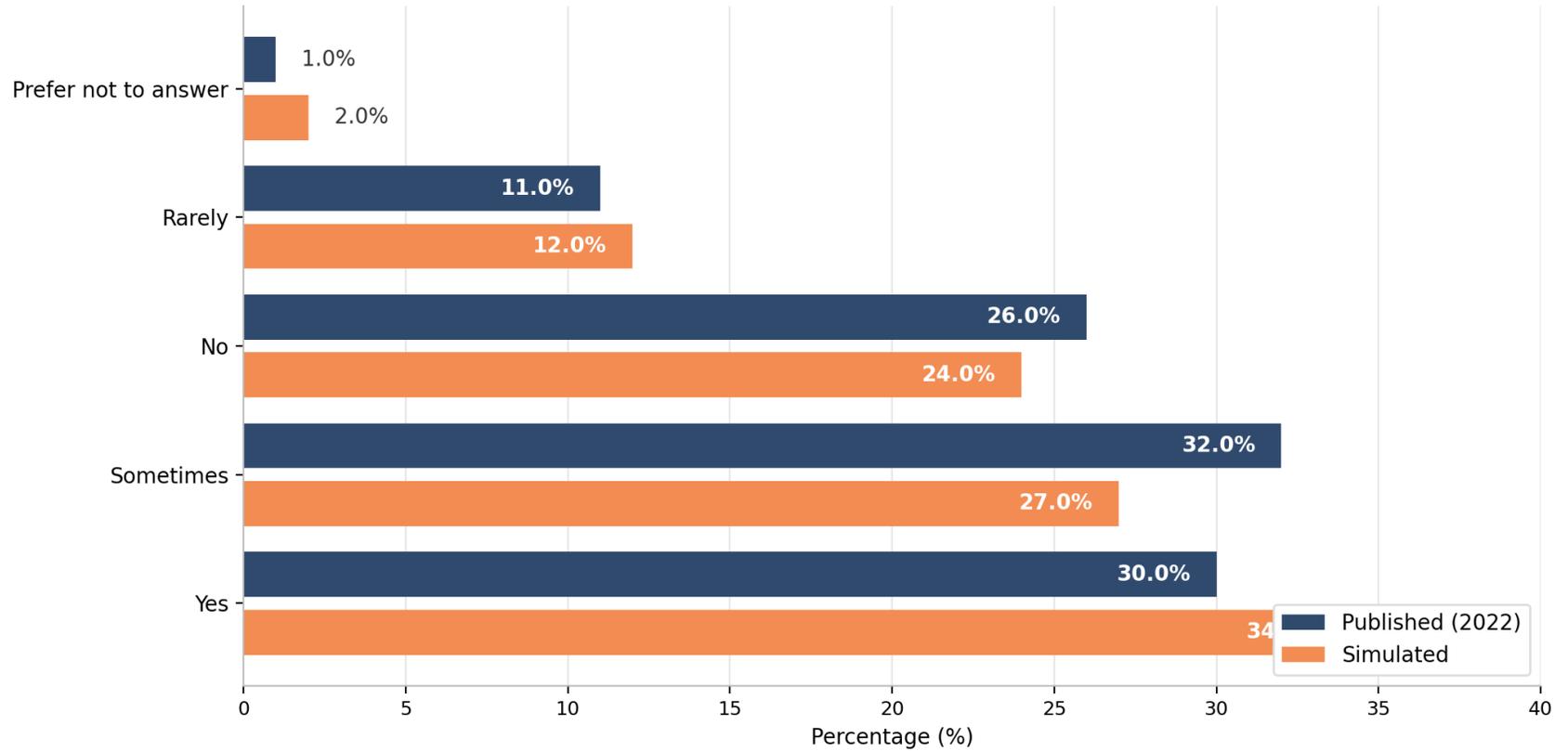
KL Divergence = 0.016
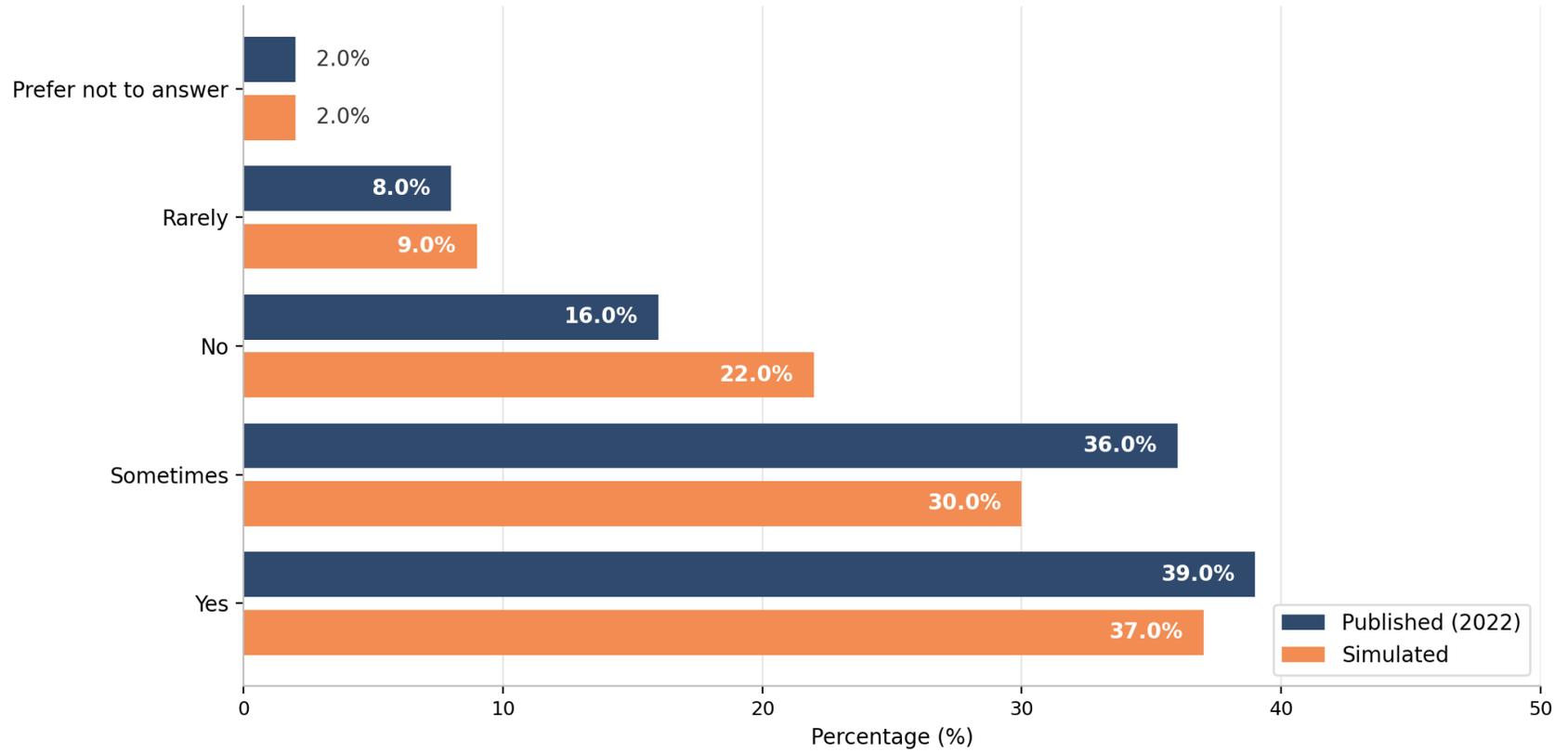
Do you feel comfortable discussing new treatments with your current HCP?
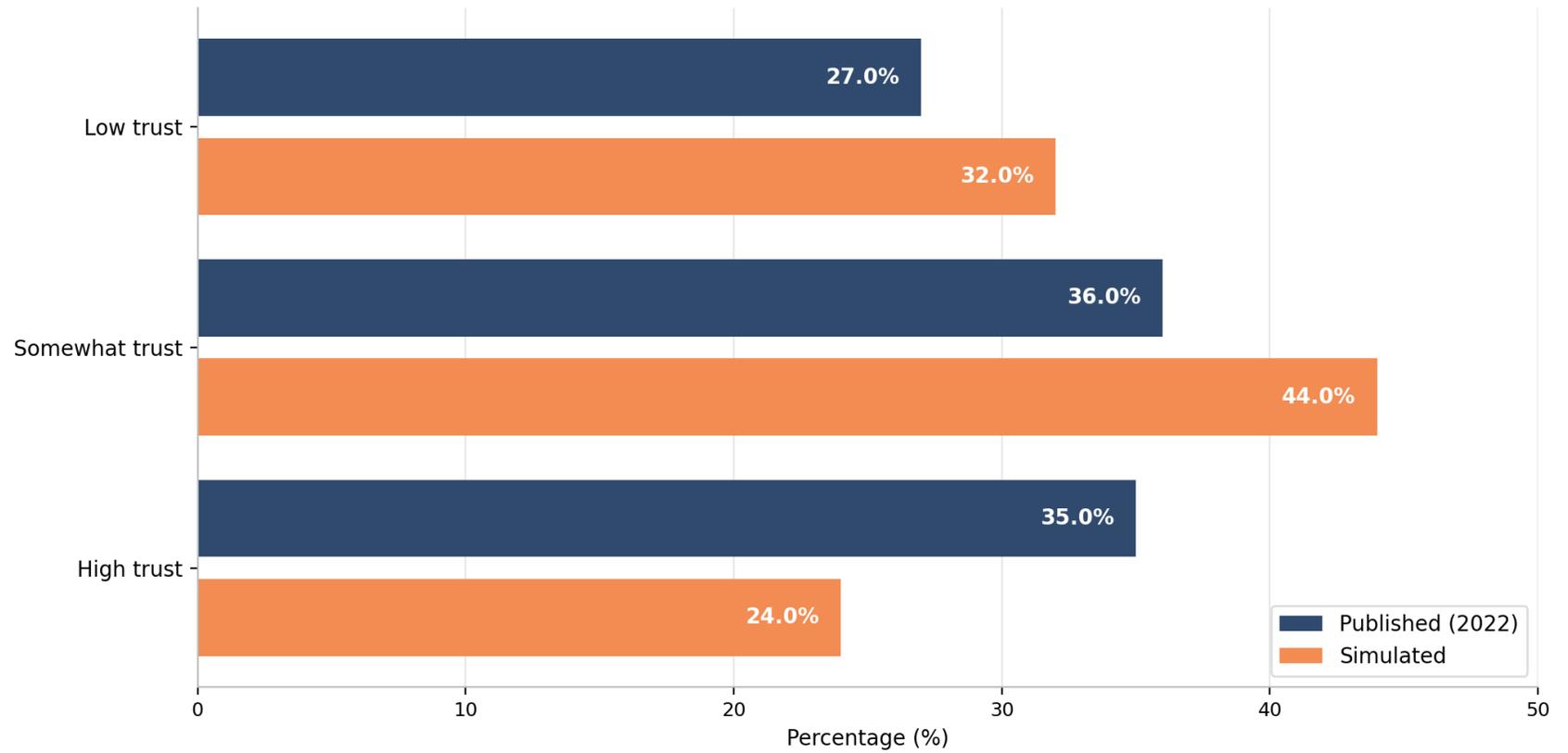
KL Divergence = 0.007
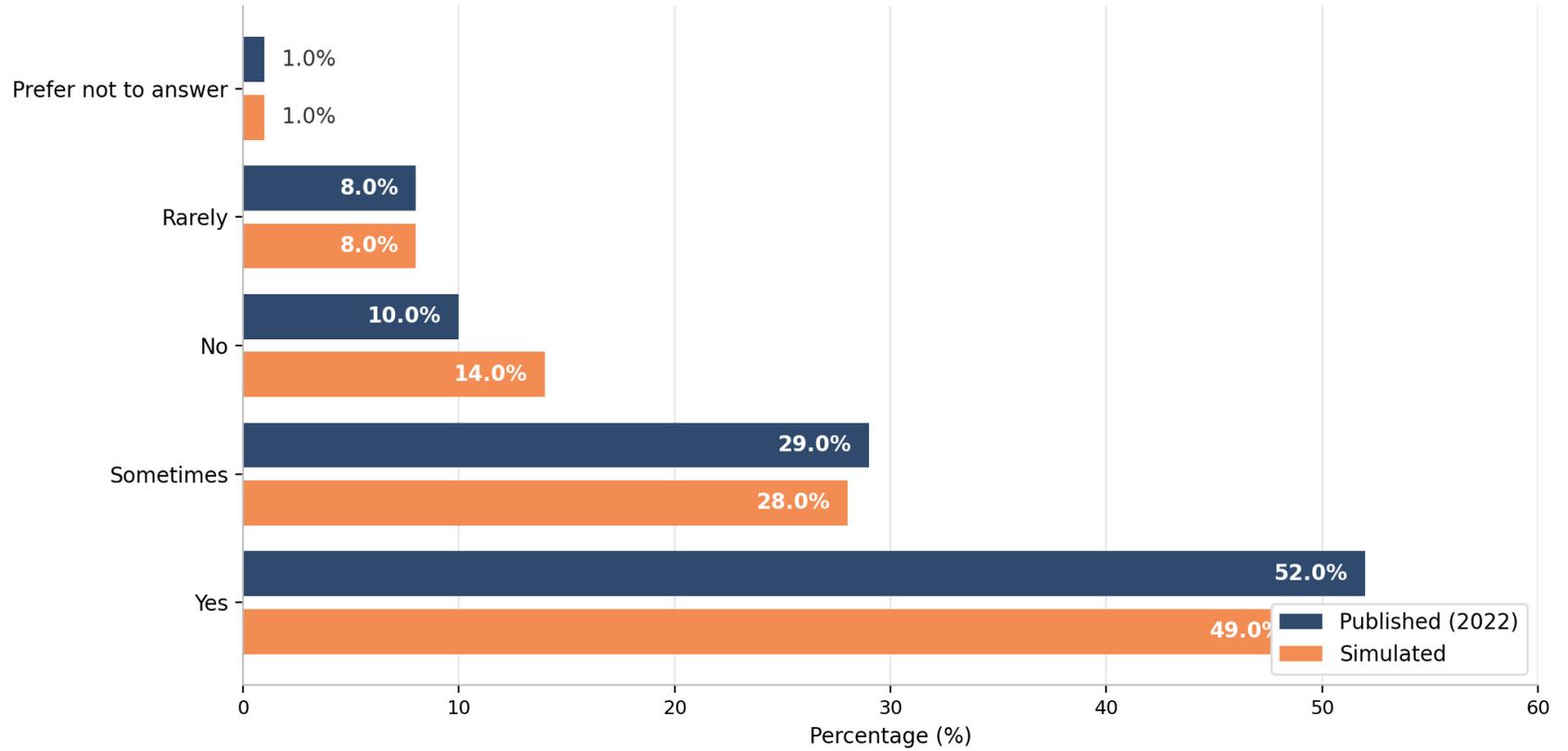
Do you feel you are a team with your current HCP when it comes to managing your chronic pain?
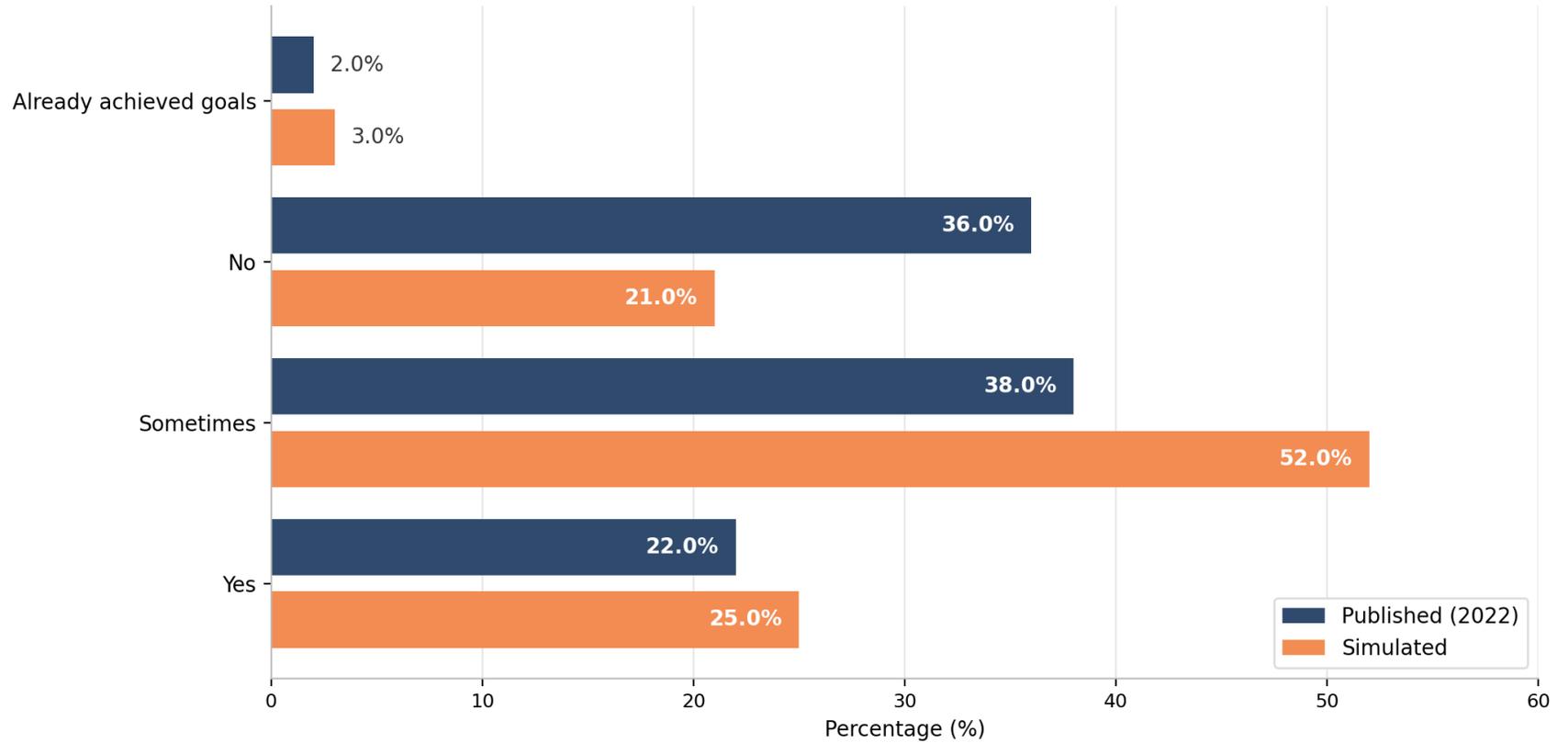
KL Divergence = 0.011

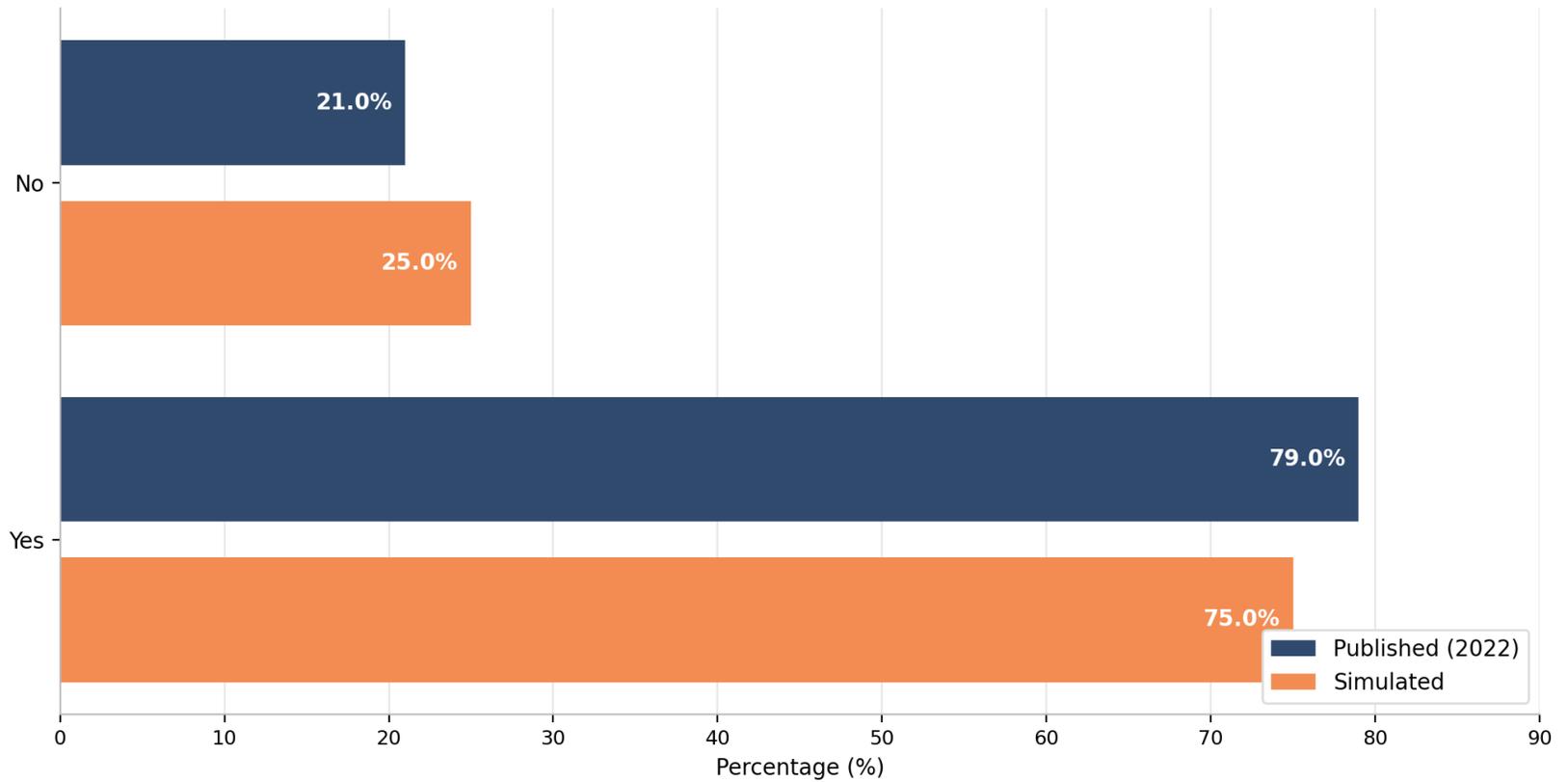## How much do you trust your providers' ability to manage your pain?

KL Divergence = 0.034

Are you hopeful that you will achieve the goals of your pain management plan?
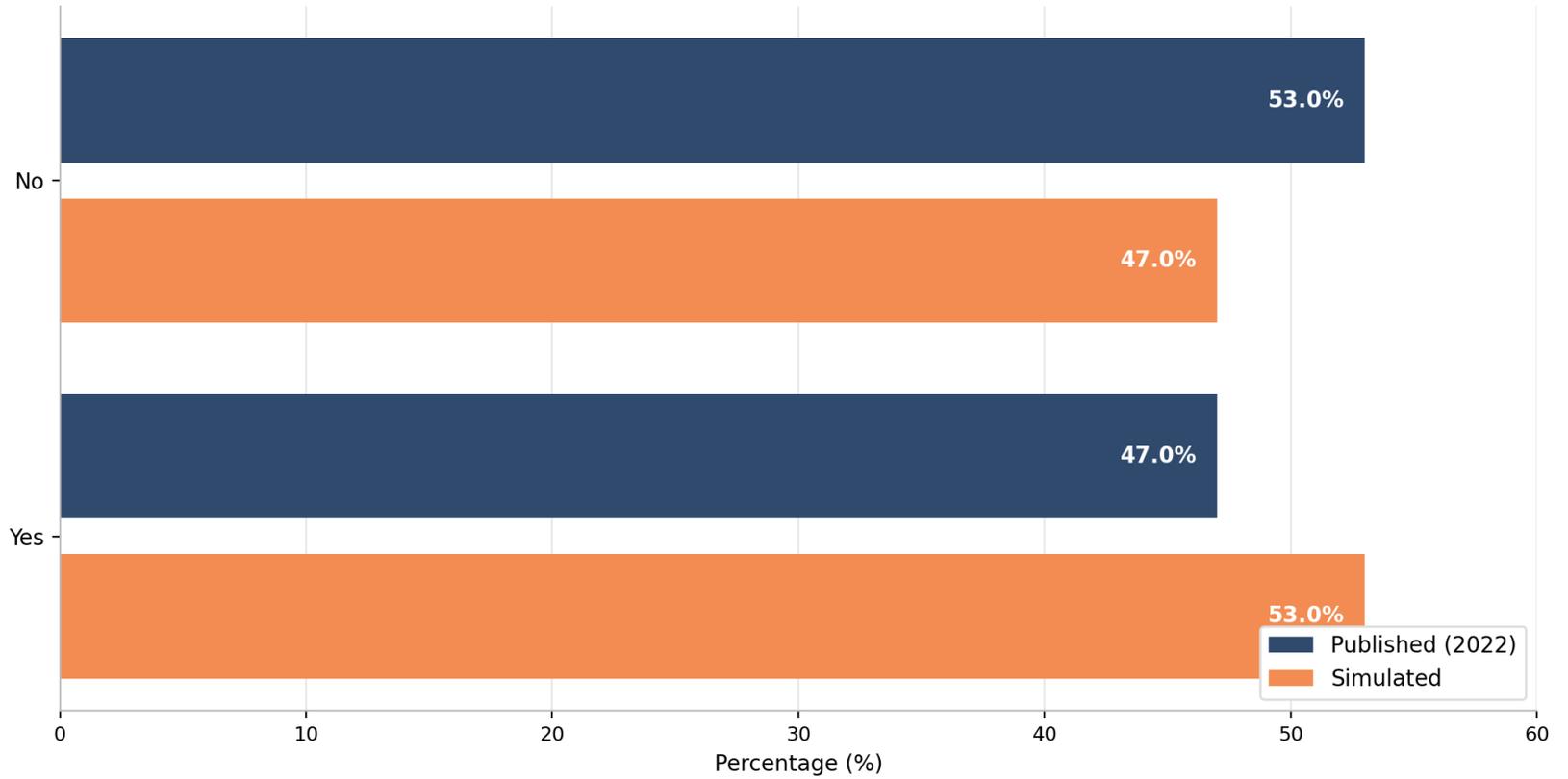
KL Divergence = 0.070

Are you currently taking prescription medications for pain?

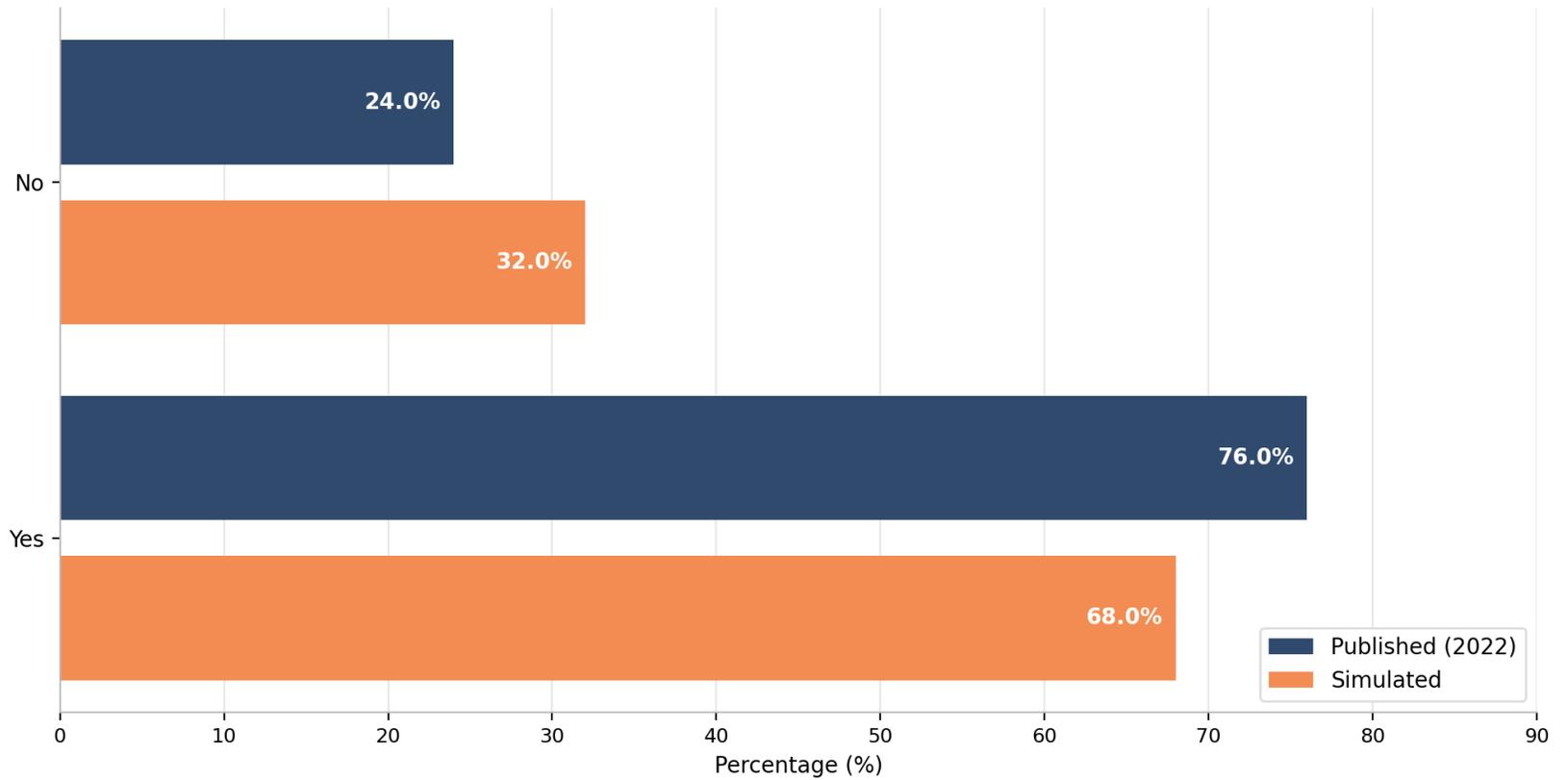KL Divergence = 0.004

Do you currently take opioid medications?

KL Divergence = 0.007

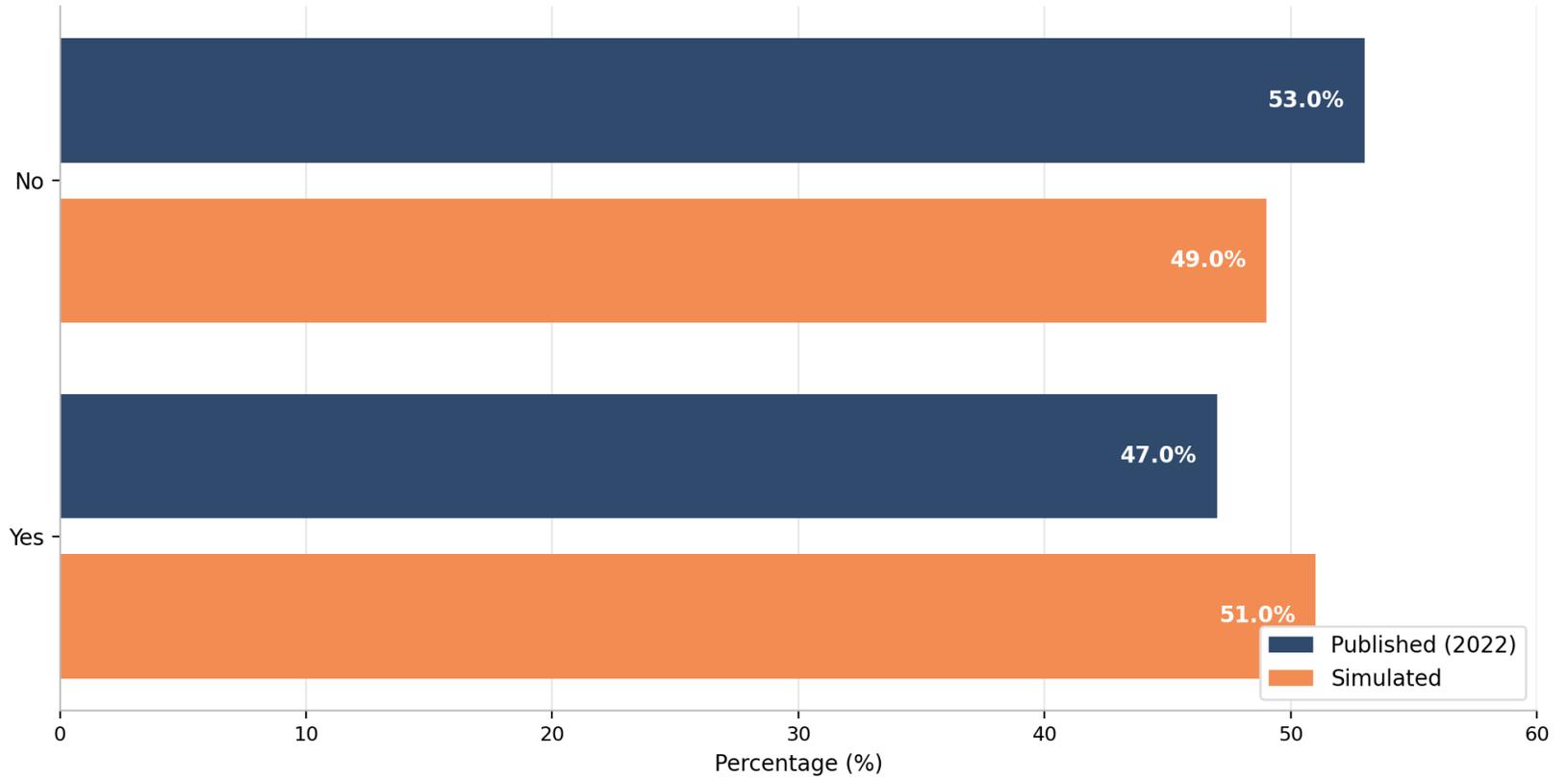## Have you faced barriers to obtaining your opioid medications?

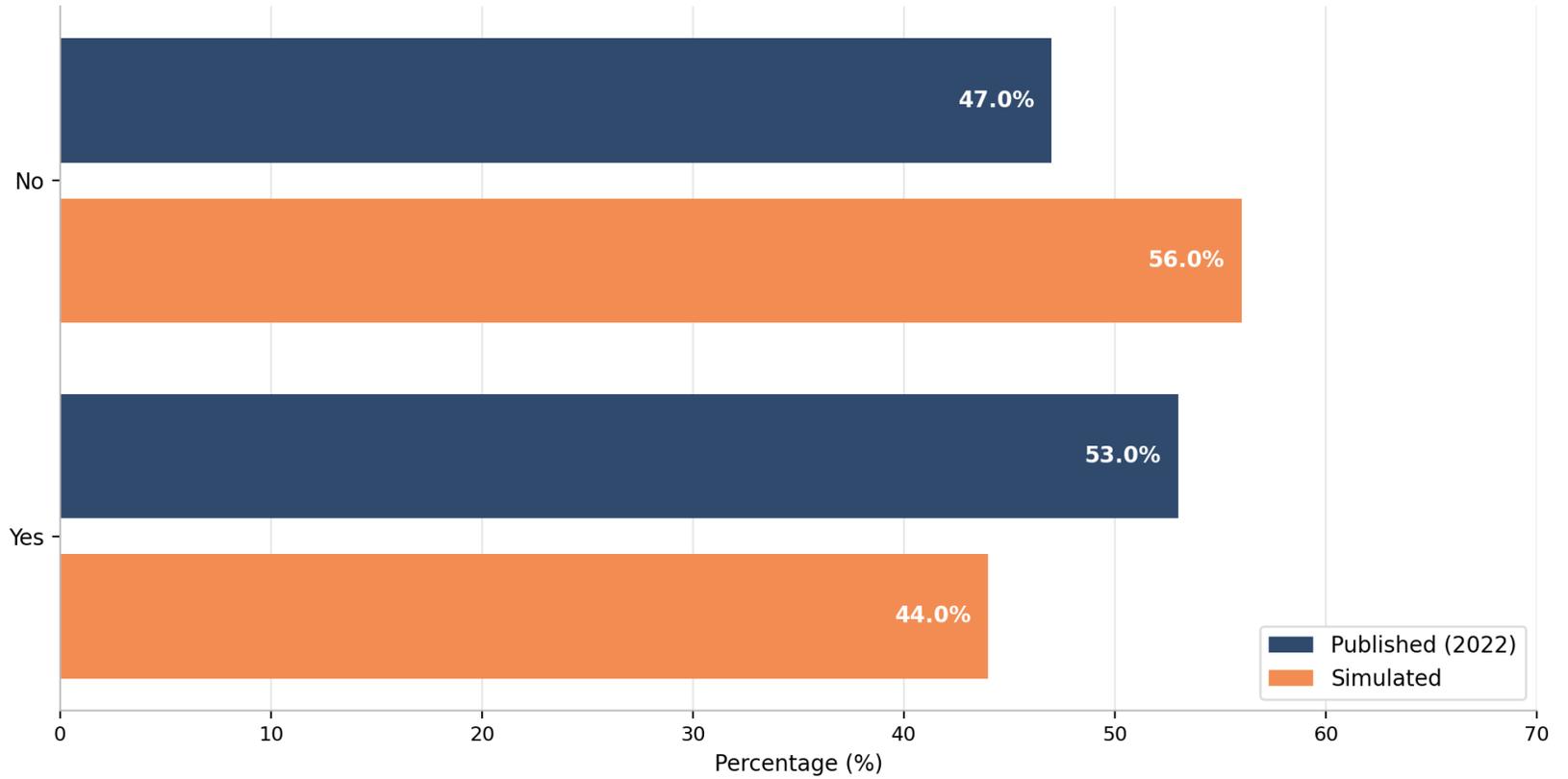*Base: opioid users only (sim n=1,200)*

KL Divergence = 0.015

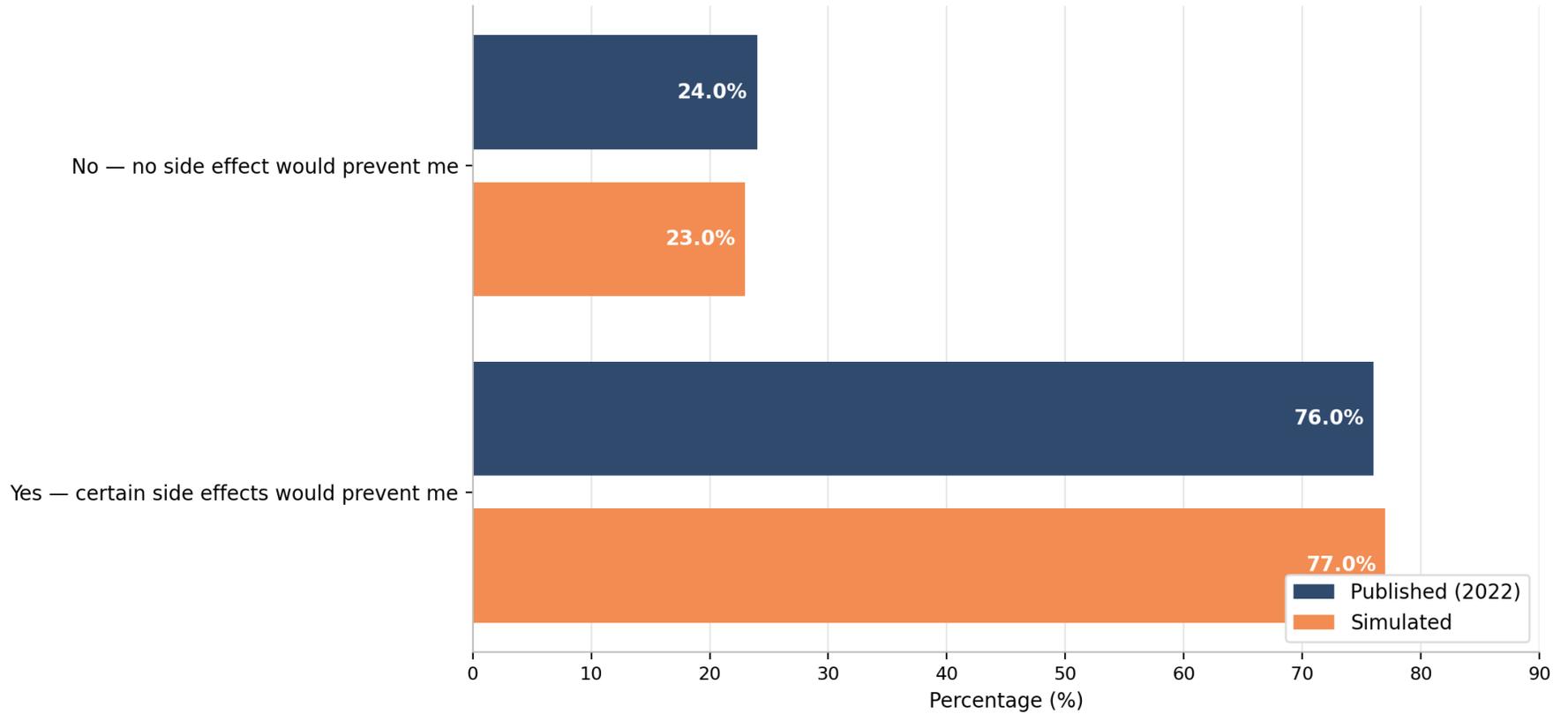## Have you ever signed a pain contract?

KL Divergence = 0.003

Have you ever been asked to take a urine drug test (UDT)?

KL Divergence = 0.016

Is there any side effect that would prevent you from taking a medication if it helped your pain?

KL Divergence = 0.000

Published (2022)
Simulated

Percentage (%)

Appendix: Survey Questions

Q19: How often do you feel anxiety-like symptoms?

Responses: Daily or a few times a week | Less frequently or never

Q20: How often do you feel depression-like symptoms?

Responses: Daily or a few times a week | Less frequently or never

Q21: Do you feel stigmatized because of pain?

Responses: Yes | No

Q22: Do you feel stigmatized by your health care providers?

Responses: Yes | No

Q25: Are you currently seeing any health care professional for pain?

Responses: Yes | No

Q27: Does your current HCP help you understand different options for managing your chronic pain?

Responses: Yes | Sometimes | No | Other | Prefer not to answer

Q28: Do you feel your current HCP listens and validates your symptoms, concerns, and pain?

Responses: Yes | Sometimes | No | Rarely | Prefer not to answer

Q29: Do you feel comfortable discussing new treatments with your current HCP?

Responses: Yes | Sometimes | No | Rarely | Prefer not to answer

Appendix: Survey Questions (continued)

Q30: Do you feel you are a team with your current HCP when it comes to managing your chronic pain?

Responses: Yes | Sometimes | No | Rarely | Prefer not to answer

Q31: How much do you trust your providers' ability to manage your pain?

Responses: High trust | Somewhat trust | Low trust

Q32: Are you hopeful that you will achieve the goals of your pain management plan?

Responses: Yes | Sometimes | No | Already achieved goals

Q35: Are you currently taking prescription medications for pain?

Responses: Yes | No

Q37: Do you currently take opioid medications?

Responses: Yes | No

Q38: Have you faced barriers to obtaining your opioid medications? [Base: opioid users only (sim n=1,200)]

Responses: Yes | No

Q41: Have you ever signed a pain contract?

Responses: Yes | No

Q43: Have you ever been asked to take a urine drug test (UDT)?

Responses: Yes | No

Q54: Is there any side effect that would prevent you from taking a medication if it helped your pain?

Responses: Yes — certain side effects would prevent me | No — no side effect would prevent me