

Estimation of Maximum Age Group Affected by Stress Problems for the Teachers in Chennai by Using (RTD matrix) (or) Fuzzy Matrix

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Abstract—Job stress in organization is widespread. About half of the youth feel the pressure of job-related stress. Extensive research shows that excessive job stress can have adverse effects on the emotional and physical health of workers.

This paper analyze the health problem faced by Teacher in Chennai by using Refined Time Dependent Matrices (RTD matrices), from our interviews and field work undertaken we saw the people suffer by these six elements Management's use of authority, monetary, lack of opportunity for advancement, excessive loads, excessive noise, extreme temperatures. The data have been collected from local Chennai covering 100 people, the raw data, which is obtained, is transformed into time dependent matrices. After obtaining the time dependent matrices using the techniques of average and S.D. (Standard Deviation) we define the notion of ATD matrix, RTD matrix and CETD matrix. Using these concepts we identify the peakage group in which people suffer the maximum health hazard. The related graphic representation is also been given, we derive few conclusion from our study, the stress problems starts only at the age of 30 and the maximum age for getting stress problem is 37, which is unnatural and surprising.

Index Terms—Panacea stress, mental illness, adverse effect, uncertainty, peakage, fuzzy matrix, health problem and health and wealth.

I. INTRODUCTION

In this context, there is another sub branch called fuzzy set theory that was initiated about 66 year ago by Zadah [120] in the scientific community, fuzzy set theory is a generalization of classical set theory. The fuzzy set theory was introduced by professor Litfizadez and can be seen as an Infinite Valued logic. Since then, his research interests have been shifted to the theory of Fuzzy logic, soft computing, computing with words, and the newly developed computational theory of perceptions and natural language.

- 1) In Fuzzy logic, exact reasoning viewed as a limiting case of approximate reasoning.
- 2) In fuzzy logic everything is a matter of degree
- 3) Any logical system can be fuzzified
- 4) In fuzzy logic, knowledge is interpreted as a collection of elastic or, equivalently fuzzy constraint or a collection of variable.
- 5) Inference is viewed as a process of propagation of elastic constraints.

The theory is based on making the membership function lie over a range of real numbers from 0.0 to 1.0. The fuzzy set is characterized by (0.0, 0, 1.0). Real world is vague and

assigning rigid values to linguistic variable means that some of the meaning and semantic value is invariable lost. Fuzzy logic operates on a concept of membership such as the statement Karthik is old can be translated as Karthik is a member of the set of old people and can be written symbolically as $\mu(\text{old})$, where μ is the membership function that can return a value between 0.0 and 0.1 depending on the degree of membership. This paper analyses the maximum age of teachers are affected by stress problems by using RTD matrix.

Stress is indeed a proxy killer as most of the time it goes unnoticed, "It was the best of times, it was the worst of times" Charles Dickens wrote of 18th Century farce in his master piece.

II. DEFINITIONS

- 1) **Definition: Stress:** Taber's Cyclopedic Medical Dictionary defines stress as "the result produced when a structure, system or organism is acted upon the forces that disrupts equilibrium or produce strain". Also, stress is defined as a feeling of emotional, physical or mental tension, when confronted with one rows situation. In simple terms, stress is a feeling of emotional, physical or mental tension caused by either excess of efforts or by conflating situations.
- 2) **Definition: Organisational Stress:** Organizational stress happens when there is a discard between job expectation on the employee and the amount of control a employee has over meeting these expectations. Stress can have impact on both employees and employers alike.
- 3) **Definition: Causes of Stress:** Managements use of Authority, Monotony, lack of opportunity for advancement, Excessive responsibilities, value conflicts and unrealistic workloads, Adverse working conditions such as excessive noise, extreme temperatures can also be a source of job related stress.
- 4) **Definition: Stress Related Hazards:** Increased blood Pressure, Increased metabolism, Decrease in protein synthesis, intestinal movement, immure and allergic response systems, Increased cholesterol and fatty acids in blood for energy production system, Localized inflammation, Faster blood clotting, Increased production of blood sugar for energy, Increased stomach acids.
- 5) **Definition: Simple Fuzzy Matrix Model:** The raw data is gives the matrix representation. Entries corresponding to the intersection of rows and columns are values

corresponding to a live network. The raw data, as it is transformed into a raw time dependent data matrix by taking along the rows the age group and along the columns the health problems suffered by teachers because of stress, Using the raw data matrix, convert it into the Average Time Dependent Data (ATD) Matrix (a_{ij}) by dividing each entry of the raw data matrix by the number of years that is, the time period. This matrix represents a data which is totally uniform, At the third stage, the average or mean and the standard deviation (SD) of every column in the ATD matrix, are determined. Using the average μ_j of each j th column and σ_j the S.D of each j th column, a parameter α from the interval $[0, 1]$ is chosen and the Refused Time Dependent Data Matrix (RTD matrix) (e_{ij}) is formed using the formula, If $a_{ij} \leq (\mu_j - \alpha * \sigma_j)$ then $e_{ij} = -1$, else if $a_{ij} \in (\mu_j - \alpha * \sigma_j, \mu_j + \alpha * \sigma_j)$ then $e_{ij} = 0$, else if $a_{ij} \geq (\mu_j + \alpha * \sigma_j)$ then $e_{ij} = 1$, where, a_{ij} 's are the entries of the ATD matrix. The ATD matrix is thus, converted into the Referred Time Dependent Data Matrix. This matrix is also at times termed as the fuzzy matrix as the entries are 1, 0 and -1. Now, the row sum of this matrix gives the maximum age group, who are prone to health hazards. One can combine these matrices by varying the parameter $\alpha \in [0, 1]$, so that the Combined Effective Time Dependent Data (CETD) matrix is obtained. The row sum is found out for the CETD matrix and conclusion are derived based on the row sums. All these are represented by graphs and graphs play a vital role in exhibiting the data by the simplest means that can be ever understood by a layman.

In the study the raw data obtained from the 100 teachers is transformed into time dependent matrices. After obtaining the time dependent matrix. After obtaining the time dependent matrices using the techniques of average and standard deviation, identify the peakage group in which they suffer the maximum health hazard. Identification of the maximum age group wide play a vetal role in improving their health condition by providing them the best health faculties, like medicine, good food and better hygiene.

Stress problem is taken under eight symptom diseases viz.

- 1) P_1 - Increased Blood Pressure
- 2) P_2 - **Increased** Metabolism
- 3) P_3 - Increased in Protein synthesis, interstinal movement, immune and allergic response
- 4) **system**
- 5) P_4 - **Increase** Cholesteral and fatty acids in blood for energy production systems.
- 6) P_5 - Localised inflammation
- 7) P_6 - Faster blood clotting
- 8) P_7 - Increased production of blood sugar for energy
- 9) P_8 - Increased stomach acids.

Estimation of maximum age group using 3×8 matrices:

Initial raw data matrix of stress problem of order 3×8

Years	P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8
20-30	22	17	23	16	28	9	15	9
31-43	37	33	38	30	32	17	32	8
44-65	20	20	20	21	20	10	19	5

The ATD matrix of stress problem of order 3×8

Years	P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8
20-30	2	1.54	2.09	1.45	2.54	0.81	1.36	0.81
31-43	2.84	2.30	2.92	2.30	2.46	1.30	2.46	0.61
44-65	0.90	0.90	0.90	0.95	0.90	0.45	0.86	0.22

The average and standard Deviation of the above ATD matrix

Average	1.9	4.58	1.97	1.56	1.96	0.85	1.56	0.54
SD	0.63	0.32	0.68	0.310	0.60	0.12	0.44	0.06

RTD Matrix for $\alpha = 0.1$

0	0	0	-1	-1	0	-1	-1
+1	+1	+1	1	1	-1	1	-1
-1	-1	-1	-1	-1	-1	-1	-1

Row sum matrix

-4
4
-8

RTD Matrix for $\alpha = 0.15$

-1	0	-1	-1	-1	0	0	-1
1	1	1	1	1	+1	1	1
-1	-1	-1	-1	-1	-1	-1	-1

Row sum matrix

-4
7
-8

RTD Matrix for $\alpha = 0.2$

-1	-1	0	0	-1	-1	-1	-1
1	1	1	1	1	-1	-1	-1
-1	-1	-1	-1	-1	-1	-1	-1

Row sum matrix

-6
2
-8

RTD Matrix for $\alpha = 0.35$

-1	-1	-1	0	-1	0	-1	1
1	1	1	1	1	-1	1	1
-1	-1	-1	-1	-1	-1	-1	-1

Row sum matrix

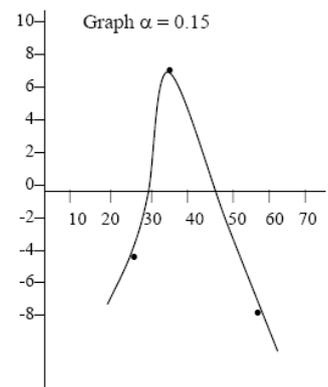
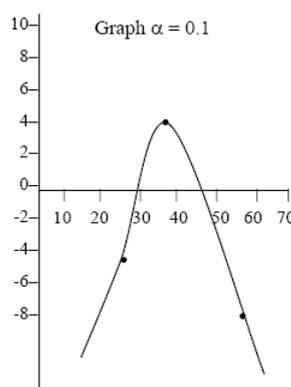
-4
6
-8

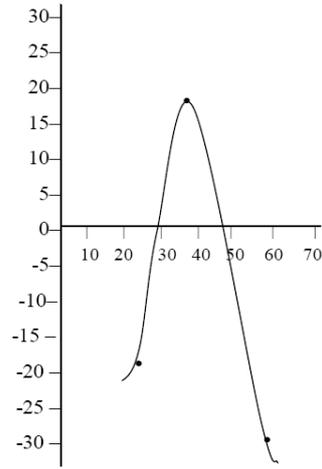
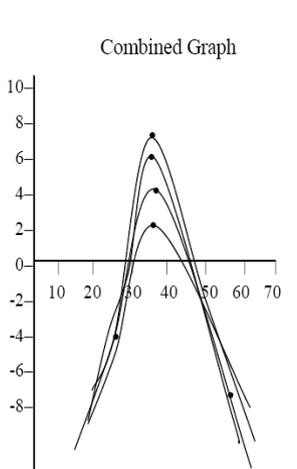
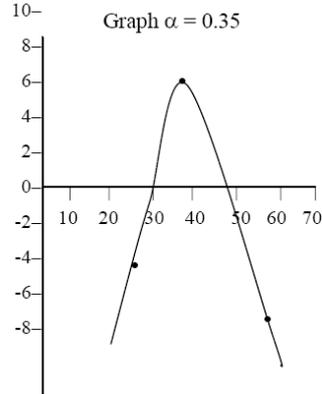
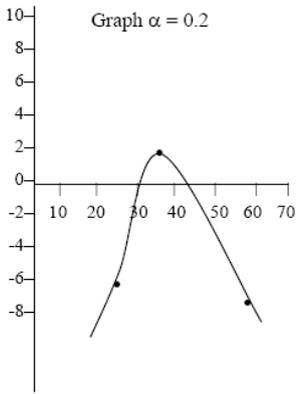
The CETD matrix

-3	-2	-2	-2	-4	-1	-2	-2
4	4	4	4	4	-4	2	0
-4	-4	-4	-4	-4	-4	-4	-4

Row sum matrix

-18
18
-32





III. CONCLUSION

Stress are the major reasons for diabetic problems and heart problems.

Survey proves that the problem initializes at the age of 30, the damage is peak at the age of 37. Above results are confirmed by CETD matrix.

From above analyses we observe that maximum age group giving stress problem has not changed with the change in values of the parameter from 0 to 1.

Suggestions:

Researchers and scientists have recommended various remedies to control stress. But one of the best remedies is yoga. Doing simple yogasanas, when stressed, will stabilize the mental pressure and relax the mind.

“Managing stress by a simple smile is the best response to stress ever”.

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