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Triguna Traits and Big Five Personality Factors of Medical and Engineering Students

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Abstract - **The purpose of this study was to compare Triguna Traits and Big Five Personality Factors of Medical and Engineering Students. The sample included 200 students; i.e.100 Medical students and 100 Engineering students. Further bifurcation was done based on gender i.e. 50 males and 50 females in each group. The selected sample was between the age range of 20-28 years, studying in medical and engineering colleges. Data was collected from different cities of Gujarat, namely, - Vadodara, Ahmedabad, Bharuch, Gandhinagar and Surat. Scales used for measuring the Triguna Traits & Big Five Personality Factors were the Triguna scale constructed and standardized by Dr Gitanjali Royand Big Five Inventory was constructed and standardized by Oliver John and Veronica Bennet respectively. Data was analyzed using Mean, SD and 't' tests. Results of the study indicated that a significant difference was found in favour of Medical Students on Sattvic Knowledge, Conscientiousness and Openness to Change. While Tamasic Knowledge was found higher in Engineering Students. Males of the Medical stream showed higher Sattvic Knowledge, Sattvic Habit, Conscientiousness and Openness to Change as compared to males of the Engineering Stream. Whereas, females of the medical stream showed higher Neuroticism as compared to females of the Engineering stream. While comparing male and female students of the Medical stream, results showed higher Extraversion in males and higher Neuroticism in females.**

Keywords: **Triguna Traits, Big-Five, Medical & Engineering Students**

I. INTRODUCTION

Personality is characterized by distinctive and persistent thought, emotion, and behaviour patterns that are referred to as their personalities. It significantly influences how individuals view the world, relate to others, and tackle difficulties. According to recent studies, personality is dynamic and can change depending on the situation. It is also stable over time (Roberts et al., 2007).

However, Indian psychology's interpretation of personality offers a unique viewpoint that is based on age-old philosophical traditions like yoga and vedanta, which emphasize the interaction of the mind, body, and spirit (Khasawneh & Khasawneh, 2023).

The knowledge of the gunas has historically transcended philosophy and been applied to disciplines like psychology, Ayurveda, and yoga, providing a framework for comprehending how mental states and behaviour interact (Aboorva et al., 2022). Triguna is still useful in talks of human development today since it provides understanding of the harmony of attributes that determine a person's journey toward self-realization self-awareness and wellbeing (Sesmiarni et al., 2023).

II. INTRODUCTION TO TRIGUNA

The philosophical idea of triguna has its roots in ancient Indian philosophy, specifically in the Samkhya school. It refers to the three basic attributes, or gunas, that are said to influence not only human behaviour and psychology but also the entire universe: Rajas (activity, passion, desire), Tamas (inertia, darkness, ignorance), and Sattva (goodness, purity, harmony) (Radhakrishnan, 1953). Several important Hindu writings, such as the Bhagavad Gita, explain the idea of Triguna in detail. Lord Krishna discusses how these three attributes affect morality, spiritual development, and human behaviour (Vaezzade & Alinia, 2014).

The Three Gunas

One of the Triguna theory's three main attributes, *Sattva Guna*, is linked to virtues like wisdom, balance, purity, and clarity. Because it fosters mental clarity, peace, and spiritual development, it is regarded as the most desired of the three Gunas (Bhushan, 2011; Zeidan et al., 2010). According to Lord Krishna in the Bhagavad Gita, sattva is the attribute that brings about knowledge and enlightenment, directing people toward self-realization and a morally upright life Generally speaking, sattva-dominated people are kind, considerate, and less motivated by ego or worldly cravings. Additionally, this guna is linked to emotions of serenity, contentment, and a strong sense of interconnectedness with the universe and other people. (Radhakrishnan, 1953).

As per the Bhagavad Gita, the *Rajas* Guna is a symbol of activity, passion, and desire. Movement, ambition, and materialistic endeavours are all fuelled by the guna. Rajas is typified by attachment, restlessness, and an unwavering drive for success or change. Raja-influenced people are frequently motivated, vivacious, and intent on achieving financial success or personal benefits. But too much rajas can cause tension, worry, and an unquenchable need that keeps one from being satisfied. Action, ambition, and restlessness are all motivated by Rajas (Bhushan, 2011). According to Radhakrishnan, (1953), it is linked to both desirable attributes like ambition and inventiveness as well as bad ones like impatience, frustration, and an intense desire to succeed at all costs (Raju Munisamy & Sivaraman, 2019).

Bhagavad Gita defines *Tamas* as the guna of ignorance, darkness, and inertia. It is the trait that causes indifference, confusion and mental stagnation. People who are tamas-dominated may feel lethargic, uninterested, and unmotivated. Tamas is associated with delusion, ignorance, and a lack of clear vision (Friedman & Lichtenberg, 2014). According to the (Bhagavad Gita, 2000) tamas is the power that fosters ignorance and attachment to the worldly world, which impedes spiritual advancement and causes mental fog. Negative emotions like fear, despair, and depression can be difficult for people who are influenced by tamas. Similar to rajas, tamas are not always bad; rather, they only cause problems when they get out of control, trapping people in emotional and mental inertia.

The idea of Triguna, a paradigm based on the three main qualities of Sattva (goodness), Rajas (activity), and Tamas (inertia), reflects Indian approaches to personality, which frequently emphasize spiritual development, self-realization, and the balance of inner attributes. However, Western psychology has studied personality in great detail, frequently using frameworks like the Big Five personality traits, which highlight individual differences in openness, conscientiousness, extraversion, agreeableness, and neuroticism.

Although the Big Five personality qualities and the Triguna concept come from different philosophical and cultural backgrounds, they both offer frameworks for comprehending human behaviour. Triguna focuses on the dynamic elements that impact individual behaviour and development, while the Big Five emphasizes fixed attributes. These frameworks operate together to provide contrasting viewpoints on human nature.

III. BIG-FIVE PERSONALITY FACTORS

The Five-Factor Model (FFM), sometimes referred to as the Big Five personality features, offers a thorough framework for comprehending human nature (Roberts et al., 2007). Individual differences in behavior, emotions, and cognition can be explained by these five basic factors: openness to change, conscientiousness, extraversion, agreeableness, and neuroticism (McCrae & Costa, 2006). Each component includes a variety of characteristics that affect how people engage with their environment (Priyadharshini & Rathinam, 2020).

One of the Big Five personality qualities, *"Openness to Change"* describes a person's propensity to be creative, inquisitive, and receptive to novel experiences and concepts (McCrae & Costa, 1997). Individuals with high scores on this characteristic are frequently imaginative, daring, and inquisitive; they also appreciate artistic expression, abstract thought, and unusual experiences (McCrae & Costa, 2006). People with poor openness, on the other hand, maybe more reluctant to change and prefer routine and familiarity (Bhushan, 2011). Low openness may be linked to a desire for stability and tradition, whereas high openness has been linked to higher levels of creativity and intellectual engagement, according to research (McCrae & Costa, 1997).

A person's level of organization, dependability, and goal-orientedness is referred to as *conscientiousness* (Roberts et al., 2007). Conscientious people are usually disciplined, trustworthy, and goal-oriented; they frequently perform well in regimented settings and exhibit excellent self-control. Usually, they tackle projects systematically, meet deadlines and are diligent in their work (Kernis et al., 2000). On the other side, people with low conscientiousness tend to be less structured or trustworthy, act more impulsively, and pay less attention to long-term objectives (Roberts et al., 2007). Positive outcomes, including career success, academic achievement, and general life satisfaction, have been repeatedly associated with conscientiousness (Radhakrishnan, 1953).

Extraversion is defined as a desire to interact with people, friendliness, and vitality (Lucas & Diener, 2001). Individuals with high extroversion tend to be forceful, gregarious, and energetic; they thrive in social situations and love being the centre of attention (Hofmann et al., 2012). They tend to feel happier and are more likely to seek out stimulus. On the other hand, those with low extraversion scores introverts are more quiet, value their privacy, and are less inclined to seek out social situations. According to Lucas & Diener, (2001), extroverts tend to have more positive social interactions and build larger social networks, which is linked to higher levels of satisfaction, stronger social relationships, and leadership skills.

Agreeableness is the degree to which a person is cooperative, sympathetic, and willing to keep up good relationships (Graziano & Eisenberg, 1997). People with high agreeableness are more likely to act prosocially, such as assisting others and promoting harmony in the group, because they are generally kind, courteous, and sympathetic. Conversely, those with low agreeableness may be more suspicious, critical, or competitive, putting their interests ahead of teamwork. According to research, those who are more pleasant have stronger interpersonal interactions, more social support, and more faith in other people (Graziano & Eisenberg, 1997). However, being overly polite can occasionally make it difficult to stand up for oneself or establish boundaries.

According to Costa & McCrae, (1992), *Neuroticism* is the propensity to feel unpleasant emotions including anxiety, despair, and anger. People with high neuroticism are more likely to be emotionally unstable and react to stress by feeling more anxious, insecure, and prone to mood swings. They could also perceive situations as frightening and be more sensitive to criticism (Parker et al., 2013). On the other hand, those with low neuroticism are typically resilient, emotionally steady, and composed under pressure. According to Costa & McCrae, (1992), neuroticism has a detrimental effect on general well-being and is a powerful predictor of mental health issues like anxiety disorders and depression.

In summary, these characteristics not only offer a strong framework for classifying individual variations, but they also provide insightful information about how personality affects behaviour, judgment, and interpersonal interactions (Digman, 1990). Research continuously emphasizes these features' predictive potential in areas including social relationships, mental health, and job success, highlighting their applicability across a range of life domains (Rebar et al., 2015). It is becoming more and more obvious that comprehending these personality factors is essential for promoting effective communication, advancing personal development, and enhancing general well-being as we investigate and use the Big Five model. (McCrae & Costa, 2006).

In contrast to the Big Five model, which focuses on broad aspects of personality that are thought to influence an individual's thoughts and behaviours, Triguna, which consists of Sattva, Rajas, and Tamas, describes the balance of qualities that influence mental states, emotions, and actions (McCrae & Costa, 2008).

IV. METHODOLOGY

Objective

- To measure Triguna Traits and Big Five Factors of Medical and Engineering students.
- To compare Medical and Engineering males on Triguna Traits and Big Five Personality Factors.
- To compare Medical and Engineering female students on Triguna Traits and Big Five Personality Factors.
- To evaluate the difference between male and female Medical students on Triguna Traits and Big Five Personality Factors.
- To evaluate the difference between male and female Engineering students on Triguna Traits and Big Five Personality Factors.

Hypothesis

- There will be no significant difference between Medical and Engineering students on Triguna Traits and Big Five Personality Factors.
- No significant difference will be found between males of Medical and Engineering stream on the variable of Triguna Traits and Big Five Personality Factors.
- There will be no significant difference found between Females of Medical and Engineering stream on the variable of Triguna Traits and Big Five Personality Factors.
- No significant difference will be found between males and females of Medical stream on the variable of Triguna Traits and Big Five Personality Factors.
- No significant difference will be found between males and females of Engineering stream on Traits and Big Five Personality Factors.

Independent Variables

1. Students/Stream
   - Medical
   - Engineering
2. Gender
   - Male
   - Female

Dependent Variable

1. SRT Traits
   - Tamasic Knowledge
   - Tamasic Habit
   - Rajasic habit
   - Passion
   - Sattvic Knowledge
   - Sattvic Spirituality
   - Tranquility
   - Maturity
   - Emotional Stability
   - Empathy
   - Sattva Habit
2. Big Five Personality Factors
   - Openness to Change

- Conscientiousness
- Extraversion
- Agreeableness
- Neuroticism

Sample

This study consisted of 200 college students from the Medical and Engineering streams. The sample was divided into two genders males 100 and females 100. Further bifurcation was done based on streams i.e. 50 males and 50 females from each stream respectively. Data was collected from major cities of Gujarat state like Vadodara, Gandhinagar, Bharuch and Surat. Keeping Inclusion-Exclusion criteria in mind, Purposive sampling has been used for data collection. Later, the data was analyzed using M, SD, and 't' tests.

Inclusion- Exclusion Criteria

- *Inclusion Criteria*
  - Students studying in any Medical or Engineering colleges in Gujarat were included in the sample.
  - Participants between the age range of 20 years to 28 years were included in the study.
  - Participants who are currently not suffering from any major physiological or psychological illness were included in the study.
- *Exclusion Criteria*
  - Students studying in Medical and Engineering colleges outside Gujarat were not included in the sample.
  - Participants below the age of 20 years and above 28 years were excluded from the study.
  - Participants currently suffering from any major physiological or psychological illness were not included in the study.

Tools Used

1. SRT Trait Scale

The SRT-Trait Scale of Personality was constructed and standardized by Dr. Gitanjali Roy. It measures Personality traits according to Triguna's philosophy. The scale consists of 11 traits (dimensions) of personality. They are tamasic knowledge, tamasic habit, rajasic habit, passion, sattvic knowledge, sattvic spirituality, tranquillity, maturity, emotional stability, empathy and sattvic habit. It consists of 35 items on a 5-point Likert scale ranging from 1 being Not at all and 5 being Always. A high score on the test scale within a specific domain suggests a strong presence of the corresponding traits. The full-scale reliability value is 0.7.

2. Big Five Inventory (1991)

The Big Five Inventory (BFI) is a self-report scale constructed and standardized by Oliver John and Veronica Bennet. It is designed to measure the big five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness). The BFI consists of 44 items which are rated on a five-point likert scale from 1 (disagree a lot) to 5 (agree alot). The test demonstrates good internal consistency, with Cronbach's alpha coefficients typically ranging from 0.70 to 0.90 for the five traits, indicating strong reliability.

Procedure for Data Collection

Data was collected from Medical and Engineering stream students who were studying in different colleges in Gujarat states namely, Surat, Ahmedabad, Bharuch, Gandhinagar and Vadodara. Data was collected by obtaining prior permission from the university/college authorities. As per the date and time given by the respective universities/colleges researcher visited the campus where students were grouped and provided with a Google Form link to complete. The researcher was present throughout the entire data collection process to assist with any questions or issues that arose. Before starting, clear and comprehensive instructions were given to the participants, outlining the steps for filling out the form. The researcher made it clear that responses and sensitive information would be kept confidential. Participants were not asked for their names or email addresses, however, completing the questions was necessary to submit the form. Participants might call for help completing the form if they needed it or encountered any difficulties. This approach made sure that gathering data was easy, accessible, and user-friendly.

V. RESULTS AND INTERPRETATION

TABLE I COMPARISON BETWEEN MEDICAL AND ENGINEERING STUDENTS ON TRIGUNA TRAITS

Dimensions	Stream	Mean	Standard Deviation (SD)	't' value
Tamasic Knowledge	Medical	13.00	5.03	**2.58****
	Engineering	15.05	6.11	
Sattvic Knowledge	Medical	13.86	4.35	**2.22***
	Engineering	12.42	4.79	
Rajasic Habit	Medical	14.58	3.70	0.19
	Engineering	14.70	4.80	
Sattvic Spirituality	Medical	13.36	3.63	0.54
	Engineering	13.07	3.84	
Tranquility	Medical	9.50	2.80	0.85
	Engineering	9.84	2.83	
Maturity	Medical	5.50	2.13	0.78
	Engineering	5.25	2.38	
Emotional Stability	Medical	5.89	1.36	0.23
	Engineering	5.94	1.68	
Empathy	Medical	5.99	2.11	0.67
	Engineering	5.78	2.30	
Sattvic Habit	Medical	6.48	5.01	0.96
	Engineering	6.24	1.82	
Tamasic Habit	Medical	5.01	2.14	1.50
	Engineering	5.47	2.16	
Passion	Medical	6.18	2.09	0.57
	Engineering	6.01	2.11	

Table I depicts the significant difference between students of medical and engineering, on the dimension of Tamasic Knowledge of Triguna Traits. (t = 2.58, $p < 0.01$). The mean value indicates higher Tamasic Knowledge in engineering students (M=15.05) as compared to medical students (M=13.00). Results also showed a significant difference between students of medicine and engineering, on the dimension of Sattvic Knowledge of Triguna Traits. (t = 2.22, $p < 0.05$)). The mean value indicates higher Sattvic Knowledge in medical students (M=13.86) as compared to engineering students (M=12.42).

TABLE II COMPARISON BETWEEN MEDICAL AND ENGINEERING STUDENTS ON DOMAINS OF BIG FIVE PERSONALITY FACTORS

Dimensions	Stream	Mean	Standard Deviation (SD)	't' value
Extraversion	Medical	25.20	5.22	
	Engineering	24.91	4.45	0.42
Agreeableness	Medical	29.68	4.59	
	Engineering	29.23	4.59	0.69
Conscientiousness	Medical	30.93	5.26	
	Engineering	28.80	5.60	**2.77****
Neuroticism	Medical	24.11	4.55	
	Engineering	23.29	4.40	1.29
Openness to Change	Medical	35.13	6.16	
	Engineering	32.67	7.14	**2.60****

Table II highlights significant differences between students of the medical and engineering streams on five domains of the Big-Five Scale. Medical students exhibited higher Conscientiousness (M = 30.93) than engineering students (M = 28.80), with a t-value of 2.77 ($p < 0.01$). Similarly, medical students showed greater Openness to change (M = 35.13) compared to engineering students (M = 32.67), with a t-value of 2.60 ($p < 0.01$).

TABLE III COMPARISON BETWEEN MALES OF THE MEDICAL AND ENGINEERING STREAM ON TRIGUNA TRAITS

Dimensions	Stream	Mean	Standard Deviation (SD)	't' value
Tamasic Knowledge	Medical	12.58	5.47	
	Engineering	15.88	6.31	**2.79****
Sattvic Knowledge	Medical	14.42	4.22	**2.05***
	Engineering	12.48	5.15	
Rajasic Habit	Medical	15.10	3.94	0.06
	Engineering	15.04	4.87	
Sattvic Spirituality	Medical	13.82	3.40	0.98
	Engineering	13.12	3.70	
Tranquility	Medical	9.80	3.14	0.13
	Engineering	9.72	2.78	
Maturity	Medical	5.60	2.26	0.08
	Engineering	5.56	2.51	
Emotional Stability	Medical	6.12	1.45	0.50
	Engineering	5.96	1.71	
Empathy	Medical	5.86	2.07	0.18
	Engineering	5.78	2.28	
Sattvic Habit	Medical	6.68	1.70	**1.91***
	Engineering	5.98	1.93	
Tamasic Habit	Medical	4.80	2.36	**2.09***
	Engineering	5.74	2.11	
Passion	Medical	6.46	2.37	0.69
	Engineering	6.14	2.22	

Table III compares males from the Medical and Engineering stream on the dimensions of Tamasic Knowledge (t=2.79, $p < 0.01$) and Tamasic Habit (t=2.09, $p < 0.05$) of Triguna Traits. The mean value indicates higher Tamasic Knowledge in engineering males as compared to medical males (M=15.88 v/s M=12.58 respectively) and Tamasic Habit (M=5.47 v/s M=4.80 respectively). Further, a significant difference was found between males of Medical and Engineering students at the 0.05 level of confidence, on the dimension of Sattvic Knowledge with a t value of 2.05 and Sattvic Habits with a t value of 1.91. Based on mean values, it can be concluded that Medical stream males have higher Sattvic Knowledge and Satvic Habits as compared to male students of Engineering (M 14.42 & 12.48: M 6.68 & 5.98 respectively).

TABLE IV COMPARISON BETWEEN MALES OF MEDICAL AND ENGINEERING STUDENTS ON DOMAINS OF THE BIG FIVE PERSONALITY INVENTORY

Dimensions	Stream	Mean	Standard Deviation (SD)	't' value
Extraversion	Medical	26.70	5.48	
	Engineering	24.88	4.08	1.88
Agreeableness	Medical	29.72	5.09	
	Engineering	28.90	4.08	0.86
Conscientiousness	Medical	31.76	5.09	
	Engineering	28.50	4.34	**3.10****
Neuroticism	Medical	22.56	4.54	
	Engineering	22.80	3.69	0.29
Openness to Change	Medical	35.12	6.03	
	Engineering	32.22	6.89	**2.23***

Table IV indicates the difference between males of the Medical and Engineering streams on the two domains of the Big Five Inventory. Medical students exhibited higher Conscientiousness (M=31.76) as compared to Engineering students (M=28.50), with a t-value of 3.10 ($p < 0.01$). Similarly, Medical students showed greater Openness to change (M = 35.12) as compared to Engineering students (M = 32.22), with a t-value of 2.23 ($p < 0.05$).

TABLE V COMPARISON BETWEEN FEMALES OF MEDICAL AND ENGINEERING STUDENTS ON TRIGUNA TRAITS

Dimensions	Stream	Mean	Standard Deviation (SD)	't' value
Tamasic Knowledge	Medical	13.42	4.58	
	Engineering	14.22	5.84	0.76
Sattvic Knowledge	Medical	13.30	4.45	
	Engineering	12.36	4.45	1.05
Rajasic Habit	Medical	14.06	3.40	0.36
	Engineering	14.36	4.74	
Sattvic Spirituality	Medical	12.90	3.82	0.15
	Engineering	13.02	4.00	
Tranquility	Medical	9.20	2.41	
	Engineering	9.58	2.89	1.42
Maturity	Medical	5.40	2.02	1.08
	Engineering	4.94	2.22	
Emotional Stability	Medical	5.66	1.23	0.88
	Engineering	5.92	1.66	
Empathy	Medical	6.12	2.17	0.75
	Engineering	5.78	2.35	
Sattvic Habit	Medical	6.28	1.64	0.66
	Engineering	6.50	1.69	
Tamasic Habit	Medical	5.22	1.90	0.04
	Engineering	5.20	2.20	
Passion	Medical	5.90	1.74	0.05
	Engineering	5.88	2.00	

Table V showed that no significant difference was found between female students of the Medical and Engineering stream on Triguna Traits.

TABLE VI COMPARISON BETWEEN FEMALES OF MEDICAL AND ENGINEERING STUDENTS ON DOMAINS OF BIG FIVE PERSONALITY FACTORS

Dimensions	Stream	Mean	Standard Deviation (SD)	't' value
Extraversion	Medical	23.70	4.52	1.32
	Engineering	24.94	4.84	
Agreeableness	Medical	29.64	4.08	0.08
	Engineering	29.56	4.85	
Conscientiousness	Medical	30.10	5.03	0.89
	Engineering	29.10	6.12	
Neuroticism	Medical	25.66	4.03	**2.07***
	Engineering	23.78	4.99	
Openness to Change	Medical	35.14	6.36	1.46
	Engineering	33.12	7.42	

Table VI highlights the significant difference between Medical and Engineering stream female students on the neuroticism dimension of Big-Five factors. The results are in favour of female Medical students. The mean value indicates higher Neuroticism in Medical students (M=25.66) as compared to Engineering students (M=23.78) with a t-value of 2.07 ($p < 0.05$).

TABLE VII COMPARISON BETWEEN MALES AND FEMALES OF MEDICAL STREAM ON TRIGUNA TRAITS

Dimensions	Gender	Mean	Standard Deviation (SD)	't' value
Tamasic Knowledge	Male	12.58	5.47	0.83
	Female	13.42	4.45	
Sattvic Knowledge	Male	14.42	4.22	1.29
	Female	13.30	4.45	
Rajasic Habit	Male	15.10	3.94	1.41
	Female	14.06	3.40	
Sattvic Spirituality	Male	13.82	3.40	1.27
	Female	12.90	3.82	
Tranquility	Male	9.80	3.14	1.06
	Female	9.20	2.41	
Maturity	Male	5.60	2.26	0.46
	Female	5.40	2.02	
Emotional Stability	Male	6.12	1.45	1.70
	Female	5.66	1.23	
Empathy	Male	5.86	2.07	0.61
	Female	6.12	2.17	
Sattvic Habit	Male	6.68	1.70	1.19
	Female	6.28	1.64	
Tamasic Habit	Male	4.80	2.36	0.97
	Female	5.22	1.90	
Passion	Male	6.46	2.37	1.34
	Female	5.90	1.74	

Table VII shows no significant difference between male and female medical students on any dimension of Triguna Traits.

TABLE VIII COMPARISON BETWEEN MALES AND FEMALES OF MEDICAL STREAM ON DOMAINS OF BIG FIVE PERSONALITY FACTORS

Dimensions	Gender	Mean	Standard Deviation (SD)	't' value
Extraversion	Male	26.70	5.48	**2.98****
	Female	23.70	4.52	
Agreeableness	Male	29.72	5.09	0.08
	Female	29.64	4.08	
Conscientiousness	Male	31.76	5.41	1.58
	Female	30.10	5.03	
Neuroticism	Male	22.56	4.54	**3.60****
	Female	25.66	4.03	
Openness to Change	Male	35.12	6.03	0.01
	Female	35.14	6.36	

Table VIII denotes significant differences between genders of the medical stream on the dimension of Extraversion and Neuroticism of Big-Five Personality Factors. Males exhibited higher Extraversion (M = 26.70) than females (M = 23.70), with a t-value of 2.98 ($p < 0.01$). However, females from the medical stream showed high Neuroticism (M = 25.66) compared to males from the medical stream (M = 22.56), with a t-value of 3.60 ($p < 0.01$)

TABLE IX COMPARISON BETWEEN MALES AND FEMALES OF THE ENGINEERING STREAM ON TRIGUNA TRAITS

Dimensions	Gender	Mean	Standard Deviation (SD)	't' value
Tamasic Knowledge	Male	15.88	6.31	1.36
	Female	14.22	5.84	
Sattvic Knowledge	Male	12.48	5.15	0.12
	Female	12.36	4.45	
Rajasic Habit	Male	15.04	4.87	0.70
	Female	14.36	4.74	
Sattvic Spirituality	Male	13.12	3.70	0.13
	Female	13.02	4.00	
Tranquility	Male	9.72	2.78	0.422
	Female	9.96	2.89	
Maturity	Male	5.56	2.51	1.30
	Female	4.94	2.22	
Emotional Stability	Male	5.96	1.71	0.11
	Female	5.92	1.66	
Empathy	Male	5.78	2.28	0.00
	Female	5.78	2.35	
Sattvic Habit	Male	5.98	1.93	1.43
	Female	6.50	1.69	
Tamasic Habit	Male	5.74	2.11	1.24
	Female	5.20	2.20	
Passion	Male	6.14	2.22	0.61
	Female	5.88	2.00	

Table IX compares the gender of Engineering students on domains Triguna Traits. However, no significant difference was observed between the two groups.

TABLE X COMPARISON BETWEEN MALES AND FEMALES OF ENGINEERING STREAM ON DOMAINS OF BIG FIVE PERSONALITY FACTORS

Dimensions	Gender	Mean	Standard Deviation (SD)	't' value
Extraversion	Male	24.88	4.08	
	Female	24.94	4.84	0.06
Agreeableness	Male	28.90	4.34	0.71
	Female	29.56	4.85	
Conscientiousness	Male	28.50	5.07	0.53
	Female	29.10	6.12	
Neuroticism	Male	22.80	3.69	
	Female	23.78	4.99	1.11
Openness to Change	Male	32.22	6.89	
	Female	33.12	7.42	0.62

In Table X on comparing the genders of Engineering students on the domains of Big Five Personality Factors, no significant difference was observed.

VI. Discussion

The purpose of this study was to draw a comparison between Medical and Engineering students on Triguna Traits and Big-Five Personality Factors. On comparing the dimensions of Triguna Traits results indicated that Tamasic Knowledge was higher in Engineering students as compared to Medical students (Table I). Whereas, Medical students scored higher on Sattvic Knowledge as compared to Engineering students (Table I). It can be understood that Medical students' education is centred on creating sensitivity towards the well-being of humans and their health; developing a sense of empathy. Thus, nurturing higher awareness of life and health fosters Sattvic qualities. Whereas, Engineering education mainly focuses on problem-solving and logical thinking; which fosters analytical thinking and innovation over empathy or emotional development.

Medical students showed higher conscientiousness and openness to change as compared to Engineering students (Tables II). Medical students are more likely to be conscientious and adaptable because their training necessitates a strong sense of duty, meticulousness, and flexibility in a changing healthcare setting resulting into comparatively higher openness to change.

The findings are indicative of higher Tamasic Knowledge and Tamasic Habits in male Engineering students as compared to male Medical Students. On the other hand, Sattvic Knowledge and Sattvic Habits were found higher in male Medical students as compared to male Engineering students (Table III). The qualities of Sattvic Habit refer to the quality of food habits, adherence to routine, and the tendency to be organized and it is found more in the medical stream, as the field demands a willingness to serve, pay attention to details, and be empathetic; promoting sattvic traits. In contrast, the engineering stream places less emphasis on emotional intelligence and mindfulness and more on technical solutions and problem-solving for inanimate systems, which lowers the possibility of Sattvic qualities.

In addition to this, males from the medical stream displayed high Conscientiousness and Openness to Change in comparison to males of the Engineering stream (Table IV). Conscientiousness refers to being responsible and self-disciplined, whereas Openness to Change demonstrates a willingness to accept change, demonstrates originality, creativity and intellectual curiosity. It can be understood that males from the Medical stream have a strong sense of discipline and empathy, as well as an openness to new information/approaches, and lifelong learning.

In comparison, Neuroticism was found higher in medical stream females and compared in Engineering (Table VI). It can be understood that females in the Medical stream experience high levels of anxiety, stress and more negative emotions as compared to males leading to higher levels of Neuroticism. In addition to this, in between gender group comparison of Medical students, female students displayed higher levels of Neuroticism as compared to male students (Table VIII).

On studying gender difference of medical stream students, males exhibited higher Extraversion as compared to females (Table VIII). The characteristics states that males seem to be more outgoing, enjoy socializing and seems to more assertive in nature as compared to females.

Some past research supported the results of this study as follows:

Vineeta and Kauhal (2024) conducted a cross-sectional study to explore the association of Vedic Personality Traits and Empathy among Medical Students. There were 122 subjects; the proportion of male and female students was 52 and 70, respectively. The findings revealed that Sattva has a positive link with Perspective Taking (PT) and a negative correlation with Personal Distress, implying that those with higher Sattva scores are more likely to be socially competent and emotionally stable (Eysenck, 1991). Furthermore, gender differences were detected in empathy scores, with females scoring higher than males in Perception Taking, Empathetic Concern, and Personal Distress, highlighting the necessity of addressing personality traits in medical education to encourage empathic skills among healthcare practitioners. There was no significant difference in Sattva, Rajas, and Tamas scores between males and females. Umakant (2021), conducted a study to find out the Gender Difference between the Big Five Personality on Students. His study's total sample size was 100 students, including 50 male students (25 urban and 25 rural) and 50 female students (25 urban and 25 rural) from Aurangabad, a district in Maharashtra. The results showed that male students were more conscientious than female students. Female students have higher neuroticism than male students. There is no substantial difference between Male and Female Students in terms of Openness which is similar to the present study. Richard and Terence (2010) studied Gender Differences in Extraversion, Neuroticism, and Psychoticism in 37 Nations, research findings indicated, that women had a higher mean neuroticism than men in all nations.

VII. Application of the Study

The results of this study provide valuable information about the psychological characteristics of Engineering and Medical students, information that can guide instructional strategies and student assistance programs (Sharma et al., 2020). Engineering students' higher levels of Tamasic Knowledge point to a propensity for mental exhaustion and disengagement, which is a typical problem in demanding academic professions. To lessen these problems, recent studies emphasize the significance of developing more engaging, interactive, and collaborative learning environments (Stewart et al., 2022). However, medical students' stronger Sattvic Knowledge highlights the advantages of experiential learning and emotional control, which can be promoted in other domains to promote equilibrium and clarity (Kumar et al., 2021).

Additionally, the study found that Medical students are more Conscientious and Open to Change, which is consistent with earlier studies on the value of these attributes in high-pressure situations (Roberts et al., 2005). These findings also indicate the adaptive abilities required for success in Medical school. The differences between male and female students, especially in the Medical stream, point to the necessity of focused interventions, including stress management courses, to address female students' higher levels of Neuroticism (Kumar et al., 2021).

In summary, these results highlight how critical it is to recognize and address the distinct psychological characteristics of students pursuing Engineering and Medical programs. Stress management, resilience-building initiatives, and gender-sensitive teaching methods are examples of customized support networks that can enhance students' academic achievement and well-being in various domains. Educational institutions can establish more encouraging and stimulating settings that promote not only academic achievement but also mental and emotional well-being by acknowledging and addressing the distinct psychological characteristics and difficulties that each student faces. For students in these sectors to succeed in their future occupations and manage the demands of their education, specialized interventions and support networks are essential.

VIII. Conclusion

- Engineering students have shown higher Tamasic Knowledge as compared to Medical students.
- Medical students showed higher Sattvic Knowledge than Engineering students.
- Medical students have high Conscientiousness and Openness to Change as compared to Engineering students.
- Tamasic Knowledge and Tamasic Habits are found to be high in male Engineering students as compared to Medical students.
- Medical male students showed higher Sattvic Knowledge and Sattvic Habits in comparison to Engineering students.
- Medical male students have high Conscientiousness and Openness to Change as compared to Engineering male students.
- No significant difference was found between Medical and Engineering female students on dimensions of Triguna Traits.
- Females from the Medical stream showed high Neuroticism as compared to females from the engineering stream.
- No significant difference was found between males and females of the Medical stream on dimensions of Triguna Traits.
- On gender comparison from the Medical stream males showed a higher level of Extraversion as compared to females and females showed higher Neuroticism as compared to males.
- No significant difference was found between males and females of the Engineering stream on dimensions of Triguna Traits.
- On gender comparison no significant difference was seen in males from the Engineering stream.

IX. Limitation and Suggestion

- Due to the time limit, a small sample size was taken, the obtained result will be more significant if a larger sample is included in future studies.
- Sample from only Vadodara, Surat, Bharuch and Ahmedabad were included in this study, other districts and states can also be included in future research
- Future research can also incorporate additional variables like Big Five Personality factors, emotional intelligence, childhood history etc.

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