

ABSTRACT OF THESIS

BUILDING A STATISTICAL MODEL TO EXPLAIN LOW BIRTH WEIGHT IN WYOMING

Low Birth Weight (LBW), a birth weight of less than 2500 grams, is an important public health problem because LBW infants are at greater risk for death and disabilities and LBW births are associated with substantial costs. The rate of LBW in Wyoming consistently ranks high among U.S. states, and Wyoming is one of three U.S. states with the highest percentage of LBW births among whites.

In this study, a statistical model was built to determine which variables and which multiplicative interactions are important in explaining LBW in Wyoming. The model was based on 29,922 birth certificates for births to Wyoming residents from 1998 to 2002. Goodness of fit was tested and the ability of the model to correctly predict normal and LBW births was assessed.

The risk of having a LBW birth was increased for women who had a short interpregnancy interval or no previous birth, were unmarried, had a high school education or less, were Black or Asian, had a medical risk factor during her pregnancy, lived in an urban area or had one or more previous terminations of a pregnancy. The risk of LBW was also increased for women who lived at high altitudes and had a low pregnancy weight gain, were under the age of 20 and had a low pregnancy weight gain, and women who were smokers and had a normal to high pregnancy weight gain, increasing with increased cigarette consumption.

While the model performed very well in detecting normal birth weight births, its ability to detect LBW births was poor. This model laid the groundwork for future LBW research and will be used by the Wyoming Department of Health and other agencies as a baseline for future models. These models will assist in providing appropriate, targeted interventions to reduce the rate of LBW in Wyoming.

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