1161-62-116   **Nonhle C Mdziniso*** (`nmdziniso@bloomu.edu`), Bloomsburg University, 400 E. Second St., Bloomsburg, PA 17815, and **Kahadawala Cooray** (`coora1k@cmich.edu`), Central Michigan University, Mount Pleasant, MI 48858. *Parametric Analysis of Renal Failure Data using the Exponentiated Odd Weibull Distribution.*

In this work, we analyze renal failure data from patients with mesangioproliferative glomerulonephritis (MPGN) which was modeled by Vikse et al. (2002) non-parametrically using the Kaplan-Meier curve. In their work, they showed that clinical variables were part of the variables which indicated progression to end-stage renal failure (ESRF). Though survival curves associated with these variables may be difficult to model by existing parametric distributions in literature. Therefore, we introduce a four-parameter Odd Weibull extension, the exponentiated Odd Weibull (EOW) distribution which is very versatile in modeling lifetime data that its hazard function exhibits ten different hazard shapes as well as various density shapes. Basic properties of the EOW distribution are presented. In the presence of random censoring, a small simulation study is conducted to assess the coverage probabilities of the estimated parameters of the EOW distribution using the maximum likelihood method. Our results show that the EOW distribution is very convenient and reliable to analyze the MPGN data since it provides an excellent fit for the clinical variables. Furthermore, advantages of using the EOW distribution over the Kaplan-Meier curve are discussed. (Received August 13, 2020)