

4th International Conference and Exhibition on **Biometrics & Biostatistics**

November 16-18, 2015 San Antonio, USA

Increasing obesity rates among adolescents in the State of Massachusetts

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Increasing obesity rates among adolescents in the State of Massachusetts are of concern to public-health professionals. High bullying rates may contribute to obesity. Guided by Maslow's safety component and Bandura's social-cognitive theory, this study investigated a relationship between hours spent television watching, bullying, and meeting physical-activity guidelines among Massachusetts adolescents. The association between the dependent variable (physical inactivity) and the independent variables (hours spent watching television and bullying) was explored using data from the 2009 Massachusetts Youth Risk Behavior Survey. Participants were 2,601 Massachusetts adolescents aged 13 to 18. Statistical analysis included chi-square, the Kruskal-Wallis Test, Mann-Whitney U, and Spearman correlation. Results revealed a significant negative correlation between television watching and physical activity, suggesting that the more hours students spent watching television, the less active they tended to be. The Kruskal-Wallis test showed a significant difference in hours of television watching by level of physical activity. To determine where the statistical differences lay, 3 pair-wise Mann-Whitney U tests were conducted; 2 were shown to be statistically significant. Physical activity and bullying were significantly associated. The results of the Mann-Whitney U test were significant, indicating that levels of activity for students who were not bullied were higher than those for students who were bullied. The social-change potential of this study is a better understanding of the relationship between bullying and physical inactivity among public health professionals in an increased effort to remove barriers to physical inactivity, help limit bullying, and increase health and welfare of adolescents.

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A pattern-mixture model with non-future dependence and shift in current missing values

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In clinical trials, missing data is often present due to various reasons. A pattern-mixture model was studied for inference of treatment effect at the final time point. Missing values were assumed to be monotonic and only depended on observed data and the current missing value. The conditional distribution of the current missing value differs from that of the observed value by location and scale shifts. The shift parameters measure the departure from the missing at random mechanism. Multiple imputations were used and the usual multiple imputation variance estimator is shown to be valid for the overall mean estimate at the final time point when only location shifts are considered. Application to a real clinical study will be discussed.

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