**Supplemental Digital Content, Table 1. Weighted, adjusteda prevalence rates and prevalence ratios using the full model of low back pain by workplace psychosocial and work organization characteristics stratified by physical exertion level at workb (NHIS, 2015)**

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|  | **HAS LOW BACK PAIN** | | | | | |
|  | **Physical Exertion at Work** | | | **Low/No Physical Exertion at Work** | | |
|  | **Adjusteda Prevalence (%) (95% CI)** | **Adjusteda PR (95% CI)** | **P** | **Adjusteda Prevalence (%) (95% CI)** | **Adjusteda PR (95% CI)** | **P** |
| **Workplace psychosocial factors** |  |  |  |  |  |  |
| High demand | 38.0 (34.6 – 41.7) | 1.34 (1.21 – 1.48) | <0.001 | 25.6 (22.5 – 29.0) | 1.22 (1.06 – 1.40) | 0.007 |
| Low demand | 28.5 (27.2 – 29.9) | REF |  | 21.0 (19.7 – 22.5) | REF |  |
| Low control | 30.2 (27.1 – 33.5) | 1.01 (0.91 – 1.13) | 0.81 | 27.3 (23.1 – 31.9) | 1.29 (1.08 – 1.54) | 0.007 |
| High control | 29.8 (28.4 – 31.2) | REF |  | 21.2 (19.8 – 22.6) | REF |  |
| Work-family imbalance | 34.4 (32.2 – 36.7) | 1.23 (1.13 – 1.34) | <0.001 | 25.3 (22.6 – 28.2) | 1.22 (1.07 – 1.40) | <0.001 |
| No work-family imbalance | 28.0 (26.4 – 29.6) | REF |  | 20.7 (19.2 – 22.2) | REF |  |
| Bullied in the past 12 months | 42.1 (37.3 – 47.0) | 1.46 (1.29 – 1.66) | <0.001 | 33.9 (27.3 – 41.1) | 1.60 (1.29 – 1.98) | <0.001 |
| Not bullied in past 12 months | 28.8 (27.4 – 30.1) | REF |  | 21.2 (19.8 – 22.5) | REF |  |
| Insecure job | 40.0 (36.2 – 44.0) | 1.40 (1.26 – 1.56) | <0.001 | 27.8 (23.4 – 32.7) | 1.31 (1.10 – 1.57) | 0.004 |
| Secure job | 28.5 (27.2 – 29.9) | REF |  | 21.2 (19.8- 22.6) | REF |  |
| **Work organization characteristics** |  |  |  |  |  |  |
| Nonstandard shift | 30.6 (28.3 – 33.1) | 1.04 (0.95 – 1.13) | 0.44 | 25.8 (22.1 – 29.9) | 1.23 (1.04 – 1.45) | 0.02 |
| Regular, daytime shift | 29.6 (28.2 – 31.1) | REF |  | 21.0 (19.7 – 22.5) | REF |  |
| Nonstandard work arrangement | 29.1 (26.1 – 32.2) | 0.97 (0.86 – 1.09) | 0.56 | 23.2 (19.6 – 27.3) | 1.08 (0.90 – 1.29) | 0.41 |
| Standard work arrangement | 30.1 (28.7 – 31.5) | REF |  | 31.5 (20.2 – 23.0) | REF |  |
|  |  |  |  |  |  |  |

Abbreviations: PR = Prevalence Ratio; CI = Confidence Interval; REF = Reference Level; P=P-Value

aAdjusted for sex, race/ethnicity, education level, age, body mass index, psychological distress, and family income

bPhysical exertion level at work was obtained from the question: How often does your job involve repeated lifting, pushing, pulling, or bending? Physical exertion was defined by answers of sometimes, often or always, and low/no physical exertion was defined by answers of seldom or never.

**Supplemental Digital Content, Table 2. Weighted prevalence rates of physical exertion level at worka by occupation groupb (NHIS, 2015).**

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| --- | --- |
| **Occupation group** | **% of workers reporting physical exertion at work (95% CI)** |
| Construction and extraction | 91.6 (89.2 – 94.1) |
| Farming, fishing, and forestry | 91.5 (86.1 – 97.0) |
| Installation, Maintenance, and repair | 91.0 (87.9 – 94.1) |
| Building and grounds cleaning and maintenance | 90.4 (87.7 – 93.2) |
| Food preparation and serving related | 85.6 (82.3 – 88.8) |
| Production | 82.3 (79.2 – 85.5) |
| Healthcare support | 80.3 (75.4 – 85.2) |
| Transportation and material moving | 79.6 (76.2 – 83.1) |
| Personal care and service | 70.7 (65.0 – 76.5) |
| Healthcare practitioners and technical | 70.7 (67.1 – 74.3) |
| Protective service | 60.6 (53.3 – 67.8) |
| Sales and related | 59.5 (56.0 – 63.1) |
| Education, training, and library | 46.3 (42.4 – 50.2) |
| Office and administrative support | 42.2 (39.0 – 45.3) |
| Management | 39.0 (35.9 – 42.2) |
| Arts, design, entertainment, sports, and media | 38.1 (31.2 – 45.0) |
| Community and social services | 33.5 (26.9 – 40.1) |
| Life, physical, and social science | 31.6 (21.9 – 41.3) |
| Architecture and engineering | 27.4 (21.3 – 33.5) |
| Business and financial operations | 19.9 (16.5 – 23.3) |
| Computer and mathematical | 15.1 (11.5 – 18.6) |
| Legal | 13.9 (8.2 – 19.5) |

Abbreviations: CI = Confidence Interval

aPhysical exertion level at work was obtained from the question: How often does your job involve repeated lifting, pushing, pulling, or bending? Physical exertion was defined by answers of sometimes, often or always.

bOccupation groups presented are the Standard Occupational Classification (SOC) major occupation groups (<https://www.bls.gov/soc/>)

**Supplemental Digital Content, Table 3. Weighted, adjusteda prevalence ratios (aPRs) (95% CI) of low back pain and workplace psychosocial and work organization factors stratified by physical exertion level at workb and race/ethnicity (NHIS, 2015).**

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|  | **HAS LOW BACK PAIN** | | | | | | | |
|  | **Physical Exertion at Work** | | | | **Low/No Physical Exertion at Work** | | | |
|  | **Non-Hispanic White** | **Non-Hispanic Black** | **Non-Hispanic Other Race** | **Hispanic** | **Non-Hispanic White** | **Non-Hispanic Black** | **Non-Hispanic Other Race** | **Hispanic** |
| **Workplace psychosocial factors** |  |  |  |  |  |  |  |  |
| High demand | 1.32\* (1.18 – 1.48) | 1.05 (0.78 – 1.42) | 2.33\* (1.61 – 3.38) | 1.45\* (1.15 – 1.82) | 1.24\* (1.05 – 1.48) | 0.92 (0.64 – 1.32) | 0.83 (0.44 – 1.58) | 1.84\* (1.33 – 2.54) |
| Low demand | REF | REF | REF | REF | REF | REF | REF | REF |
| Low control | 1.11 (0.96 – 1.29) | 1.09 (0.82 – 1.44) | 1.14 (0.70 – 1.85) | 0.94 (0.74 – 1.18) | 1.34\* (1.05 – 1.71) | 1.36 (0.95 – 1.96) | 0.85 (0.40 – 1.83) | 1.10 (0.73 – 1.63) |
| High control | REF | REF | REF | REF | REF | REF | REF | REF |
| Work-family imbalance | 1.48\* (1.30 – 1.68) | 1.32\* (1.01 – 1.72) | 1.59\* (1.03 – 2.46) | 1.51\* (1.21 – 1.88) | 1.48\* (1.21 – 1.82) | 1.27 (0.75 – 2.14) | 1.28 (0.69 – 2.39) | 1.05 (0.70 – 1.58) |
| No work-family imbalance | REF | REF | REF | REF | REF | REF | REF | REF |
| Bullying in the past 12 months | 1.42\* (1.24 – 1.63) | 1.64\* (1.16 – 2.32) | 2.86\* (2.04 – 4.02) | 1.61\* (1.23 – 2.12) | 1.72\* (1.34 – 2.19) | 1.74 (0.99 – 3.08) | 1.05 (0.36 – 3.04) | 2.13\* (1.42 – 3.18) |
| No bullying in the past 12 months | REF | REF | REF | REF | REF | REF | REF | REF |
| Insecure job | 1.48\* (1.30 – 1.68) | 1.32\* (1.01 – 1.72) | 1.59\* (1.03 – 2.46) | 1.51\* (1.21 – 1.88) | 1.48\* (1.22 – 1.82) | 1.27 (0.75 – 2.14) | 1.28 (0.69 – 2.39) | 1.05 (0.70 – 1.58) |
| Secure job | REF | REF | REF | REF | REF | REF | REF | REF |
| **Work organization characteristics** |  |  |  |  |  |  |  |  |
| Nonstandard shift | 1.13\* (1.02 – 1.25) | 1.03 (0.81 – 1.29) | 0.71 (0.46 - 1.12) | 0.90 (0.72 – 1.13) | 1.36\* (1.12 – 1.65) | 1.16 (0.78 – 1.73) | 0.84 (0.41 – 1.70) | 1.05 (0.72 – 1.53) |
| Regular, daytime shift | REF | REF | REF | REF | REF | REF | REF | REF |
| Nonstandard work arrangement | 0.99 (0.86 – 1.15) | 1.26 (0.93 – 1.71) | 0.82 (0.48 – 1.41) | 0.89 (0.71 – 1.12) | 1.08 (0.88 – 1.33) | 1.27 (0.81 – 1.99) | 0.78 (0.37 – 1.63) | 0.95 (0.58 – 1.54) |
| Standard work arrangement | REF | REF | REF | REF | REF | REF | REF | REF |

Abbreviations: PR = Prevalence Ratio; CI = Confidence Interval; REF = Reference Level; P=P-Value

aAdjusted for sex, education, age, and body mass index (BMI

bPhysical exertion level at work was obtained from the question: How often does your job involve repeated lifting, pushing, pulling, or bending? Physical exertion was defined by answers of sometimes, often, or, always, and low/no physical exertion was defined by answers of seldom or never.

\*Indicates p-value <0.05

**Supplemental Digital Content, Table 4. Weighted, adjusteda prevalence rates (%) (95% CI) of low back pain and workplace psychosocial and work organization factors stratified by physical exertion level at workb and race/ethnicity (NHIS, 2015).**

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|  | **HAS LOW BACK PAIN** | | | | | | | |
|  | **Physical Exertion at Work** | | | | **Low/No Physical Exertion at Work** | | | |
|  | **Non-Hispanic**  **White** | **Non-Hispanic Black** | **Non-Hispanic Other Race** | **Hispanic** | **Non-Hispanic White** | **Non-Hispanic Black** | **Non-Hispanic Other Race** | **Hispanic** |
| **Workplace psychosocial factors** |  |  |  |  |  |  |  |  |
| High demand | 40.8 (36.4 – 45.0) | 28.3 (21.1 – 36.8) | 50.8 (36.0 – 65.5) | 35.5 (28.3 – 43.4) | 26.8 (22.8 – 31.2) | 20.1 (13.8 – 28.3) | 13.0 (7.1 – 22.7) | 38.6 (28.7 – 49.5) |
| Low demand | 30.8 (29.0 – 32.6) | 26.9 (23.4 – 30.7) | 21.8 (16.6 – 28.0) | 24.5 (22.0 – 27.1) | 21.6 (19.9 – 23.3) | 21.9 (18.2 – 26.2) | 15.6 (12.4 – 19.5) | 21.0 (17.0 – 25.6) |
| Low control | 35.5 (30.6 – 40.6) | 29.1 (22.2 – 37.0) | 27.0 (16.3 – 41.2) | 24.5 (19.6 – 30.2) | 29.3 (23.2 – 36.4) | 28.1 (19.4 – 39.0) | 13.3 (6.3 – 25.9) | 25.0 (17.0 – 35.2) |
| High control | 31.9 (30.1 – 33.7) | 26.6 (23.0 – 30.5) | 23.6 (18.4 – 29.8) | 26.2 (23.5 – 29.1) | 21.9 (20.2 – 23.6) | 20.6 (17.1 – 24.7) | 15.5 (12.3 – 19.4) | 22.8 (18.7 – 27.4) |
| Work-family imbalance | 45.7 (40.5 – 50.9) | 34.4 (25.7 – 44.4) | 35.4 (23.3 – 49.7) | 35.8 (29.0 – 43.3) | 31.9 (26.2 – 38.3) | 26.9 (16.0 – 41.6) | 19.0 (10.3 – 32.5) | 24.4 (16.3 – 34.9) |
| No work-family imbalance | 30.9 (29.1 – 32.7) | 26.2 (22.9 – 29.7) | 22.3 (17.0 – 28.7) | 23.7 (21.3 – 26.3) | 21.5 (19.9 – 23.2) | 21.2 (17.5 – 25.5) | 14.8 (11.8 – 18.5) | 23.2 (19.2 – 27.8) |
| Bullying in the past 12 months | 44.4 (39.1 – 49.9) | 42.2 (28.7 – 57.0) | 62.3 (41.8 – 79.1) | 40.1 (30.4 – 50.6) | 37.3 (29.2 – 46.2) | 36.3 (19.9 – 56.7) | 16.0 (5.4 – 39.1) | 47.0 (31.3 – 63.2) |
| No bullying in the past 12 months | 31.2 (29.4 – 33.0) | 25.7 (22.5 – 29.3) | 21.8 (17.1 – 27.3) | 24.8 (22.3 – 27.5) | 21.7 (20.1 – 23.4) | 20.8 (17.2 – 25.0) | 15.2 (12.2 – 18.9) | 22.1 (18.2 – 26.6) |
| Insecure job | 45.7 (40.5 – 50.9) | 34.4 (25.7 – 44.4) | 35.8 (29.0 – 43.3) | 35.8 (29.0 - 43.3) | 31.9 (26.2 – 38.3) | 26.9 (16.0 – 41.6) | 19.0 (10.3 – 32.5) | 24.4 (16.3 – 34.9) |
| Secure job | 30.9 (29.2 – 32.7) | 26.2 (22.9 – 29.7) | 23.7 (21.3 – 26.3) | 23.7 (21.3 – 26.3) | 21.5 (19.9 – 23.2) | 21.2 (17.5 – 25.5) | 14.8 (11.8 – 18.5) | 23.2 (19.2 – 27.8) |
| **Work organization characteristics** |  |  |  |  |  |  |  |  |
| Nonstandard shift | 35.2 (32.2 – 38.4) | 27.5 (22.7 – 32.8) | 19.3 (12.6 – 28.3) | 23.9 (19.8 – 28.6) | 29.1 (24.2 – 34.5) | 24.3 (17.1 – 33.3) | 13.1 (6.5 – 24.5) | 24.3 (16.9 – 33.6) |
| Regular, daytime shift | 31.3 (29.4 – 33.2) | 26.8 (22.7 – 31.4) | 27.0 (20.9 – 34.2) | 26.6 (23.5 – 29.9) | 21.4 (19.8 – 23.1) | 21.0 (17.1 – 25.7) | 15.6 (12.4 – 19.4 | 23.1 (19.0 – 27.7) |
| Nonstandard work arrangement | 32.3 (28.2 – 36.7) | 32.9 (24.1 – 43.1) | 20.5 (11.7 – 33.4) | 23.5 (18.8 – 28.8) | 24.1 (19.7 – 29.1) | 26.5 (17.7 – 37.6) | 12.3 (6.1 – 23.3) | 22.2 (13.9 – 33.7) |
| Standard work arrangement | 32.5 (30.6 – 34.4) | 26.1 (22.8 – 29.7) | 25.0 (19.5 – 31.4) | 26.4 (23.6 – 29.3) | 22.2 (20.5 – 24.0) | 20.8 (16.9 – 25.4) | 15.8 (12.5 – 19.8) | 23.5 (19.3 – 28.2) |

Abbreviations: CI = Confidence Interval

aAdjusted for sex, education, and age

bPhysical exertion level at work was obtained from the question: How often does your job involve repeated lifting, pushing, pulling, or bending? Physical exertion was defined by answers of sometimes, often, or, always, and low/no physical exertion was defined by answers of seldom or never.