

Review Form 1.7

Journal Name:	Asian Journal of Research in Medical and Pharmaceutical Sciences
Manuscript Number:	Original Manuscript_AJRIMPS_117744
Title of the Manuscript:	Early Breast Cancer Prediction Using Machine Learning Algorithm
Type of the Article	Original Research Article

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Compulsory REVISION comments</p> <ol style="list-style-type: none"> 1. Is the manuscript important for scientific community? (Please write few sentences on this manuscript) 2. Is the title of the article suitable? (If not please suggest an alternative title) 3. Is the abstract of the article comprehensive? 4. Are subsections and structure of the manuscript appropriate? 5. Do you think the manuscript is scientifically correct? 6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form. <p>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</p>	<ol style="list-style-type: none"> 1. The topic is of interest. However, the manuscript in its present form is of minor importance for the scientific community 2. The title is not suitable. 3. The results are not presented in the abstract. 4. "Results and Discussion" is rather short compared to the other sections. 5. The conclusions are not scientifically correct. 6. The references are appropriate. 	
<p>Minor REVISION comments</p> <ol style="list-style-type: none"> 1. Is language/English quality of the article suitable for scholarly communications? 	<p>There are some minor language issues.</p>	
<p>Optional/General comments</p>	<p>The authors present an analysis of published data derived from digitized images of fine needle aspirates (FNA) obtained from suspected breast cancer patients (WDBC-dataset). The goal of this study was to establish a "predictive model for early detection of breast cancer." Four different machine learning algorithms were used to predict the diagnosis of benign or malignant cells based on the published data set. The analysis showed that SVM provided the best accuracy among the four methods. The authors concluded that machine learning methods achieve remarkably high levels of accuracy and are potentially adaptable to various mammography platforms.</p> <p>Major comments The authors claim that their results contribute to the earlier detection of breast cancer and are potentially adaptable to various mammography platforms. The data do not support these conclusions. In fact, the machine learning algorithms were used to establish the histological diagnosis (benign or malignant) of fine needle aspirates. This does not lead to an earlier diagnosis of breast cancer, nor does it have any association with mammography platforms. It may potentially reduce the time it takes for the pathologist to examine the FNA specimen and enhance the accuracy of the histological diagnosis within a given timeframe. An earlier execution of a FNA or biopsy would instead enable earlier detection of breast cancer. However, the machine learning methods were not used to select candidates for an earlier execution of FNAs or biopsies but rather to enhance the results of the examined FNAs.</p> <p>Furthermore, all four compared machine learning algorithms showed an accuracy of greater than 90%. It is unclear how clinically important the relatively small differences in accuracy are. One measure to assess the clinical importance may be the predictive value of the results. The predictive value was not calculated in this manuscript.</p> <p>As the authors correctly state, the training set and the testing set should be independent.</p>	

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	<p>However, the authors use the same data set for both ("We have used 80% of our data for training and 20% for testing").</p> <p>Minor comments Several statements about breast cancer lack precision or include missing references. For instance:</p> <p>"Breast cancer is one of the most prevalent and fatal forms of cancer in India." Please provide a reference stating that breast cancer is one of the most fatal forms of cancer in India.</p> <p>"...almost 685,000 deaths from breast cancer worldwide." Per year?</p> <p>"It is not possible to prevent breast cancer..."; There are prophylactic measures available.</p> <p>"Breast cancer is the most prevalent form of cancer." In women?</p> <p>"While breast cancer rates are higher among women in more developed regions, rates are increasing in nearly every region globally." Please provide references.</p> <p>"The main problem with this disease is that there is no proper machine that can diagnose it at an early stage." There is US, MRI, PET/CT; what exactly do you mean?</p> <p>"The lack of prognosis models results..." Prognostic models for breast cancer are available.</p> <p>No details of the analysis were presented. It may be of interest what factors were the most important for the histological diagnosis.</p> <p>One minor suggestion: Receiver operating characteristic (ROC) curves are often used for diagnostic methods comparison.</p>	
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PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

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