Curalgia: A Novel Deep-Learning Based Framework for the Risk Assessment of Differentially Diagnosed Disease Such as Fibromyalgia

Pandey, Sneha (School: Bharatiya Vidya Bhavan's R.K. Sarda Vidya Mandir)
Prajapati, Vineet (School: Bharatiya Vidya Bhavan's R.K. Sarda Vidya Mandir)

With a prevalence of 2-8% of the world population, the insidious disease Fibromyalgia(FM) posses a threat. Fibromyalgia is a chronic-pain disorder characterized by widespread musculoskeletal pain. In later stages it can cause cognitive-issues and Suicides. This wretched-disease has plagued humanity with its differential diagnosis or exclusion detection. The mere mention of its conventional diagnosis gets its cons due to the lack of adequate clinical aetiology. Reckoning to the loopholes, risk assessment at an early-stage stands proficient for early-diagnosis and point-of-care treatment. To embrace such a solution Curalgia serves as a risk-assessment tool-kit of Fibromyalgia. We have developed a Framework that utilizes patient-data to identify the risk factors and hence create a Risk-Assessment algorithm using a Web-application. For the feature selection we have used Correlation Matrix by Pearson CorrCoef. Then the Relative Risk-RR values is calculated using a 2x2 matrix for curating a risk-assessment algorithm. A web-application is used for this purpose. The input- variables are first used for disease prediction using a deep-learning model and if the result=True then the Web-App calculates the risk of the user using the same input-variables and display it on the results page along with lifestyle changes. This solution will add to the clinical aetiology of the disease and serve as a indigenous tool-kit to determine the onset of Fibromyalgia on a person. Speaking of its future applications it has the potential to correctly identify and predict the onset of various pain-associated invisible disease using our novel computational-pipeline.

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