Stress among college students amid Covid-19 crisis

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Rationale :-

- The 2019 Corona Virus Disease (COVID19) outbreak has been declared an international public health emergency on January 30, 2020 by the World Health Organization (WHO) as the disease, first reported from China in December 2019, continues to surge in many countries & is still widening its burden of disease.
- Efforts to reduce the spread of the COVID-19 virus has prompted with the widespread closure of schools, colleges, universities, across the world have either postponed or canceled all campus events such as classes, workshops, conferences, sports, and other activities with the nationwide activity of lockdown and social distancing being one of the contributing factors in escalating stress and anxiety among students. This study is carried out to assess the level of stress amidst college level male and female students due to this outburst with the factors influencing and stressors associated with the level of stress.

Objectives :-

Covid-19 is promoting stress among students due to various stressors like delay in academics, not getting a job, economic fall off, delay in exam results, and mode of online classes, therefore evaluating these metrics and thereby come up with a quantitative approach to estimate the level of stress among college students.

- To determine the association of level of stress between male and female students.
- To determine an association between stressors and level of stress among students.
- A correlation study between the GAD scale and level of stress gives a measure to estimate stress among students.

Methodology

Study Population & Sample

The study population were students from undergraduate and post-graduate colleges & Universities. 416 students responded to questionnaire & were included in the analysis.

Data collection

The data collection process by the composed electronic questionnaire which was disseminated among college-going students.

Data Analysis

The estimation of data analysis was done by IBM SPSS version 26.0. A descriptive study approach was applied to assess demographic data through frequency & percentage. Cross tabulation tab to assess stress in genders. The measure of association as a parametric test was applied to test the level of stress and associations with the stressors & GAD.

Results:-

- The result suggested that the study had an encounter with stressors affecting the mental health status of college students. The Mean age of the respondent ($\bar{x}$) is 23.35 & standard deviation (σ) of 3.119, this indicates that the respondent is focused over 20 to 26 years.

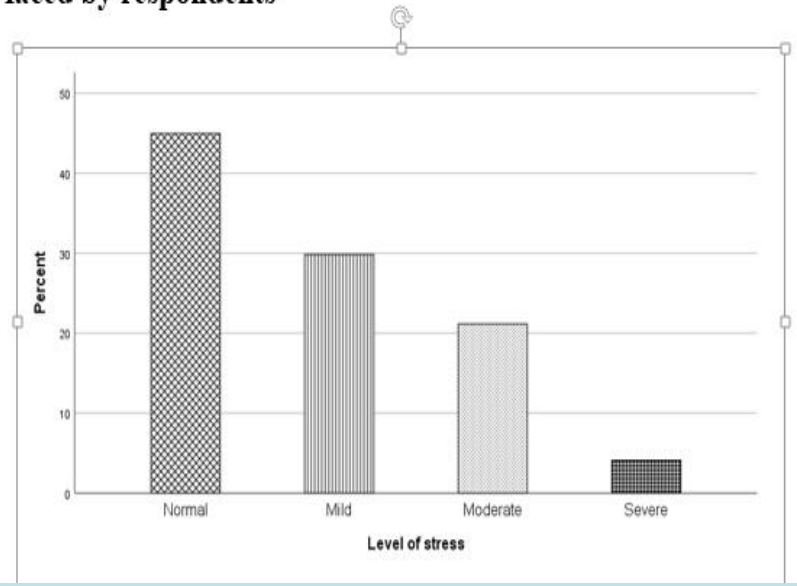
Table 1.0

Level of Stress faced by respondents

	Frequency	Percent	Cumulative Percent
Normal	187	45.0	45.0
Mild	124	29.8	74.8
Moderate	88	21.2	95.9
Severe	17	4.1	100.0

Graph 1.0

Level of Stress faced by respondents



- Table 2.0 shows a matrix on demographic variables of the respondent's characteristics.

Table 2.0

Variable	Characteristics	Frequency
Gender		
	Male	201 (48.3)
	Female	215 (51.7)
Education		
	Male	209 (50.2)
	Female	207 (49.2)
Living with family		
	Yes	378 (90.9)
	No	38 (9.1)
Relative of acquaintance infected with Covid-19		
	Yes	20 (4.8)
	No	395 (95.2)
Stress due to positive cases in a region		
	Urban	152 (36.5)
	Urban-Rural	195 (46.9)
	Rural	69 (16.6)

- Table 3.0 depicts that 43.5% (181) of collegiate suffers from the worry of not getting job followed by 27.9% (116) suffers from worry of delay in academic followed by 14.6% (62) worry of delay in exam & results, 8.4% (35) suffers from the worry about new methods of online teaching while 5.3% (22) have others concern related to stress.

Table 3.0

Academic delay

	Frequency	Percent	Cumulative Percent
Worry of not getting job	181	43.5	43.5
Worry of delay in academic	116	27.9	71.4
Worry of delay in exam & results	62	14.9	86.3
Worry about new methods of online teaching	35	8.4	94.7
Others	22	5.3	100.0

- Table 4.0 imply that normal and mild level of stress is faced more by rural-urban as compared to urban followed by rural while moderate & severe level of stress is faced more by urban as compared to rural-urban followed by rural.

Table 4.0

Level of stress faced by Respondents * Stress due to positive cases in a region : Cross tabulation Count

		Level of stress faced by respondents			
		Normal	Mild	Moderate	Severe
Stress due to positive cases in a region	Urban	49 (32.24%)	50 (32.89%)	43 (28.29%)	10 (6.58%)
	Rural-urban	102 (52.31%)	57 (29.23%)	30 (15.38%)	6 (3.08%)
	Rural	36 (52.17%)	17 (24.64%)	15 (21.74%)	1 (1.45%)

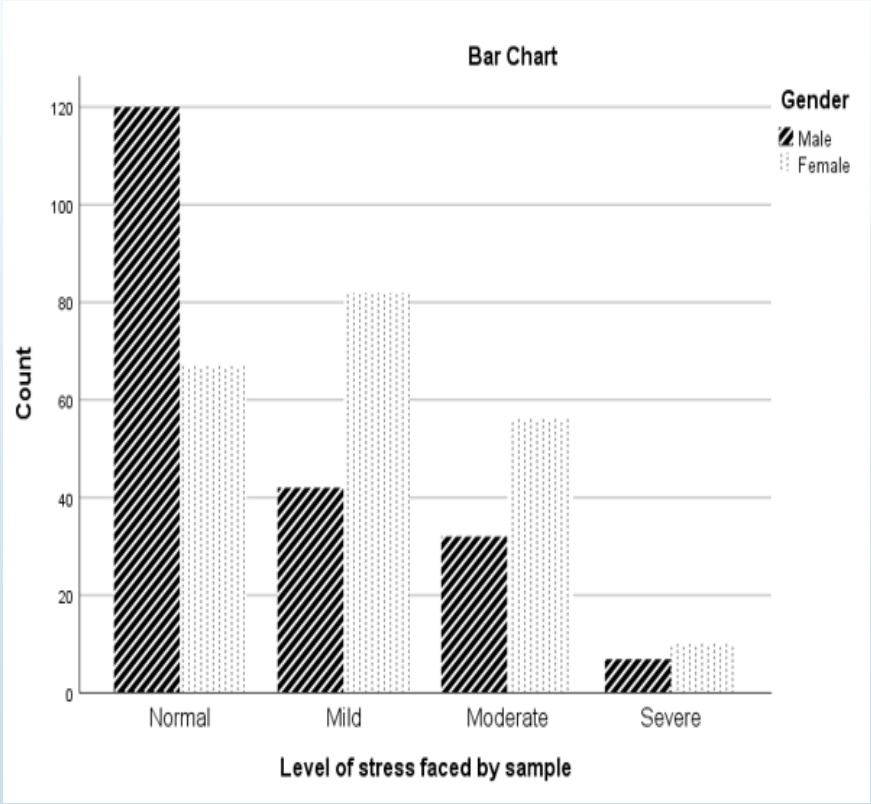
- Table 5.0 imply that mild, moderate & severe level of stress is more faced by a female as compared to males while normal level of stress is faced by male as compared to females.

Table 5.0

Level of stress faced by Respondents * Gender Cross tabulation

Count

	Gender		
	Male	Female	Total
Normal	120	67	187
Mild	42	82	124
Moderate	32	56	88
Severe	7	10	17
Total	**201**	**215**	**416**



- Table 6.0 imply a Correlation study between routine & social life influenced by lock-down and a positive correlation had been estimated for worry about influences, social life and social distant and negative correlation is observed with the level of stress at 0.01 level of significance (2-tailed)

Table 6.0

Correlations with stressors

		Worry about influences	Social life influenced by Lock-down	Social distant is distressing due to Covid-19	Level of stress faced by sample
Routine Life affected by Lock-down	Pearson Correlation	.149**	.300**	.222**	-.252**
	Sig. (2-tailed)	.002	.000	.000	.000

		Worry about influences	Social distant is distressing due to Covid-19	Level of stress faced by sample
Social life influenced by Lock-down	Pearson Correlation	.245**	.348**	-.248**
	Sig. (2-tailed)	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

- Table 7.0 imply a positive correlation had been observed between the stress and GAD scale at 0.01 level of significance (2-tailed).

Table 7.0

Correlations with GAD & Level of Stress faced by respondents

		Feeling nervous, anxiety or on edge	Not being able to stop worry	Worrying too much about different things	Trouble relaxing	Restless to sit still	Becoming easily annoyed or irritable	Feeling afraid of awful might happen
Level of stress faced by respondents	Pearson Correlation	.433**	.489**	.441**	.387**	.295**	.344**	.378**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000

**. Correlation is significant at the 0.01 level (2-tailed).

Conclusion :-

- Psychological Interventions must be given importance to lower their exposure to negative news, by promoting healthy behaviors and by preventing social isolation using alternative methods of virtual network during this epidemic.
- Families, schools, college & society should help students to overcome with those consequences by the care, love and psychological support which can help to reduce mental pressure.
- Students can help of their own by coping strategies to fulfill their needs, desire & concern for themselves & others.
- Meditation is good therapy for body, health & mind & best way to reduce the stress level of your life.

Operations Management: Analysis and Improvement Methods

Course Description :

- The role of operations and how they are connected to other business functions in manufacturing- and service-focused organizations. The use of decision-making frameworks and techniques applicable at all levels.

Objectives:-

- Explaining fundamentals of the Process view of Operations and various process of metrics.
- Evaluate process capacity and utilization and a system’s inventory using Little’s Law.
- Enhancing inventory metrics with Economic order, Manufacturing quantity & re-order point.
- An understanding of supply chains and its management.
- Knowing the Bullwhip effect and counter measures for mitigation of that effect.
- An understanding of the basic ideas of Lean management and six-sigma quality standard.
- Apply the DMAIC and SIPOC processes and infrastructure to implement six-sigma

(1) PROCESS ANALYSIS

1.1 View of Operations.

a) Process View

b) Process Flow Units

c) Process Representation

d) Product vs Process Focus

e) Layout Characterization

1.2 Process Flow Metrics

a) Cycle Time

b) Flow Rate

1.3 Capacity and Utilization

- **Capacity Utilization**
- **Utilization** = $\frac{\text{Actual Production Rate}}{\text{Available Capacity}}$
- **Implied Utilization** = $\frac{\text{Time Used for Production}}{\text{Available Capacity}}$

1.4 Little's Law

- Little's Law applies to Systems in steady state
- **I = R * T**

(2) INVENTORY MANAGEMENT

2.1 Inventory Metrics

2.2 Economic Order Quantity - denoted by "S"

a) Holding Cost/Item/Year

b) Annual Cost

- Annual cost of ordering
- Annual cost of inventory
- Total Cost

2.3 Economic Manufacturing Quantity

- (EMQ) $= \sqrt{\frac{2SDR}{H(R-D)}}$

*

2.4 Re-Order Point

a) Inventory Position

b) Demand Uncertainty

c) ROP

d) Period of Uncertainty (POU)

2.5 Economic Order Quantity (Order Up To Policy)

a) Order up to level

b) Order Quantity

c) Fill Rate

- Unit fill rate
- Line fill rate
- Order fill rate

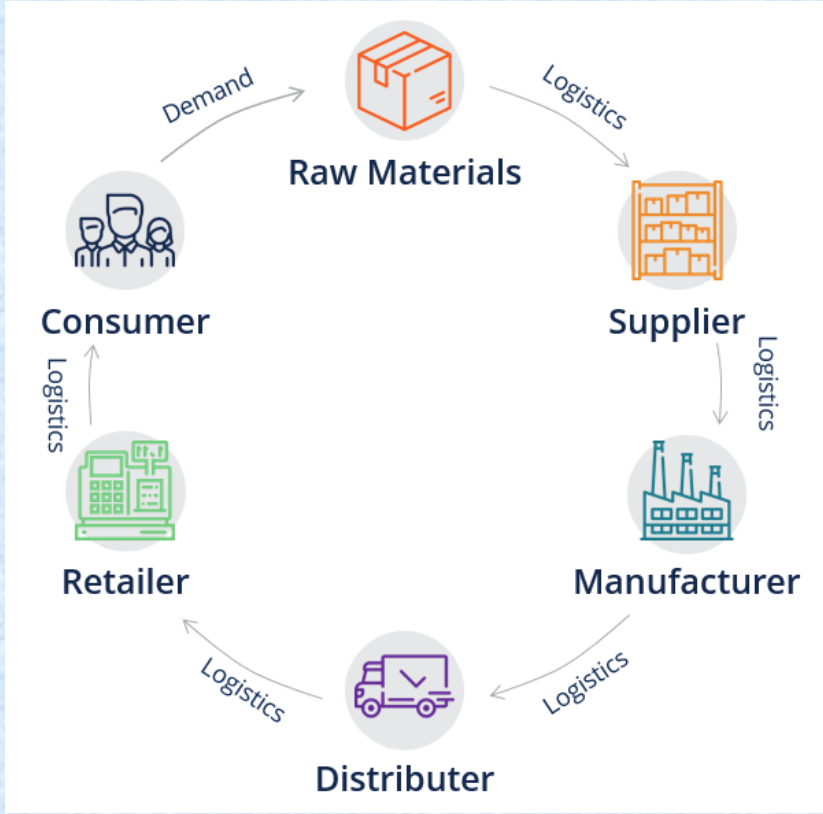
(3) SUPPLY CHAIN

Different views of supply chain

- Sourcing
- Logistics
- Contracts
- Sustainability/social aspects
- Risk
- Finance

Layers of the Supply Chain

- Logistics
- Information
- Financial
- Governance



3.2 Sourcing Decisions

- **a) Outsourcing Risks :**
- **b) Transaction Cost Economics :**
- **c) The Make or Buy Decision**

3.3 Bullwhip Effect

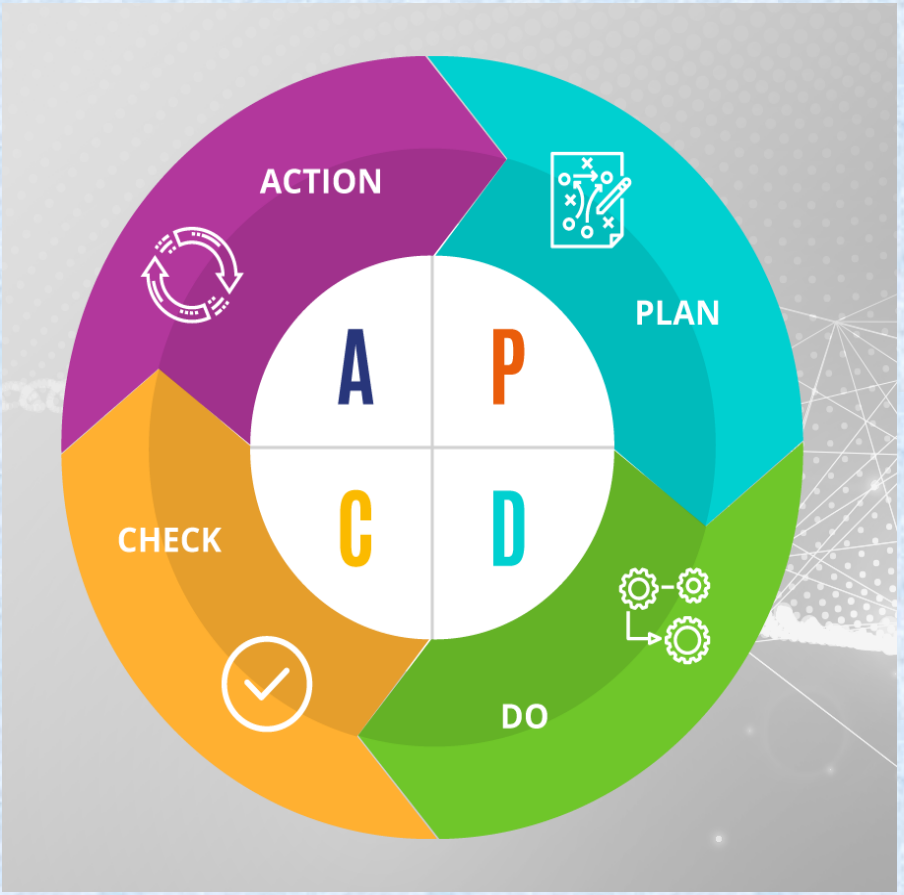
when small perturbation at one end results in large changes upstream in the supply chain.

- **a) Contributing Factors**
- **b) Combating Bullwhip**

(4) CONTINOUS IMPROVEMENT

4.1 Edward Deming

- Chain Reaction
- **Toyota Production System (TPS)**
- TPS became **“lean management”**



4.2 Lean Management

a) Value

b) Types of Activities

c) 7 Types of Waste

d) Principles of Lean

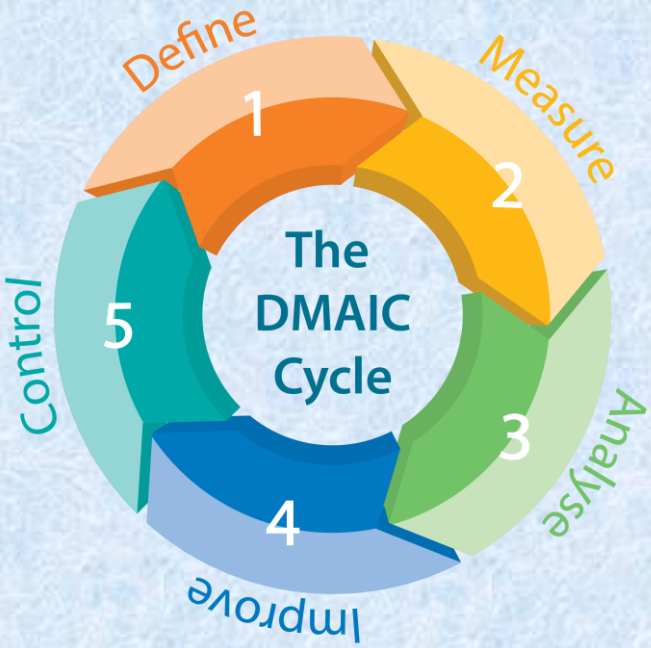
e) Lean Tools - Value Stream Mapping

5 S	5 Why	Kaizen	Work Cells	Standarized Work

4.3 Six-Sigma Methodology

- **Motorola Shift (MS) D-M-A-I-C**

- **Six Sigma Infrastrucutre**



Key Learnings :-

- Understanding of Process analysis of the operation with the capacity & utilization.
- Enhance my knowledge with the inventory measures and its performance and cost associated with ordering decisions.
- Understanding of supply-chain, its sources & how it helps in sourcing decision.
- Knowing Bullwhip effects with the factor involved and combating Bullwhip.
- Understanding lean Management with the waste & principles applying it for the improvement in the process & technology.
- Six Sigma Methodology with the DMAIC improvement cycle as an effective techniques.


thank you!