Predictive Analytics of Emotional Intelligence in Women Suffering with Breast Cancer

V Kakulapati, B.S.S. Deepthi, S. Mahender Reddy

Abstract: Now a day's women suffer with Breast cancer due to depression and anxiety result in life threat which is second place in various types of cancers. The goal of this study is to investigate the association between resilience and cognitive sentiment analysis and mental health of the woman who suffered by breast cancer. Develop a statistical model by utilizing the multiple regressions for predicting breast cancer patients, which involves the least square's inference problem to approximation the parameters. The implementation results exhibit significant association between refusal resilience and cognitive sentiment analysis and mental health of breast cancer patients. Also, predicting obsessive rumination of breast cancer patients and their sentiment analysis is the preeminent refusal for the healthiness of the model.

Index Terms: statistical model; Negation resilience; cognitive emotion; obsessive rumination; cancer.

I. INTRODUCTION

Conferring to the survey's women is prone to cancer, which is the second popular among different cancer types of cancer. According to the recent survey most of the women are suffering by the breast cancer, which is the most recurrent and dangerous threat to a woman's life [1]. Primarily, Breast cancer patients experience depression and anxiety [2], which are an implication resulting sickness, physiological aspects or medicinal healings. Among cancers, it is the most prevalent cancer in women and the widespread origin of death for women lying in the range of 40 to 44 years. Psychological disorders observed in breast cancer patients with psychological, physical, social-emotional, cognitive problems and their respective assortment will continue when coping strategies such as safeguarding the causes of conflict that these disorders affect the patient's self-esteem and increase negative information about themselves and encounter patients with several disparate problems [3].

In general, chronic pain in patients comes with depression, interpersonal distress, sleep disturbance, fatigue, emotional problems, cognitive, and physical and reduced psychological functions. The depression is the common most traits in Women suffering from Breast Cancer, the incompatibility of functional flexibility (resiliency), social stress and family environment. Emotional intelligence (EI) packs the most important aspects being perception, processing, regulation and management of emotions [4, 5]. One such personal characteristic stands out to be EI and is referred to a greater extent in medicine, nursing and other healthcare professions [6]. EI is a more crucial component to cure and the effective observing of breast cancer patient with respect to health care providers.

Sentiment plays a major role mainly in women patients who suffered with breast cancer which has more attention with respect to personal behaviour. Feeling is gaining more attention in physiological and behavioral the hypothesis [7]. Emotional attachment towards any personal behavior is not at all possible to separate from task activities [8].

A number of statistical techniques are enclosed in Predictive analytics, such as machine learning, predictive modeling and data mining that help one to analyse historical and current facts to give predictions regarding the future or events whose outcome are unknown. The intention of our study is to analyse the association between cognitive sentiment analysis and their ability to cope with obsessive rumination of women suffering from breast cancer.

Possible recommendations can be given for women suffering from breast cancer so that they can manipulate their psychological behavior in a positive manner which will be helpful in overcoming the disease effects. Not only can the severity of the disease be framed for the increased mortality rate in patients but also because of their negative emotions and obsessive rumination that comes as a side effect. Along with the medical treatment they should also be given the psychological treatment to overcome the disease.

II. RELATED WORKS

Regression analysis predicts the quality of life [9] which reveals that self-regulation 0.18 of the inconsistency in functional, symptoms 0.26, and variance in the general health 0.37. A massive collection of thoughts that has repetitive aspect and focuses on the origins and significance and prevents signs and depression thoughts and increases the adaptive solution [10] can be termed as Obsessive rumination. Obsessive rumination can be the foundation of the patient and includes ideas that are reviewed endlessly and despair about the future and the negative assessment of oneself affect the people and the patient's motivation [11].

Patients diagnosed with breast cancer due to deaths have obsessive rumination disease and often lack the resiliency and
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flexibility, and control of disease problems that are usually less severe and they do not have control over their lives or their fate is out of control [12].

The biggest turmoil in one’s life is a woman acquires diagnosis with breast cancer, which is the primary reason induction with psychological distress observed in the patient. Extensive studies have shown that varying levels of depressive symptoms [13] are depicted by the body language of patients diagnosed with breast cancer. Observing patients with this kind of cancer report depressive symptoms after post-surgery with the percentage of 5 to 15, which can increase when screening the more patients [14]. After analysis and conduct healing breast cancer patients continuously, significant clinical depression [15] is still observed among patients. Other serious consequences can be observed other than physiological disorders [16], cognitive emotions lead to such a drastic increase in mortality in patients with breast cancer [17]. Many researchers described that the breast cancer patient’s individual control is related inferior distress [18], with this inner control can predict the inferior intensity of distress more effective coping.

The analysis of breast cancer in women varies according to the race. The aim of this study is to create awareness regarding breast cancer which women were and are suffering all over the world and also this present study focuses on the women who were considered as a victim through diagnosis and help them follow the particular measures based on their symptoms. The emphasis for make the women strong to overcome the disease.

III. METHODOLOGY

Predictions are executing by consider emotions and sentiments of women suffering by breast cancer. The research plan is co-relational. In this work utilized multiple regressions to analyze these results which show the relationship between the negation resilience, cognitive emotion and the obsessive ruminations of women with breast cancer. The data is classified by applying multiple regression technique and suitable recommendations are given to the women who are suffering from breast cancer so that we can reduce the mortality rate.

Patient’s experiences emotions such as “happiness” and “sadness” seem to be simple, there is significant mental health gives a more understandable concept of emotions. It can be occurring in two phases, an event is practice by human either positive or negative, and sentiments are elicit rapidly. Then an expressive stimulus activates attitude, physiological, and attention responses [19].

Patient’s data collected from a heterogeneous data [20] originate that the occurrence of anxiety 22%, depression 13% and 9% combining by both after diagnosis. These observations were made by Linden et al., who observed percentages of anxiety and depression over 10,000 heterogeneous samples [21]. Among these cancer patients, 19.0% patients suffered with anxiety and 12.9% of patients suffered with depressive symptoms. Another 22.6% and 16.5% had both anxiety and depression, respectively. Many researchers found that breast cancer patients had considerable anxiety and depressive symptoms than other type of cancer patients.

A. Regression Analysis

One among many statistical processes for finding out and estimating relationships between the variables is termed as “Regression Analysis”. It is a binding of many techniques to model and analyses the different variables. These are different types of regression techniques used to analyse and process the data to predict the relationship between the variables. These predictions are used in many fields like business and hospitals.

B. Multiple Regressions

To predict the dependent variable based on one or more independent variables, we use multiple regressions. Multiple regression consists of one dependent variable and two or more independent variables.

This technique is widely utilized in social and natural sciences research. The general question in multiple regression is “what is the best predictor of...” For instance, Psychologists may desire to resolve which behavior variable best predicts collective regulation. And also allows determining the overall fit (variance explained) of the model and the comparatively involvement of each of the forecasters to explain the total variance.

IV. IMPLEMENTATION

A. Input data

In this work, dataset collected about the people who are suffering from breast cancer from dataworld which is publically available. And after collecting the data set pre-processed the data by removing all the null and empty values to make the data cleaned. By processing the data we reduce redundant values and make the data set available for further implementation.

B. Multiple Regression techniques

After preprocessing the data we apply multiple regression technique to find out the stages of the patients who are suffering from breast cancer. After pre-processing we predict the stage of their disease and based on their stage, we provide recommendations to the women in order to cope up with their disease. In this method, we consider survival as the predicted variable and the dependent variables are age and chemo.

C. Result

After performing both the sentiment and regression techniques we manually combine the data from the predicted values from multiple regression and the outcomes from sentimental analysis and find the outcomes and provide the recommendations to make women overcome with the disease.

D. Recommendation system

As 10 percent of women all over in India is suffering by Breast cancer. Among this 10 percent eighty percent of women are caused to death.
The cause of death is not only due to severity but also due to their negative resilience (means not having ability to cope up) the disease. So we are trying to recommend these people so that they can come out of their situations and to overcome their emotions and mental ability so that we can reduce the mortality rate of women by making them brave and express the feelings.

**Fig 1.** Residuals Vs Fitted variables.

![Residuals vs Fitted variables](image1)

**Fig 2:** Sensitivity vs specificity

![Sensitivity vs Specificity](image2)

**Fig 3:** survival standardized residuals

![Survival standardized residuals](image3)

Residuals:
- Min 1Q Median 3Q Max
-3.416 -2.054 -1.050 1.449 4.964

Coefficients:
- Est. Std. Error t value Pr(>|t|)
  - (Intercept) 6.023 1.530 3.936 0.00432 **
  - out 3.830 1.976 1.939 0.08854 .

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 3.061 on 8 degrees of freedom
Multiple R-squared: 0.3196, Adjusted R-squared: 0.2346
F-statistic: 3.758 on 1 and 8 DF, p-value: 0.08854

V. CONCLUSION

The goal of this study is to investigate the association between resilience and cognitive sentiment analysis and mental health breast cancer patients. Research plan is co-relational. We are utilizing the learning statistical model with multiple regression analysis technique are used for analyzing the results. In this work, provide positive recommendations to the breast cancer patients to overcome the physiological distress.

VI. FUTURE ENHANCEMENT

There is a lot of scope to topic modeling which led to new research in this field as it is machine learning related topic, it forms the base for Deep learning concepts which works on the principle based on the neural networks of the brain. In this work observed patient’s sentiment analysis to examine cancer stage in patients. In future, we further analyzed the psychological development occupied in the emotional alteration to persistent cancer, mainly emotion-extraction. In the future work, also implement similarities between breast cancer patient depression levels and improved association between refusal resilience and cognitive attitude.

REFERENCES


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