

Obesity continues to be associated with poor Health-Related Quality of Life (HRQoL) during the third year of the COVID-19 Pandemic

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BACKGROUND

- WHO estimates that 1 in 8 adults worldwide are living with obesity (body mass index (BMI) ≥ 30 kg/m²), representing a doubling of figures since 1990
- Obesity is widely believed to be associated with an increased risk of type 2 diabetes, cardiovascular disease, certain cancers, depression, etc.
- However, the psychosocial impact of obesity is also of critical importance. For instance, social stigma and weight-related discrimination may impact mental health.
- Further, this may result in depression, anxiety, disordered eating, body image dissatisfaction – thereby impairing health-related quality of life (HRQoL).

OBJECTIVE

To determine the association of obesity with HRQoL among US adults (age ≥ 18 years) using nationally representative data, in the third year of the COVID-19 pandemic

METHODS

STUDY DESIGN: A cross-sectional analysis of data on adults 18 years and older

DATA SOURCE: 2022 Behavioral Risk Factor Surveillance System (BRFSS), a state-based random-digit-dialed telephone health survey system

STUDY SAMPLE: 296,264 adult respondents representing 156,573,747 (~156.5 million) people in the United States

- **Inclusion criteria:** Participants without missing data on body mass index (BMI) and HRQoL variables

MEASURES:

Independent Variable: BMI categories: Underweight (BMI < 18.5 kg/m²), Normal Weight (18.5 – < 25), Overweight (25 – < 30) and Obese (≥ 30)

Dependent Variable: HRQoL – Validated Centers for Disease Control (CDC) HRQoL-4

- **Poor Physical Health Days** and **Poor Mental Health Days**, categorized as: 1) ≥ 14 days health not good), and 2) < 14 days health not good
- **Activity Limitation**, categorized as: 1) ≥ 14 days physical or mental health not good, and 2) < 14 days physical or mental health health not good
- **HRQoL Composite Index:** a composite index (range 0 to 4) with a cutoff point of > 3 representing poor HRQoL

Other explanatory variables: Age, sex, race, ethnicity, social determinants of health (education, marital status, income, health insurance, employment, and region)

STATISTICAL ANALYSES:

Rao-Scott Chi-square tests and multivariable logistic regression analyses with weights. All analyses were conducted with SAS 9.4 survey procedures.

RESULTS

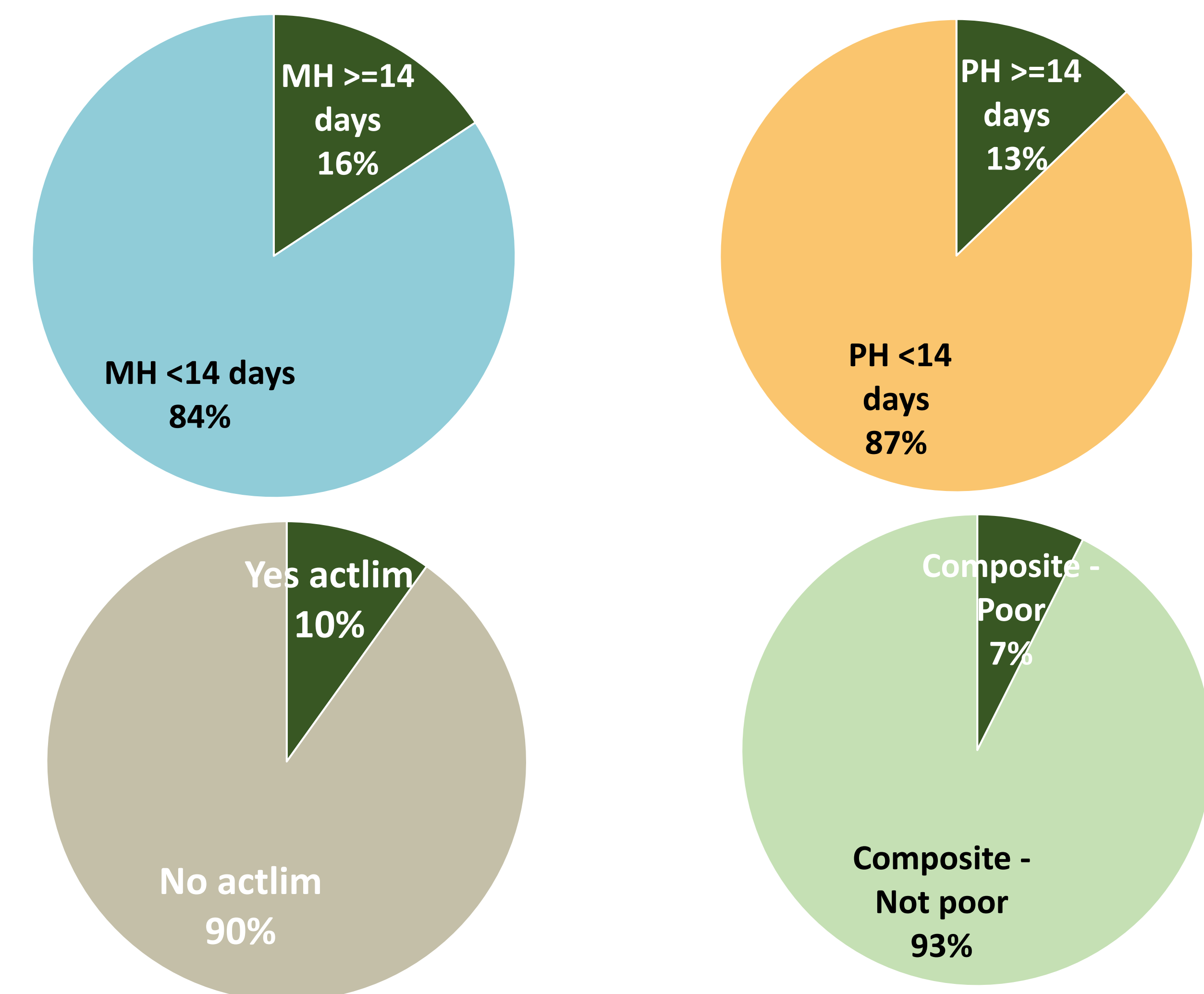


Figure 1
Weighted % of Poor
HRQoL Measures
among Adults
(age ≥ 18 years) in
BRFSS 2022

Figure 2: Adults (age ≥ 18 years) by BMI categories in BRFSS 2022

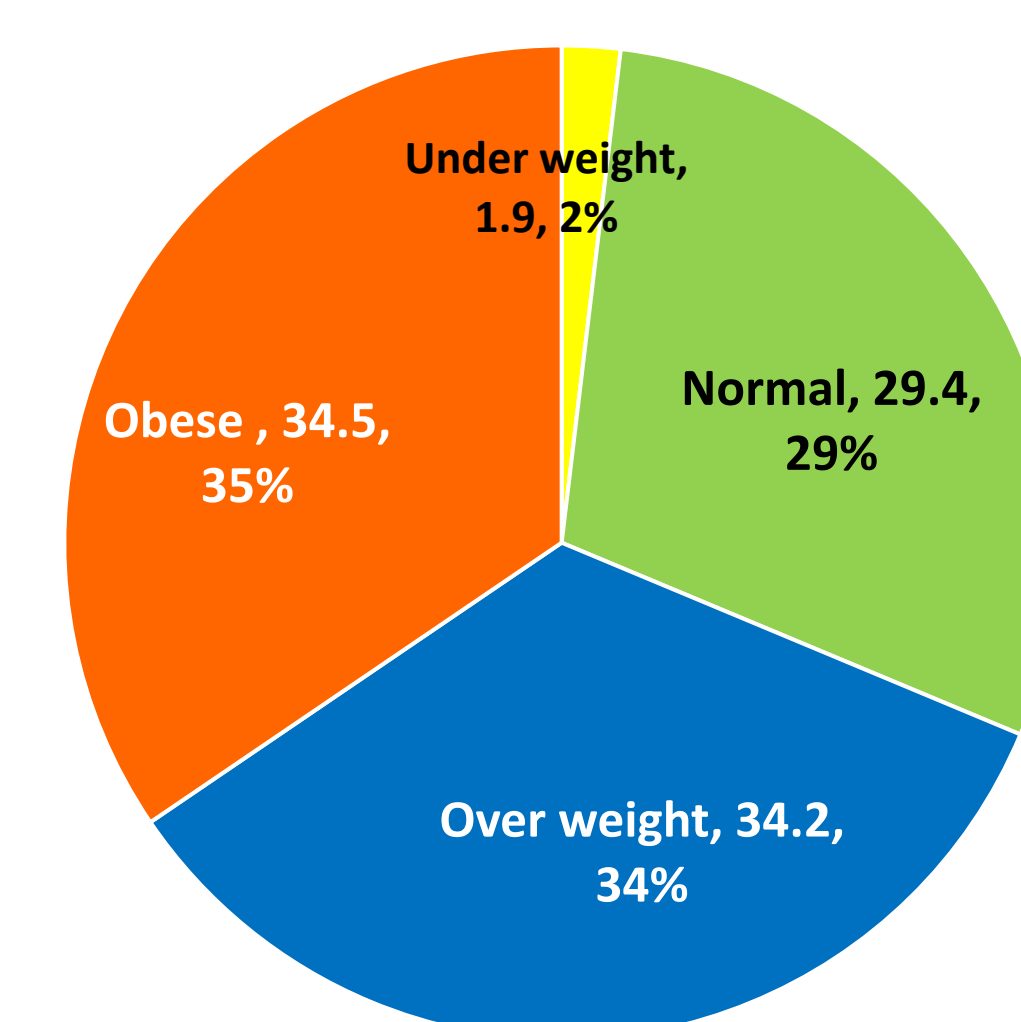


Figure 4: Adjusted Odds Ratios and 95% Confidence Intervals of BMI Categories (reference= Normal BMI) from separate logistic regressions on Poor HRQoL in BRFSS 2022

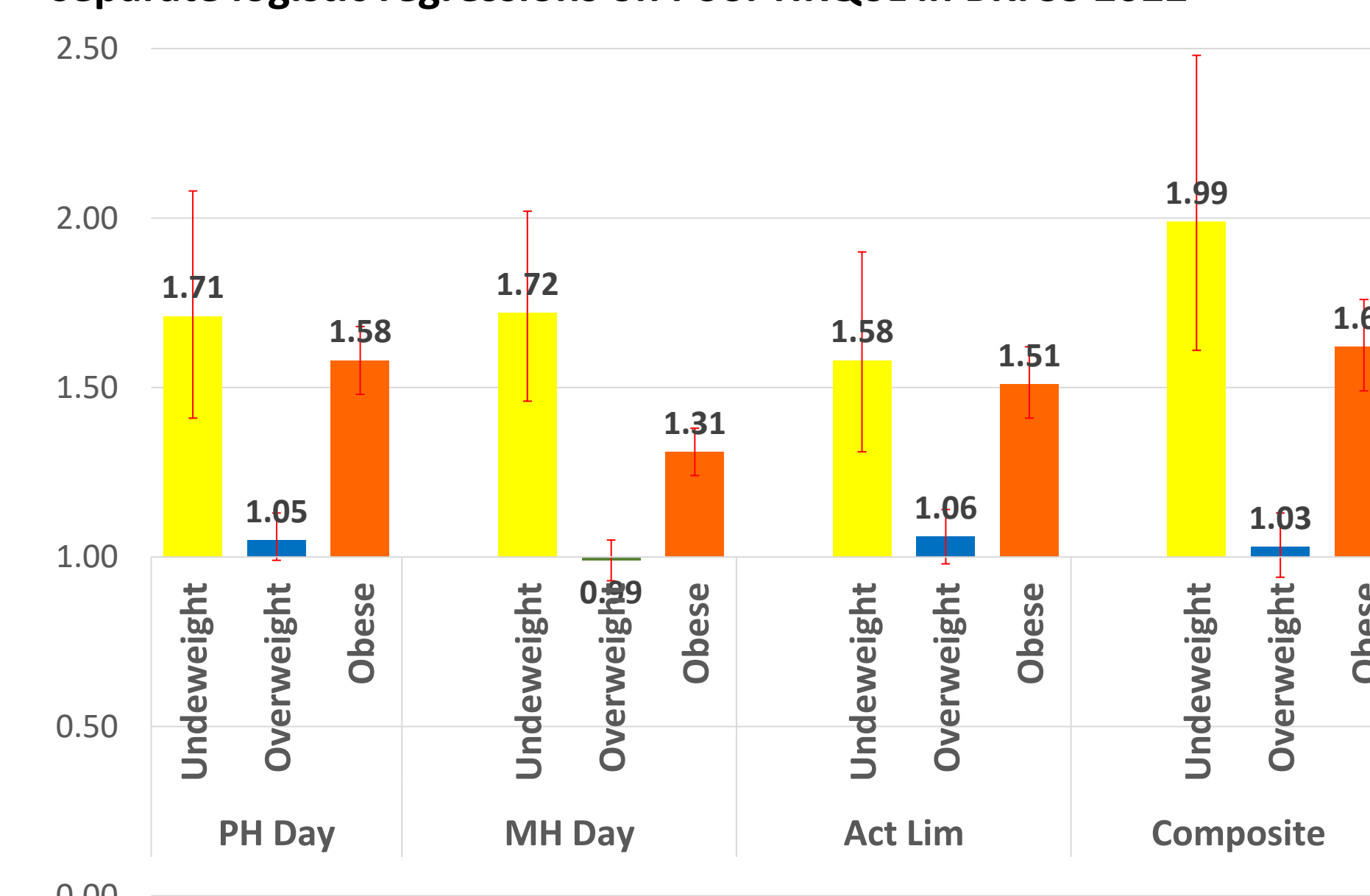
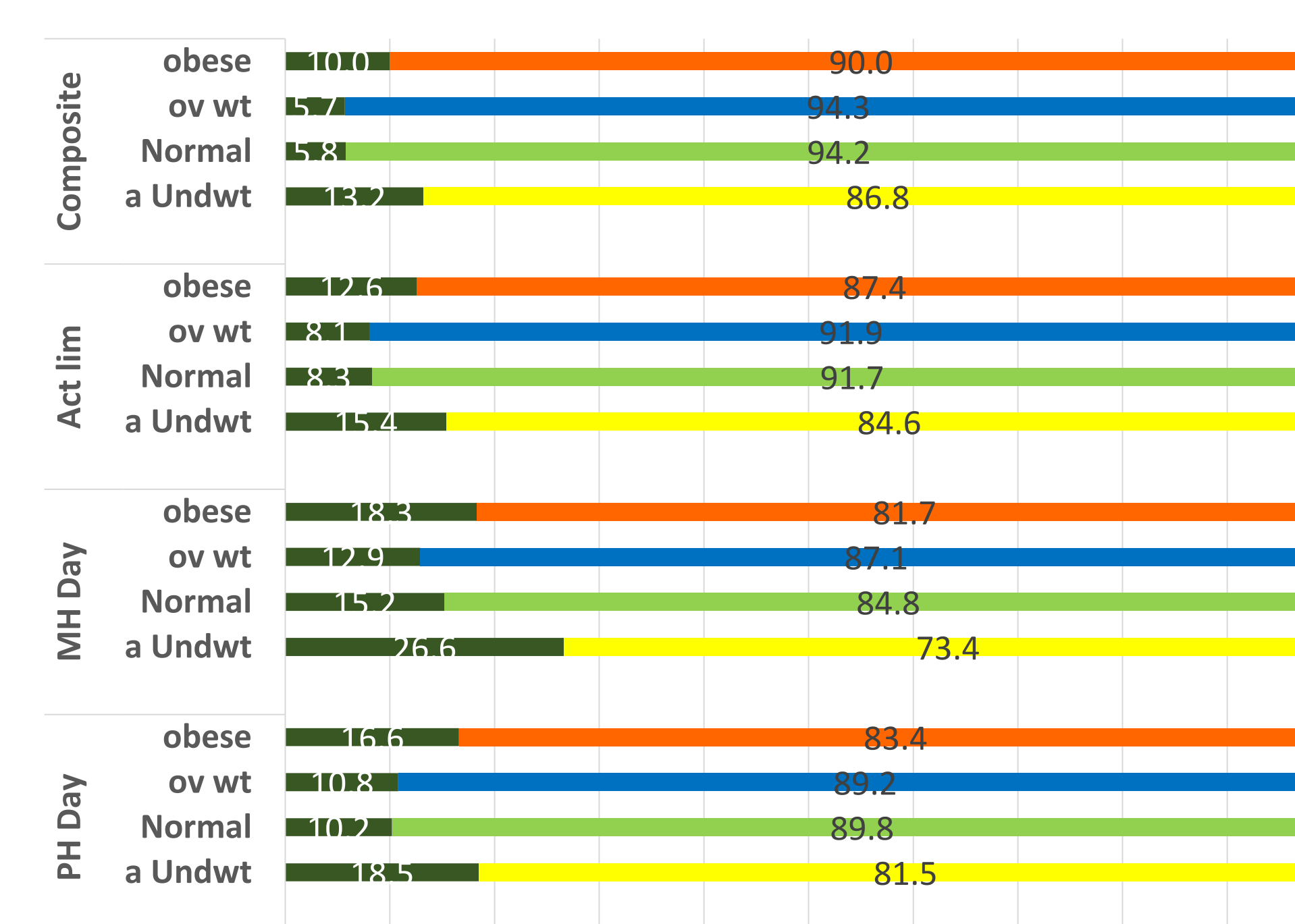


Figure 3: Weighted % Poor HRQoL Measures by BMI Groups in BRFSS 2022



- Adjusted odds ratios and 95% confidence intervals are from separate logistic regressions on Poor Physical Health Days, Poor Mental Health Days, Activity Limitation, and Poor HRQoL Composite Score
- Models adjusted for age, sex, race, ethnicity, and Social Determinants of Health (education, marital status, income, health insurance, employment, and region)

RESULTS (contd.)

- Overall, 34.5% (~54 million) adults were identified as living with obesity
- A majority of all adults reported good health on all domains of HRQoL (Figure 1).
- A higher percentage of adults with obesity reported poor physical health (16.6% vs. 10.2%), mental health (18.3% vs. 15.2%), activity limitations (12.6% vs. 8.3%), and poor HRQoL based on composite index (10.0% vs. 5.8%) – compared to those with normal BMI
- In adjusted analyses, adults with obesity were more likely to report poor physical (aOR = 1.58, 95% CI = 1.48, 1.68) and mental (aOR = 1.31, 95% CI = 1.24, 1.38) health, activity limitations (aOR = 1.51, 95% CI = 1.41, 1.62), and poor HRQoL (aOR = 1.62, 95% CI = 1.49, 1.76) – compared to those with normal BMI
- Adults with below normal BMI were more likely to report poor HRQoL in all domains (see Figure 4)

DISCUSSION / IMPLICATION

- Consistent with scientific literature, obesity continues to be associated with significant impairment in HRQoL
- However, our study adds to the literature by further distinguishing between people with normal and below normal BMI
- As patient-centeredness becomes integral to care, HRQoL assessments can inform comparative effectiveness of interventions to reduce the clinical and economic burden of underweight and obesity

CONCLUSION

- Over 1 in 3 adults in the US are living with obesity, and there is a non-linear relationship between BMI and poor HRQoL
- Obesity and underweight were associated with poor HRQoL on multiple dimensions of the validated CDC HRQoL-4 measure
- Future studies with robust study designs are needed to compare the relationship between BMI categories and poor HRQoL before and after COVID-19

STRENGTHS

- Nationally representative data including diverse populations
- BRFSS is dependable for cross-sectional observations with large samples and validated simple measures (CDC HRQoL-4) generating reliable results
- Study included comprehensive set of explanatory variables for HRQoL

LIMITATIONS

- The study is cross-sectional
- Self-reported data are subject to recall bias
- There may be selection bias because BRFSS is a telephone survey accessible to only those households with at least one cell phone number