Project on Transparant Diseases

Goal:

Motivated by preliminary patient data gathered from women's support groups, we intend to conduct retrospective studies of data gathered from patient records in the health care system. We will develop prototype analytical tools based on natural language processing and machine learning to identify symptoms, diagnoses, and potential contributing factors and possible misdiagnoses of a set of "transparent" female ailments characterized by symptoms including neoplastic pain. These diseases include Fibromyalgia, Interstitial Cystitis, Chronic Fatigue Syndrome and others. The goal is to reduce the incidence of delayed diagnosis, identify contributing factors to disease incidence, and identify effective treatment regimes.

Method:

The main assumption is that the automated analysis of large numbers of patient records written by medically trained personnel will yield insights through factor analysis, data clustering, and association patterns into the diagnosis, treatment, and even prevention of rare diseases in the adult female population. We intend to analyze all patient records of adult females presenting with neoplastic pain or diagnosed with one of five ailments (Fibromyalgia, Interstitial Cystitis, CFS, POTS, and Ehlers-Dangloss Syndrome). We will focus on written accounts of the patient visit and apply natural language processing techniques to identify common symptoms and demographic factors associated with the diseases and with patients who were possibly misdiagnosed. We will apply similar techniques to the treatment regimes and their success indicators to find associations between population sectors and successful treatment regimes. We will also look at possible preventive measures if the data allows this.

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