**Summary:** The paper investigates “Is heat wave a predictor of diarrhoea in Dhaka, Bangladesh? A time-series analysis in a South Asian tropical monsoon climate”.  A significant concern for public health in Bangladesh is the impact of heat waves, with various factors influencing health effects, including biological, medical, environmental, social, and geographical elements. These factors encompass individual susceptibility, disease prevalence, healthcare infrastructure, and the status of the health system. The potential future implications of heat waves on the incidence of diarrhoeal diseases in Bangladesh are particularly worrisome. The unique focus of this study is to assess how heat waves influence hospitalizations due to diarrhoea in Dhaka. The paper's distinctive contribution lies in its application of this investigation to extensive historical data and the subsequent conclusions drawn. However, the majority of references in the paper are outdated, and it is recommended that the authors cite more recent reports and accessible statistics. A critical aspect that requires attention is the need for thorough proofreading by a professional or expert. The current level of academic writing is not optimal, with several grammatical errors hindering the clarity of claims and arguments. Furthermore, the authors should remove any similarities present in the work. Additionally, there are inaccuracies in the interpretation of statistical results throughout the paper that need correction.

Below are some comments with more information:  
  
**Abstract**  
  
Several numeric values from the abstract are not referenced in the results section; please verify this. Additionally, the abstract lacks a conclusion; kindly provide a conclusion, comprising 1-2 lines, instead of a recommendation.

**Introduction**  
  
Page 5, line 59: “the potential impact of heat wave on the incidence of diarrhoeal disease in the future could be concerning for Bangladesh” Please provide supporting evidence of this statement in the manuscript.  
  
Page 5, lines 92-93: “the impacts of heat waves on diarrhoea are likely to be considerably higher in Dhaka.” Please provide supporting evidence of this statement in the manuscript.

Page 4, lines 33-34: “Given that many of the South Asian cities including Dhaka do not currently have a clearly agreed heat wave definition” Kindly substantiate this statement with supporting evidence. While acknowledging the absence of a universal definition, it is evident that certain organizations and articles offer clear definitions of heat waves. Please review those articles for reference. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8414451/>

<https://doi.org/10.1007/s10584-023-03592-3>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5462497/>

Incorporate statistical findings or numerical values pertaining to both heat waves and diarrhea into the introduction section, please.  
  
**Data and methodology**  
  
Page 7 lines 127-129: “We collected data on daily climate parameters including the ambient, maximum, minimum temperature, cumulative rainfall, and relative humidity for Dhaka City from the Bangladesh Meteorological Department (BMD)…….” Please provide an explanation for the units of the parameters.

Page 8 lines 133-135: “In the absence of an acceptable and agreed definition of heat wave for Dhaka, Bangladesh, 16 indices of heat wave were calculated for Dhaka by incorporating the conditions known to affect thermal stress including day and night time temperature and duration and based on available data and resources (11)”. The line is perplexing in conjunction with the citation. It lacks clarity on the rationale behind using this particular citation, especially considering that the cited reports discuss various indices. Please clarify which specific index is utilized for this study and provide justification for its relevance to Dhaka.

It appears that the definition you utilized is already established in a manuscript relevant to Bangladesh, as cited in (https://journals.ametsoc.org/view/journals/apme/56/10/jamc-d-17-0035.1.xml). Please reference this citation when providing an explanation for your chosen definition.

In Table 1, are the "minimum duration" days suggested or defined? Certain definitions characterize heat waves as a sequence of 3-5 consecutive days with high temperatures. Please provide clarification on this matter within the methods section.

Page 8 lines 145-148: “Any missing data on the climate or health parameters were replaced by the by the respective month’s average value for the parameter. Using established methods, each data series were checked for stationarity, autocorrelation, long-term trends, seasonality, possible outliers, normality, homoscedasticity and volatility (22-24)”. Kindly incorporate those into supplementary files.

Prior to the paragraph on regression modeling, kindly explain the dependent and independent variables along with their respective categories. Subsequently, provide an explanation for the choice of the negative binomial time series regression model.

Page 8 lines 166-169: “As a result, the heat wave models were adjusted for heavy rainfall and humidity was not included in the models. Heavy rainfall (defined as the rainfall above the 95th percentile for the study period) was included as a categorical variable.” In the model equation, the presence of heavy rain requires clarification; kindly elucidate the rationale behind this inclusion.

Page 9 lines 175-179: “Ultimately, a constrained distributed lag linear model (DLLM) was used to investigate the effects of heat waves on diarrhoea after adjusting for the potential confounding effects of other meteorological factors, long-term trend, seasonality, day-of-the-week effect and autocorrelation.” Therefore, you employed two models to explain the associations. If this is accurate, kindly provide an explanation for the utilization of two models and specify in which table the results for each model can be found.

Please provide some references for equations 1 and 2.

Page 10-11, line 197-199: “Multiple sensitivity analyses by changing the amount of control for seasonality and long-term trend, including relative humidity as a linear term and heavy rainfall as a categorical variable without any lagged effects were carried out to check if the main findings were robust to changes in key assumptions.” Kindly incorporate those into supplementary files.

**Results**

In the methodology section, kindly elaborate on the execution of two models—one encompassing all age groups and another focusing on those under five years old.

Additionally, provide clarification on the minimum duration of consecutive days utilized to elucidate the number of heat-wave events in Table 2.

Furthermore, the methods section provides more details on the calculation of results presented in Table 4, specifically regarding the methodology for determining confidence intervals and P-values.

Lastly, Table 5, assesses the multicollinearity of the model, considering the usage of similar types of data with different lags. It is advisable to thoroughly examine and address any potential issues related to multicollinearity.

**Discussion**

The references employed by the authors to identify similar studies appear inconsistent, showing limited reliance on Bangladeshi papers and mostly unrelated to the study topic (heat waves). It is recommended to revise and rephrase the entire discussion section in relation to the study results, incorporating more relevant references.