

Report: NHANES sample description

Introduction

The NHANES demographic and blood pressure data were obtained for three waves corresponding to years 2015(CDC 2015), 2016(CDC 2016), and 2017(CDC 2017). Data cleaning and manipulation was performed to retain key demographic and blood pressure data. Demographic data included patient age, gender, ethnicity, education level, marital status, family size, and family income. Blood pressure data included up to four systolic and diastolic blood pressure measurements, a computed average systolic blood pressure value, and stage of hypertension as per clinical cutoffs. The final dataset for analysis excluded observations of individuals with missing average systolic blood pressure measurements, age, or gender data. This report presents a description of the final NHANES data set used for analysis.

Sample size

Sample sizes across waves are summarised in *Table 1*. The 2015 survey had the highest number of respondents (7,528 individuals) with sufficient data of interest. Number of respondents decreased in subsequent waves, with 2017 recording the lowest number of respondents.

Table 1: Number of respondents by wave

Wave	Sample size
2015	7528
2016	7363
2017	6713

Gender distribution

The number and percentage of female and male respondents corresponding to each wave within the analysed data set is presented in *Table 2*. The percentage of males (highlighted) was slightly less than that of females across all waves, and remained pretty consistent around 48.6 - 49.0%.

Table 2: Gender distribution of respondents by wave

Wave	Total	Female		Male	
	n	n	%	n	%
2015	7528	3873	51.4	3655	48.6
2016	7363	3764	51.1	3599	48.9
2017	6713	3424	51.0	3289	49.0

n: Sample size

Ethnicity distribution

In terms of race/ethnicity composition, across waves, White individuals generally comprised the highest percentage of the respondents (31.6% to 38.2% across waves), followed by individuals identifying as Black, Mexican, Asian, and Other Hispanic. Category of races other than these generally comprised the minority (between 3.8% - 6.4%).

Table 3: Ethnicity distribution of respondents by wave

Wave	White		Black		Mexican		Asian		Other Hispanic		Other Races	
	n	%	n	%	n	%	n	%	n	%	n	%
2015	2878	38.2	1648	21.9	1205	16.0	822	10.9	692	9.2	283	3.8
2016	2325	31.6	1584	21.5	1371	18.6	804	10.9	963	13.1	316	4.3
2017	2244	33.4	1578	23.5	977	14.6	892	13.3	590	8.8	432	6.4

n: Sample size

Average SBP

Table 4 provides the summary statistics of average systolic blood pressure (SBP) across the three waves. Of note, the mean, median, and maximum values of average SBP increased through waves, with the 2017 survey reporting the highest mean and median values of average SBP. While the mean average SBP had already crossed into the elevated blood pressure category in 2016 by a small margin (considering 120 mmHg as the cutoff), the latest value clearly places the mean average SBP in the elevated blood pressure category. This persistent upward trend of mean and median SBP values highlights a potential concern.

Table 4: Summary statistics of average SBP

Wave	Average Systolic Blood Pressure (mmmHg)			
	Mean (SD)	Median	Minimum	Maximum
2015	118.3 (18.1)	115.3	64.7	228.7
2016	120.4 (18.4)	117.3	74.0	231.3
2017	121.7 (20.3)	118.0	72.7	234.0

SD: Standard deviation

- CDC. 2015. "National Health and Nutrition Examination Survey Data." Hyattsville, MD: Department of Health; Human Services, Centers for Disease Control; Prevention.
- . 2016. "National Health and Nutrition Examination Survey Data." Hyattsville, MD: Department of Health; Human Services, Centers for Disease Control; Prevention.
- . 2017. "National Health and Nutrition Examination Survey Data." Hyattsville, MD: Department of Health; Human Services, Centers for Disease Control; Prevention.