

ABSTRACT

Contraception allows women and couples to have the number of children they want, when they want them. This is everybody's right according to the United Nations Declaration of Human Rights. Use of Contraceptive also reduces the need for abortion by preventing unwanted pregnancies. It therefore reduces cases of unsafe abortion, one of the leading causes of maternal death worldwide. According to Mohammed ,in 2012 an estimated 464,000 induced abortions occurred in Kenya. This translates into an abortion rate of 48 per 1,000 women aged 15 - 49, and an abortion ratio of 30 per 100 live births. About 120,000 women received care for complications of induced abortion in health facilities. About half (49%) of all pregnancies in Kenya were unintended and 41% of unintended pregnancies ended in an abortion.

The use of contraceptives in Kenya still remains a big challenge despite the presence of family planning programs through the government and other stake holders. In 2014 a household based cross-sectional study was conducted by Kenya National Bureau of Statistics on women of reproductive age to determine the country's Contraceptive Prevalence Rate and Total Fertility Rate. This dataset is used to exemplify all aspects of working with multilevel logistic regression models, comparison between different estimates and investigation of the selected determinants of contraceptive usage using statistical software, since large surveys in demography and sociology often follow a hierarchical data structure. The appropriate approach to analyzing such survey data is therefore based on nested sources of variability which come from different levels of the hierarchy. When the variance of the residual errors is correlated between individual observations as a result of these nested structures, traditional logistic regression is inappropriate. These analysis showed that different regions have different effects that affect their contraception prevalence. The study also clearly revealed how single level modeling overestimates or underestimates the parameters in study and also helped to bring to understanding of the structure of required multilevel data and estimation of the model via the statistical package R 3.4.1.