An analysis of birth weights

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Introduction

We analysed the birth weight of 189 newborns recorded in the Baystate Medical Center, Springfield, Mass during 1986, and its associations with demographic characteristics of mothers.

Methods

Data are summarized as mean (SD) and n (%) as appropriate. For comparisons between groups the t-test and chi-square test with Yate's continuity correction were used, for quantitative and categorical variables respectively. All tests were two-sided, and a result was declared statistically significant if $p < 0.05$. The analysis was done with the R language (version 4.2.1).

Results

Table 1 shows a descriptive analysis by smoking status of mothers during pregnancy.

Table 1: Descriptive analysis by smoking status

	smoker N=74	non-smoker N=115
Birth weight (grams)	2772 (660)	3056 (753)
Birth weight, categorized:		
low	30 (40.5%)	29 (25.2%)
normal	44 (59.5%)	86 (74.8%)
Race:		
white	52 (70.3%)	44 (38.3%)
black	10 (13.5%)	16 (13.9%)
other	12 (16.2%)	55 (47.8%)
Arterial hypertension	5 (6.76%)	7 (6.09%)
Uterine irritability	13 (17.6%)	15 (13.0%)

Birth weights ranged from 709 to 4990 grams, with mean (SD) of 2945 (729) grams. The histogram of birth weights with overlapped density, shows a bell-shaped and quite symmetrical distribution (figure 1).

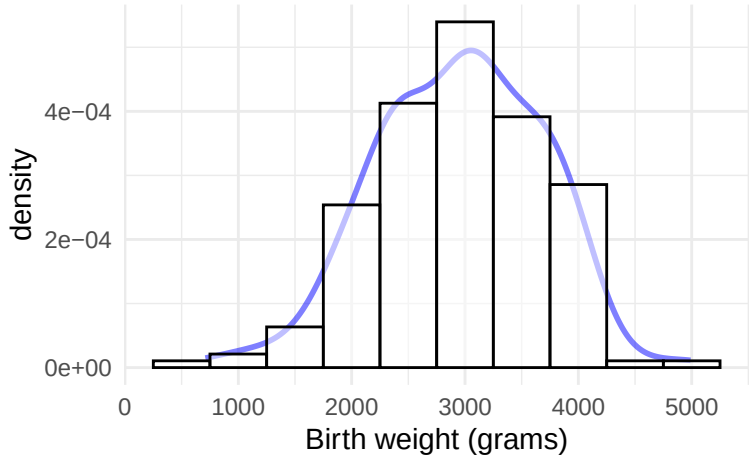

Figure 1: Histogram and density of birth weights

Figure 2 shows the boxplots of birth weights in smoking and non-smoking mothers. A shift to lower values is apparent in smoking mothers.

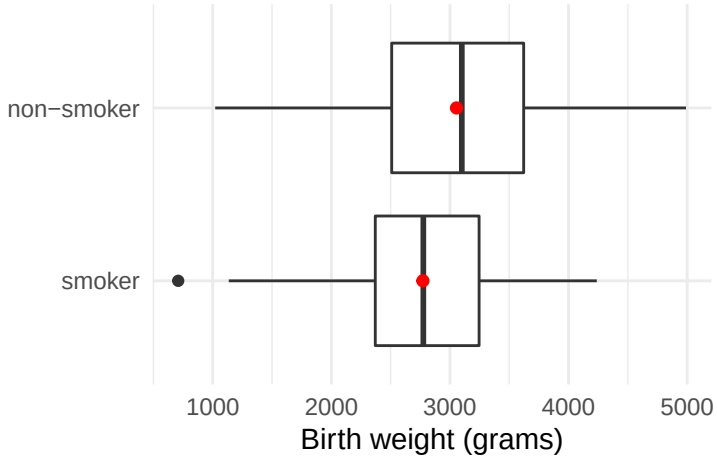

Figure 2: Birth weight according to smoking satus of mothers during pregnancy

Birth weights tended to be lower in smoking mothers than in non-smoking mothers (t-test p = 0.007), with a mean difference of -284 [95% CI: -489, -79] grams.