Retracted: A Mechanistic Model for Predicting Accident Potential of Vehicles Transiting in Nigerian Roads

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Authors’ contributions

This work was carried out in collaboration among all authors. Author AA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript and managed the literature searches. Authors NC and NB managed the analyses of the study, literature searches and improved the final manuscript. All authors read and approved the final manuscript.

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ABSTRACT

An accident prediction model was developed for determining the accident potential of a vehicle while on transit. The model identifies the various factors responsible for vehicle crashes. With the help of accident data obtained from the database of the Nigerian Federal Road Safety Corps (FRSC), the percentage contribution of each factor is calculated. These accident-cause factors were further grouped into three distinct classes: Human factors (HF), Mechanical factors (MF) and Environmental factors (EF). Analysis of the accident data showed that HF is the chief cause of most road accidents recorded, followed by MF and EF with probabilities of 0.846, 0.138 and 0.016 respectively. Also, driver age, travel distance and maintenance frequency of the vehicle were considered in the development of the model. The model gives an output ranging from 0-1. Values close to 0 mean low accident probability while values close to 1 signify high accident probability. Application and adherence to this model will significantly reduce the frequency of road accidents. Finally, transport companies and fleet operators are therefore encouraged to embrace and use this innovation for safer operations.