

Correlation study between personality traits and cognitive distortions

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ABSTRACT

Personality is the unique way in which the individual thinks, acts, and feels throughout life. In psychological terms, personality refers to our characteristic way of responding to individuals and situations. It is a general principle of psychology that people operate in the world based on, to a large extent, assumptions about themselves, others, the environment, and the future. When these assumptions or attributions are inaccurate, unnecessarily negative, and interfere with optimal functioning, they often are referred to as cognitive distortion or dysfunctional thinking patterns. With the help of the present study, the relationship between personality dimensions on NEO-FFI and the dimensions on the Cognitive Distortion Scale (CDS) will be assessed in undergraduate and postgraduate students, in the age group of 18-24 years, with 200 sample size, using purposive sampling. To investigate whether the corresponding components of NEO-FFI and CDS are correlated or could predict the other domains by analyzing the results. All the big five factors of personality and domains of cognitive distortions were found to be correlated and males and females differed in the domains of neuroticism, extraversion etc. Majorly neuroticism predicted the dimensions of cognitive distortions.

Keywords: *Personality, Cognitive Distortion, Correlation, Regression, NEO-FFI*

Personality is the feature styles of thoughts, feelings, and behaviors that make an individual unique. The global environment has escalated the negative attitude and self-defeating beliefs amongst the individuals and considering the factors in the present times, including the global pandemic (COVID-19). Young adults are engaged in various spheres other than education which leads to an increased workload along with higher cognitive functioning and stressful personal lives. Cognitive distortions may be typically translated into dysfunctional impulsivity, anger, frustration, sadness, fear, low self-esteem, low self-control, anxiety, etc., and they may be obvious amongst younger adults. Finding what relationship these distortions share with certain personality traits may have abundant implications that can be used to know how to deal with it and could be applied for the betterment of the society. In the light of this explanation, the present study aims to

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investigate the continuation of cognitive distortions, in correlation with varied personality traits.

In a study aiming to investigate the relationship of cognitive distortions and personality traits in students of University of Karachi, there is a negative correlation between cognitive distortions, extraversion and agreeableness (Shakeel & Ali, 2015). However, the correlation was weak and thus, statistically insignificant. Furthermore, there existed moderate positive correlation between an adult's score on cognitive distortions scale and neuroticism factor of personality. The analysis indicated that cognitive distortions predict neuroticism in adults. It was concluded that cognitive distortions play an important role in the development and maintenance of personality traits and in the development of personality disorders and other psychopathologies.

A study examining the contributions of cognitive distortions and maladaptive personality traits in hating among adolescents found that the cognitive distortion 'blaming others' was related to hating behaviors (Pace, D'Urso & Zappulla, 2019). Furthermore, the analysis showed that the other personality traits (negatively affectivity, detachment, antagonism, and disinhibition) did not predict hate among adolescents. This suggests that irrational schemes and the disconnection from what happens from reality may be the element that most explains the hatred of adolescents.

Serine's (2016) research on the relationship between cognitive distortions and ADHD while accounting for personality pathology and found that the presence of neuroticism in adult ADHD is likely to predict frequent cognitive distortions. This increased frequency of cognitive distortions may exacerbate many of the functional difficulties already experienced by adults with ADHD.

Personality

The concept of personality arises from the fascinating spectrum of human individuality and consistency, the personality can be defined as "the distinctive and relatively enduring ways of thinking, feeling, and acting that characterize a person's responses to life situations" (Passer & Smith, 2011). The individual differences in characteristic patterns of thinking, behaving and feelings can be described as personality. The examination of personality focuses on: First, know-how man or woman variations especially character characteristics. Second, know-how the diverse elements of someone come collectively as a whole. (American Psychiatric Association).

Psychodynamic Perspective

This specializes in the function of the subconscious thoughts within side the improvement of personality. Freud searched for the reasons of behavior in a dynamic interaction of internal forces that regularly battle with one another. To describe the three tiers of the thoughts, Freud used the analogy of an iceberg. On the surface is consciousness, then comes the preconscious, and the most significant region is the unconscious. There are unconscious psychological strategies that individuals apply to escape from anxiety and guilt known as defense mechanisms. Some of them are: repression, denial, projection, rationalization, reaction formation, and displacement.

He divided the structure of mind into three components: the id, the ego, and the superego. According to him, the five psychosexual stages: oral, anal, phallic, and genital takes place during childhood in psychological development.

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Behaviorist Perspective

According to behavioral approach, personality can be understood as the response of an individual to the environment. A person learns new behavior in response to new environments and stimuli. The personality of an individual is shaped through experiences and interaction with the environment. According to this approach, personality can be viewed as a pattern of learned behaviors acquired through either classical (Pavlovian) or operant (Skinnerian) conditioning and shaped by reinforcement in the form of rewards and punishments.

Biological Perspective

The focus of biological explanations for personality differences is majorly on three levels. One group of theorists uses evolutionary principles to explain why particular traits exist in the human species. Others seek the genetic basis for trait inheritance while the third groups of theorists search for differences in the functioning of the nervous system.

Type Approach

It tries to realize the human character with the aid of using inspecting positive vast styles within side the discovered behavioral traits of individuals.

Hippocrates logically categorized the character styles of people, which they known as humors and every of the four humors changed into an end result of an extra of one of the four physical fluids. Choleric (yellow bile), melancholic (black bile), sanguine (blood) and phlegmatic (phlegm) are the 4 types of humors.

The ancient Indian model of personality exists on the basis of trigunas: Rajas (intensive activity, materialistic mentality, and envy for others); Tamas (arrogance, anger, laziness); Satva (truthfulness, dutifulness, discipline).

Sheldon categorizes three body types: endomorphs, who are rounded and soft; mesomorphs, who are square and muscular; ectomorphs, who are thin and fine-boned.

Jung proposed an important typology by distinguishing two different types: Introverts, which are those people who receive stimulation from within, and extroverts, which are those who receive their stimulation from the environment. His theory states that each person's psyche is composed of three components: ego, personal consciousness and collective unconsciousness.

According to Friedman and Rosenman's work, Type A (tend to be highly competitive, impatient, highly prone to heart diseases) and Type B (tend to be relaxed, easy going, procrastinate a lot) personality describes two contrasting personality types. In the later studies, Type C (tend to be cooperative, unassertive, prone to high stress levels) and Type D (tend to be pessimistic, isolated, at high risk of depression) are found in an individual.

Trait Approach

It makes a specialty of the particular mental attributes alongside which people vary in regular and solid ways.

Allport's trait theory categorized the personality traits into three levels. Cardinal traits: These traits are highly generalized dispositions. Central traits: These traits are the major

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characteristics of a person, mostly observable in daily interactions. Secondary traits: These traits are least in influencing individual's behaviors and are least generalized.

Cattell created taxonomy of sixteen unique personality developments that would be used to explain and provide an explanation for character variations among humans' personalities via way of means of the use of a statistical approach called thing analysis. He devised "16PF Questionnaire", one of the broadly used personality assessments.

Eysenck's principle of personality is split into three dimensions: Neuroticism vs. Emotional balance, Extraversion vs. Introversion, and Psychoticism vs. Sociability. Eysenck's Personality Questionnaire is used for evaluation of those dimensions of personality.

The Five Factor Model of personality changed into proposed via the means of Costa and McCare (1992). It evolved to symbolize a whole lot of the range in people' personalities as possible.

- 1. Neuroticism.** This trait refers to a character's diploma of emotional balance and impulse control. People have a tendency to revel in emotional instability who rates themselves excessive on neuroticism. On the alternative hand, humans have a tendency to be calm and even-tempered who rating low on neuroticism.
- 2. Extraversion.** It demonstrates a character with excessive energy, emotions, talkativeness, sociability, and the tendency to try to find stimulation within side the organization of others. Individuals low on extraversion select solitude and/or smaller groups, experience quiet space, select sports alone, and keep away from huge social situations.
- 3. Openness to Experience.** It describes a diploma to which someone indicates creativity, highbrow curiosity, and choice for novelty and variety.
- 4. Agreeableness.** This trait measures one's tendency to be compassionate, truthful and cooperative in preference to suspicious and opposed closer to others. Individuals who have a tendency to be defined as impolite and uncooperative rating low on agreeableness.
- 5. Conscientiousness.** It refers to a character's tendency towards self-discipline, dutifulness, competence, thoughtfulness, and achievement-striving.

Humanistic Approach

Another approach regarding personality is the humanistic approach which emphasizes human strengths, aspirations and the importance of people's subjective attitudes, feelings and beliefs especially with regard to the self.

Rogers believed that individuals are conscious, rational beings and their personality can be understood through a phenomenological approach, i.e., from an individual's own viewpoint based on his subjective experiences. He stressed the importance of unconditional positive regard which leads to feelings of worth in an individual. According to Rogers, people are motivated by an innate tendency to achieve, maintain and enhance the self to become fully functioning persons and fulfillment of self is the motivating force for personality development.

Abraham Maslow believed that each individual is born with basic needs that lead to growth, development and actualization. The hierarchy of needs is: physiological needs, safety needs, needs for belongingness and love, self-esteem needs and needs for self-actualization.

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Self-actualization is the highest need in the hierarchy in which people have reached their highest potential. Thus, the humanistic approach emphasizes the significance of positive aspects of life.

Cognitive Approach

The cognitive theories of personality have provided importance to counseling and psychotherapy by exhibiting the ways through which modification of positive or negative mood in cognition can be demonstrated. Aaron T. Beck's method of cognitive-behavioral therapy and Albert Ellis's rational emotive behavior therapy both emphasize the ways in which distorted beliefs (mostly attributional beliefs) directly lead to experiences of negative emotion such as anxiety and depression.

Kelly's theory of personal constructs, cognitive categories into which they sort the people and events in their lives and explain how people around test personal theories, or personal constructs, about the world, how it works, and about themselves.

Social-Cognitive Approach

The social-cognitive theorists combine the behavioral and cognitive outlook into an approach to personality that emphasizes the interaction of thinking human with a social environment which provides learning experiences.

Bandura's notion of reciprocal determinism, which states that a person's behavior influences and is influenced by personal factors and the social environment. His theory and research on self-efficacy has factors that create differences in self-efficacy by four determinants: previous performance experience in similar situations/tasks, observational learning, verbal persuasion, and high emotional arousal.

In Rotter's theory, reasonable predictions were made about the behavior keeping in mind four variables: behavior potential, expectancy, reinforcement value, and psychological state of affairs. His most influential idea is locus of control (internal-outside locus), an expectancy regarding the diploma of private manipulation we've in our lives.

Mischel's cognitive-affective processing system states that an individual's behavior is influenced by two things: the specific attributes of a given situation and the situational variables and cognitive qualities of an individual on the development of personality.

Personality holds moods, attitudes, and beliefs which are indicated through interaction with other individuals. It comprises certain behavioral attributes, both inherent and acquired, which differentiate one person from another. These attributes can be observed in individual's relations to the environment and to the social group. Personality can be affected by various factors such as heredity, intelligence, physique, biological factors and one of them is cognitive distortions.

In a study examining the correlation between distortions of emotional perception and personality, in which the results show the relationship between distortion of love with COP and IDCP's Need for Attention factor (Miguel & Pessotto, 2016). Participants who displayed greater need for being well-accepted, received, and cared for by others, viewed interactions positively and tended to perceive emotional expressions of love where they did not exist. The study also found significant correlations between perceiving more expressions of anger in others and having the belief that people might be criticizing or judging negatively.

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Cognitive Distortions

An irrational thought or exaggerated pattern involved in the perpetuation and onset of psychopathological states, particularly those more influenced by psychosocial factors, such as anxiety and depression is described as Cognitive Distortions. Distortions are irrational thoughts and beliefs that can lead to problematic emotional states and behaviors. Cognitive distortions mirror fallacious questioning styles frequently stemming from insecurities and self-esteem.

Cognitive distortions reflect flawed thinking patterns often stemming from insecurities and low self-esteem. Stressful emotional thoughts can be generated by negative filters that distort reality and stir up feelings, which in turn trigger more negative thoughts, creating a negative feedback loop. Aaron Beck, the founder of Cognitive Behavior Therapy (CBT) proposed the concept of cognitive distortions.

Beck and David Burns (1989) identified several categories of cognitive distortion which can be explained as follows:

Overgeneralization

Individuals preserve intense ideals on the idea of a single incident or a single piece of proof and practice them inappropriately to distinct occasions or settings. Magnification and Minimization includes perceiving a scenario or a case in a lesser or extra mild than it deserves.

Personalization

This includes a tendency for individuals to relate external events to themselves; where a person believes that everything others do or say is some kind of direct, personal reaction to them. Jumping to Conclusions

This refers to drawing conclusions that are usually negative with little or no evidence.

- **Mind-Reading.** Jumping to conclusions can manifest itself as mind-reading, where a person attributes negative thoughts and reactions to others without even checking if they are present.
- **Fortune-Telling.** Jumping to conclusions also can take place as fortune-telling, which refers back to the tendency to make bad conclusions and predictions primarily based totally on very little proof and retaining them as truth.

Labeling

During labeling someone generalizes one or traits right into a bad worldwide judgment approximately themselves or some other person.

Polarized Thinking

In this type of cognitive distortion, people tend to believe that things are either “black or white”, that is, all or nothing.

‘Should’ Statements’

This is a type of cognitive distortion where a person has definite and inflexible ideas about how they and others should behave and how life should be. For people with this distortion, ‘Should’ statements tend to appear as a list of ironclad rules with respect to how every individual should behave.

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Mental Filter (Selective Abstraction)

It includes someone to be aware selectively of bad information and fails to peer into the huge picture. Beck believed that the bad schemas evolved and manifested themselves within side the attitude and conduct. The distorted thought processes lead to focusing on degrading the self, experiencing other's harmless comments as ill-intended, while simultaneously seeing self as inferior. Inevitably cognitions are reflected in their behavior with a reduced desire to care for self, to seek pleasure and give up. These overemphasized perceptions may feel realistic and authentic because the core schemas which are reinforced are inclined to become automatic and do not provide time for reflection due to negative cognitions. The principle that the person's negative schema carried out to the self, the surroundings is called the Beck's Cognitive Triad. Beck, 1976; Burns, 1980 have given some different fallacies other than those cognitive distortions.

Control Fallacies

This cognitive distortion entails unique however associated ideals approximately being in whole manage of each scenario in someone's life. It includes the fallacy of internal control and the fallacy of external control.

Fallacy of fairness

In the fallacy of fairness, someone feels envious due to the fact they assume that they understand what's fair, however different human beings won't trust them.

Fallacy of Change

In the fallacy of change, someone expects that different human beings will extrude to shape them in the event that they simply stress or cajole them enough. An individual wishes to extrude human beings due to the fact their hopes for achievement and happiness appear to rely completely on them.

Always Being Right

When someone engages in this distortion, they're always setting different human beings on trial to show that their personal evaluations and moves are absolutely the accurate ones. To someone enticing in "usually being right" being incorrect is unthinkable.

Heaven's Reward Fallacy

The fake notion that someone's sacrifice and self-denial will in the end pay off, as though a few worldwide pressures are retaining score. An individual who sacrifices and works difficult however doesn't enjoy the anticipated payoff will commonly experience sour whilst the praise doesn't come.

Factors affecting Cognitive Distortions

Cognitive theorists believe that many factors contribute to the development of dysfunctional cognitions, including people's genetic predisposition and biology, life experiences and their accumulation of knowledge and learning. Poletti, Colombo & Benedetti conducted a research study which revealed that negative childhood experiences are correlated to high levels of cognitive distortions. The Stress-Vulnerability Model states that as more stress occurs, the more the person's automatic thoughts are at the mercy of underlying dysfunctional beliefs and schemas. (Scott and Freeman, 2010). Certain cultural factors which result in stereotypical thinking and prejudice against a particular community and race. Other biases, like sexism, homophobia, etc., include over-generalizations, mislabeling, polarized thinking, and a mental filter. Individual social factors where people grasp ideas,

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beliefs, and ways of thinking from other people. Dysfunctional thinking patterns could also be affected in a positive as well in a negative manner by psycho education and reading. Phenomena such as attribution bias, the halo effect, and many others can cause systematic biases.

Pressure that leads people to make snap judgments are forced to practice oversimplified thinking, by which they will have more cognitive distortions. Fear, anger, and group conflict particularly the ones regarding seeing others as an “enemy” or danger caters cognitive distortions. Factors that raise or cause strain, fear, anger, despair or depressed temper can cause distortions. Habit can consist of each style within the mind itself, and approaches of wondering, and matters that contain outside behaviors.

Treatment for Cognitive Distortions

Cognitive therapists work closely with a client to restructure their cognitions and help them find words to express their new cognitions accurately, realistically and in ways that are compatible with their emotions. There are certain strategies that enhance the work of cognitive therapists like challenging absolute statements, activity scheduling, re-attributing blame, cognitive rehearsal, diversions or distractions, self-talk, affirmations, journal writing, systematic assessments of alternatives, relabeling, role play, distancing, letter writing, bibliotherapy and graded task assignments.

In a study examining the individuals who have recently attempted suicide experience more cognitive distortions than those who have not recently attempted suicide (Brown et al., 2014) Findings support the hypothesis that individuals who recently attempted suicide are more likely than psychiatric controls to experience cognitive distortions, even when controlling for depression and hopelessness.

Kuru et al. (2018) conducted a study based on the cognitive model of social anxiety disorder (SAD), the comparison is depicted amongst the clinical groups and healthy control while studying cognitive distortions in patients with social anxiety disorder. Individuals who are anxious in social environments have some dysfunctional thoughts and beliefs regarding themselves and ways of others to judge their behaviors. The correlations between social anxiety, state and trait anxiety levels, depressive symptoms, and cognitive distortions were analyzed and significant correlations were found between the scales with a range of 0.316–0.676.

The objective of the present study is threefold.

1. To find out the correlation between Big five factors of personality and the domains of cognitive distortions.
2. To find out whether males and females differ among personality factors and cognitive distortions.
3. To find out which of the big five factors of personality predict cognitive distortions.

The hypotheses of the current study are:

1. There is no relationship between the big five factors of personality and the domains of cognitive distortions.
2. There is no difference between males and females among big five factors of personality and cognitive distortions.
3. There is no role of personality factors in the prediction of cognitive distortions.

METHODOLOGY*Participants*

Gender	Age-Group	Participants
Male	18-24	100
Female	18-24	100

The sample is selected through purposive sampling from Delhi-NCR.

Tools Used

Two questionnaires were used in the present study:

Five Factor Inventory (NEO-FFI) developed by Costa and McCrae (1992) in order to measure the five broad domains of personality domains of Neuroticism, Extraversion, Openness to Experience, Agreeableness and conscientiousness. It consists of 60 items rated on a five-point scale (Strongly Disagree to Strongly Agree), twelve items measuring each domain. The test-retest reliability of the NEO-FFI for three months of all five factors against the NEO-PI and corresponding scales, with correlations ranging from .75 (Conscientiousness) to .89 (Neuroticism). Convergent, construct and criterion validity have been demonstrated in many studies using the NEO-FFI, convergent validity correlations ranging from .56 to .62, and no correlation exceeding .20 for divergent validity. In a large validation study (n = 1539), Costa and McCrae (1992) reported Cronbach's alpha coefficients ranging from .68 (Agreeableness) to .89 (Neuroticism). The latent structure of the NEO-FFI is consistent with its scoring key, thus supporting construct validity.

John Briere (2000) developed the Cognitive Distortion Scale (CDS) in order to assess a range of negative thinking patterns that interfere with optimal functioning. It consists of 40 items rated on a five-point scale ranging from one to five, each of which contains eight items of self-criticism, self-blame, helplessness, hopelessness, and preoccupation with danger. The five subscales of CDS are analyzed for internal consistency which ranged from .87 to .97. The scores on the CDS subscales show significant interrelation in the standardization sample, highest being between helplessness and hopelessness. Three different validities are tested by the scale: construct, convergent and discriminate value. The construct validity is obtained against sociality, having been victimized personally, depression, post-traumatic stress. The convergent and discriminate value was analyzed against measures of Trauma Symptom Inventory, and behavior checklists.

Design

The study aims to explore the relationship between the personality traits and cognitive distortions in young adults; therefore, correlational design was used.

Procedure

After finalizing the aim, hypotheses and objectives of the current study, the suitable questionnaires were selected for the study. It was decided that to carry out the research, NEO-FFI would be used to study personality and to study cognitive distortions. Cognitive Distortion Scale would be used. Both the questionnaires were used on each participant. On completing the administration of the questionnaires, the raw scores were tabulated, and inferential statistical operations were performed. The correlation between each of the five dimensions of personality and cognitive distortions of participants were calculated. The final data was collated and thoroughly analyzed at group level and as well as at individual level.

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The analysis of data was followed by extensive research and reasoning to explain the final result and its interpretation of the study.

RESULTS

Table 1 Correlations

	Neuroticism	Extraversion	Openness to Experience	Agreeableness	Conscientiousness	Self-Criticism	Self-Blame	Helplessness	Hopelessness	Preoccupied with Danger
Neuroticism	1	-.301**	-.194**	-.063	-.367**	.466**	.511**	.513**	.447**	.508**
Extraversion		1	.068	.125	.377**	-.149*	-.131	-.182**	-.204**	-.277**
Openness to Experience			1	.310**	.181*	-.097	-.181*	-.166*	-.195**	.053
Agreeableness				1	.245**	.067	-.053	-.020	-.026	-.053
Conscientiousness					1	-.380**	-.366**	-.367**	-.371**	-.353**
Self-Criticism						1	.775**	.704**	.693**	.658**
Self-Blame							1	.748**	.697**	.643**
Helplessness								1	.845**	.625**
Hopelessness									1	.633**
Preoccupied with Danger										1

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

*. Correlation is significant at the 0.05 level (2-tailed).

As seen in the above table, neuroticism is positively correlated with all the dimensions of cognitive distortions and inversely correlated with all the other domains of NEO-FFI at 0.01 level of significance.

1. Extraversion is significantly correlated with all the domains of cognitive distortions and NEO-FFI except openness to experience, agreeableness and self-blame.
2. Openness to Experience is significantly correlated with all the dimensions of other than preoccupied with danger, self-criticism and extraversion.
3. The domain of agreeableness is significantly correlated with openness to experience and conscientiousness.
4. Conscientiousness is significantly correlated with all the dimensions of NEO-FFI and cognitive distortions.
5. The first domain of Cognitive Distortions Scale, self-criticism is significantly correlated with all the domains of NEO-FFI and CDS, excluding neuroticism and agreeableness.
6. Self-blame is significantly correlated with all the other domains of CDS and NEO-FFI except extraversion and agreeableness.

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7. The domain of helplessness shows a significant correlation with all the other domains of CDS and NEO-FFI excluding agreeableness.
8. The domain of hopelessness shows a significant correlation with all the other domains of CDS and NEO-FFI excluding agreeableness.
9. The last domain of CDS, preoccupied with danger is significantly correlated with all the other domains, excluding openness to experience and agreeableness.

No other significant relation was found in the above table.

Table 2 t-Test to Assess the Difference between Males and Females

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

Variables	Gender	Mean	Std. Deviation	t	df	Significance (Two-Tailed)
Neuroticism	Male	24.81	6.200	-2.999	198	0.003**
	Female	27.32	5.623			
Extraversion	Male	28.52	5.790	3.075	198	0.002**
	Female	26.07	5.472			
Openness to Experience	Male	24.20	4.422	-9.11	198	0.363
	Female	24.74	3.948			
Agreeableness	Male	26.70	4.096	-4.244	198	0.000**
	Female	29.27	4.461			
Conscientiousness	Male	28.76	6.049	-0.728	198	0.468
	Female	29.39	6.194			
Self-Criticism	Male	15.74	5.376	-2.390	198	0.018**
	Female	17.68	6.082			
Self-Blame	Male	17.01	5.262	-1.733	198	0.085
	Female	18.37	5.820			
Hopelessness	Male	16.02	5.845	-2.517	198	0.013**
	Female	18.21	6.445			
Helplessness	Male	14.17	5.262	-1.816	198	0.017**
	Female	15.79	5.920			
Preoccupied with Danger	Female	17.73	5.552	-2.287	198	0.023**
	Male	19.65	6.298			

*. Correlation is significant at the 0.05 level (2-tailed).

1. From the above table, it is found that there is a significant difference between males and females in the domain of neuroticism, where females scored high on this domain with the mean of 27.32 whereas, the mean of males was calculated: 24.81.
2. In the domain of extraversion, significant differences between males and females with the mean scores are 28.52 and 26.07 of males and females respectively, and it depicts that males are high on this domain as compared to females.
3. There was a significant difference among both the genders in agreeableness. The calculated mean of males is 26.70 and the mean of females is 29.27. In comparison to males, females have obtained a high score on this dimension.
4. Therefore, in Big-Five Personality Factors, the significant differences among males and females were found in the domain of neuroticism, extraversion and agreeableness
5. In the domain of self-criticism, the obtained mean score of males was 15.74 and the obtained mean score of females was 17.68, which is comparatively higher than males.
6. The dimension of hopelessness has a significant difference with the mean scores of 16.02 for males and 18.21 for females which is comparatively higher than males.

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7. The difference in mean scores for males is 14.17 and for females is 15.79. The results show that females score higher in the domain of helplessness than males.
8. Preoccupied with Danger, the last dimension of CDS represents the significant difference among males with the mean score of 17.73 and females with the mean score of 19.65 which indicates that females scored higher than males.

Thus, no other significant gender differences in CDS were found among males and females.

Table 3 Regression Analysis (N=200) Criterion Variable: Self-Criticism

S. No.	Predictors	R	R-Square	Beta-value (β)	t	Significance
1.	Neuroticism	.543	.277	.380	5.687	.000**
2.	Extraversion			.060	.902	.368
3.	Openness to Experience			.164	2.518	.013**
4.	Agreeableness			-.023	-.361	.718
5.	Conscientiousness			-.299	-4.293	.000**

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

It can be observed from Table 3, the correlation of all predictor variables taken together with the criterion variable, i.e., self-criticism is .543 which is highly significant ($F = 16.260$, $p < 0.01$).

The variance explained by the predictor variables is 27.7%. Three out of five personality factors influenced self-criticism significantly, i.e., neuroticism ($\beta = .380$, $p < 0.01$), openness to experience ($\beta = .164$, $p < 0.05$) and conscientiousness ($\beta = -.299$, $p < 0.01$).

Table 4 Regression Analysis (N=200) Criterion Variable: Self-Blame

S. No.	Predictors	R	R-Square	Beta-value (β)	t	Significance
1.	Neuroticism	.557	.293	.440	6.656	.000**
2.	Extraversion			.090	1.372	.172
3.	Openness to Experience			.044	.683	.496
4.	Agreeableness			-.073	-1.138	.256
5.	Conscientiousness			-.236	-3.429	.001**

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

It can be observed from Table 4, the correlation of all predictor variables taken together with the criterion variable, i.e., self-blame is .557 which is highly significant ($F = 17.481$, $p < 0.01$).

The variance explained by the predictor variables is 29.3%. Two out of five personality factors influenced self-blame significantly, i.e., neuroticism ($\beta = .440$, $p < 0.01$) and conscientiousness ($\beta = -.236$, $p < 0.01$).

Table 5 Regression Analysis (N=200) Criterion Variable: Helplessness

SN	Predictors	R	R-Square	Beta-value (β)	t	Significance
1.	Neuroticism	.555	.291	.430	6.495	.000**
2.	Extraversion			.028	.424	.672
3.	Openness to Experience			-.068	1.241	.291
4.	Agreeableness			.080	-1.059	.261
5.	Conscientiousness			-.227	-3.285	.001**

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

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It can be observed from Table 5, the correlation of all predictor variables taken together with the criterion variable, i.e., helplessness is .555 which is highly significant ($F = 17.310$, $p < 0.01$).

The variance explained by the predictor variables is 29.1%. Two out of five personality factors influenced helplessness significantly, i.e., neuroticism ($\beta = .430$, $p < 0.01$) and conscientiousness ($\beta = -.277$, $p < 0.01$).

Table 6 Regression Analysis (N=200) Criterion Variable: Hopelessness

S. No.	Predictors	R	R-Square	Beta-values (β)	t	Significance
1.	Neuroticism	.514	.245	.336	4.920	.000**
2.	Extraversion			-.014	-.209	.835
3.	Openness to Experience			-.114	-1.718	.087
4.	Agreeableness			.092	1.390	.166
5.	Conscientiousness			-.245	-3.434	.001**

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

It can be observed from Table 6, the correlation of all predictor variables taken together with the criterion variable, i.e., hopelessness is .514 which is highly significant ($F = 13.896$, $p < 0.01$). The variance explained by the predictor variables 24.5%. Two out of five personality factors influenced hopelessness significantly, i.e., neuroticism ($\beta = .336$, $p < 0.01$) and conscientiousness ($\beta = -.245$, $p < 0.01$).

Table 7 Regression Analysis (N=200)

Criterion Variable: Preoccupied with Danger

S. No.	Predictors	R	R-Square	Beta-values (β)	t	Significance
1.	Neuroticism	.549	.283	.431	6.472	.000**
2.	Extraversion			-.086	-1.298	.196
3.	Openness to experience			.066	1.029	.305
4.	Agreeableness			.007	.113	.910
5.	Conscientiousness			-.176	-2.539	.012**

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

It can be observed from Table 7, the correlation of all predictor variables taken together with the criterion variable, i.e., preoccupation with danger is .549 which is highly significant ($F = 16.712$, $p < 0.01$). The variance explained by the predictor variables 28.3%. Two out of five personality factors influenced preoccupation with danger significantly, i.e., neuroticism ($\beta = .431$, $p < 0.01$) and conscientiousness ($\beta = -.176$, $p < 0.05$).

DISCUSSION

The purpose of the study was to address the extremity at which these distortions are present in an individual's life, especially in young adults which can impact their daily functioning and how different personality traits play a vital role. Cognitive distortion is a threat to an individual as a whole and can result in self-esteem crushing feelings of despair, failure, frustration, resentment, hopelessness, and anxiety that are left unchecked which lead to a high degree of dissatisfaction in life.

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The aim of the present study is to examine the relationship between personality dimensions and cognitive distortions in young adults ranging from age group 18-24 years from Delhi-NCR. The individual responses are analyzed in order to understand the relationship between personality and cognitive distortions.

To understand the relationship between the above-mentioned variables, two scales were used: NEO-FFI Personality Inventory consisting of 60 items, 12 items in each domain and Cognitive Distortion Scale which consisted of 40 items, 8 items in each domain.

As shown in result Table 1, neuroticism is significantly correlated with all the dimensions of cognitive distortion which indicates that an individual who scores high on neuroticism is likely to score high on cognitive distortions as well. There was a significant correlation between neuroticism and self-criticism which indicates that people who score high on this domain have a tendency to criticize and devalue oneself. They view themselves as intrinsically bad, unattractive and not capable enough or unacceptable. There is a positive correlation of neuroticism with self-blame and helplessness which indicates that people who score high on neuroticism have a tendency for blaming themselves for detrimental experiences which are out of their control and have a perception of being unable to control important aspects of one's life. It is significantly correlated with hopelessness which means that such individuals have a tendency to believe that the future is bleak, and he/she is destined to suffer or fail. There is a significant correlation between neuroticism and preoccupied with danger. This implies that people who score high on neuroticism have a tendency to view the world, especially the interpersonal domain as a dangerous place. Matthews et al. (2007) conducted a study which is in line with our study and states that the single most important trait is neuroticism. It relates to various self-referent processes, including appraisals of threat and loss of control across various contexts, negative appraisals of the self as a social agent associated with shyness, and negative or maladaptive metacognitions.

Extraversion is significantly correlated with self-criticism. Therefore, it can be inferred that those high on extraversion have a low tendency to criticize themselves and do not see themselves as being intrinsically bad, unacceptable or unattractive. It is significantly correlated with helplessness, hopelessness and preoccupation with danger. Hence, it can be said that individuals who are low on this domain are likely to assume that their efforts are unsuccessful. They may be passive in the face of challenges or danger and vice-versa. They are likely to feel that their future is bleak; in contrast, they have a high expectation of a positive future as they are outspoken and socially active. They have a tendency to view the world freely, without any danger as they are full of life, energy and positivity. Hasan et al. (2009) conducted a study to assess the cognitive emotional regulation strategies according to neuroticism and extraversion personality dimensions. In line with our results, the previous results indicated that prevalent strategies in extraverts were positive refocusing, putting into perspective and positive reappraisal. Whilst, introverts use more self-blame, acceptance, rumination, refocus on planning, catastrophizing and other-blame strategies.

It can be observed from Table 1; Openness to experience is significantly correlated with self-blame. Individuals who score high on this dimension are less likely to blame themselves for negative experiences, beyond their control since these individuals are open to novel experiences and vice-versa. It is significantly correlated with helplessness and hopelessness which means those who are scoring high on this domain are less likely to have the perception of being unable to control important aspects of their lives. Individuals who scored

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high on this dimension are less likely to feel that their future doesn't seem bright. From the results, it was evident that they are attentive to inner feelings, have a preference for variety, and have a higher intellectual curiosity. Michael et. al (2020) conducted a study revealed that women are more creative but in our current study, there is an insignificant difference between males and females.

Conscientiousness is significantly correlated with all the dimensions of CDS and NEO-FFI, owing to the fact that individuals scoring high on this dimension have good impulse control and are achievement striving which provides a shield to them against the negative dimensions of CDS. The organization and dutifulness make an individual responsible and delaying gratification of needs.

It is evident from Table 1; all the domains of cognitive distortions are significantly correlated with each other. The thinking patterns of an individual can skew their perceptions and can lead to anxiety, depression and perfectionism. The distorted reality often stems from insecurity and low self-esteem and individuals tend to feel helpless and criticize themselves. Panourgia and Comoretto (2017) conducted a study which reveals that increase in life adversity is associated with an increase in cognitive distortions, which was in turn related to a higher number of symptoms reflecting behavioral issues.

It is apparent from the result Table 2; the mean scores on neuroticism are 28.41 for males and 27.32 for females with the standard deviation of 6.200 and 5.623 for males and females respectively. This shows a significant difference between both the genders. Females scored high in the domain of neuroticism in comparison to men. The fact is that in Indian society, males are encouraged and prepared from childhood to suppress their feelings which could be one of the possible reasons for their low score on neuroticism. Men aren't adept in disclosing what they really feel and have mould themselves as hardy individuals who can deal calmly under stressful situations. From our results, it is evident that they have a hard time exhibiting about their apprehensions and emotions. On the other hand, females are more conscious, nerve-racking and emotionally unstable. They feel more stressful and this upholds to be true because society has a certain set of norms for them as well. These days, during the time of global pandemic they are expected to handle the household chores with their career which pressurizes them. This leads to hypertension, anxiety, fear of not handling their work properly, more prone to have irrational ideas and maybe they are at a risk of developing some kind of psychiatric/ psychological problems. In line with our results, the previous study conducted reveals that women have been found to show higher levels of anxiety, depression, self-consciousness, and vulnerability than men (Costa et al., 2001).

The domain of extraversion shows that males have a mean score of 28.52 and females have a mean score of 26.07 with the standard deviation of 5.790 and 5.472 for males and females respectively. In this research study, in contrast to females, it is apparent that males have scored high on extraversion. In Indian society, it is considered appropriate for a female to be shy and reserved. In all probability, there are still some cultures and households that promote females to be an introvert and restrain themselves from focusing on the external things. Such females are predominantly concerned with their own thoughts. They are unable to be outspoken and actively socialize with others. This could be the possible ground for their low score in the domain of extraversion. On the contrary, males are motivated to have a pull towards the outer experience of objects. In many families, males are the only bread earners and therefore, they are more outgoing. They appreciate spending more time with others and have more social groups.

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Moreover, males have no or very limited time constraints which allow them to be unreserved and thrive around people. In contrast to our result findings, a study conducted by Ingoldsby (1995) states that men are more likely to be introverted and thinking, while women are more likely to be extraverted.

The domain of agreeableness shows the mean scores for males at 26.70 and females at 29.27 with the standard deviation of 4.096 and 4.461 respectively. Females scored higher on this domain than males. Females being the birth givers are naturally considered tender-hearted and affectionate. Females irrespective of the culture show more altruistic behavior such as empathy, cooperation and kindness than males, they often act as the mediator in resolving the conflicts.

Human beings have the capability to show and express their emotions equally, gender differences arise because of patriarchal culture present worldwide. It is considered as a norm for the males to have aggressive tendencies, suppress their emotions and be rigid in their approach. In line with our findings, Feingold, 1994; Costa et al., 2001 conducted a study which states that women are often more agreeable than men. This means that women, on average, are more nurturing, tender-minded, and altruistic more often and to a greater extent than men.

The dimensions of cognitive distortions namely self-criticism, hopelessness, helplessness and preoccupied with danger showed significant gender differences. The mean of males in the domain of self-criticism is 15.74 and for females is 17.68. Females have scored high on self-criticism. The root cause of the difference goes back to the patriarchy rule where women are submissive and easily subdued. Living in a male chauvinistic society since ages repression of females have become the core schema which results in low self-esteem. Females have themselves accepted the harsh reality and taught the upcoming generations with the same cognition.

Therefore, being high in agreeableness trait also affects the females to agree upon having negative self-perception about themselves. Significant gender differences are evident in the domain of hopelessness. Males have a mean score of 16.02 and females scored 18.21. Having negative and bleak thoughts of the future and the perception that your life would never improve is more seen amongst the women as they score high on hopelessness than men. Significant differences are among men and women in the domain of helplessness. Females have obtained a high mean score, i.e., 15.79 as compared to men, i.e., 14.17. It is evident that females have the perception of being unable to control important aspects of one's life due to the restrictions imposed on them. In the domain of preoccupied with danger, females have obtained a high mean score, i.e., 19.65 in comparison to men, i.e., 17.73. The probable cause for the high mean scores could be that females have a tendency to view the world, especially the interpersonal domain, as a dangerous place. In line with our research findings, a study conducted by Maurya et al. (2016) revealed that cognitive distortions and depression are influenced by gender and females were found to have higher levels of cognitive distortions as well as depression than males.

As shown in result tables 3-7, neuroticism emerged as a most significant predictor of self-criticism, self-blame, helplessness, hopelessness and preoccupied with danger having a positive relationship with all the domains of cognitive distortions. Since, neuroticism has a direct relationship with all the factors of cognitive distortions, it is evident that individuals who are high on neuroticism will score high on cognitive distortions and they are more

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likely to blame themselves, criticize and feel helpless. A research study of Zamani, Fan and Rosli (2017) is consistent with our research findings. In general, such individuals are likely to score high on depression. The results of the study revealed that there is a positive correlation between self-esteem, cognitive distortion and depression.

From result tables 3-7, it is noticeable that another personality factor that emerged as a significant predictor of all the domains of cognitive distortions is conscientiousness. Results show people who are achievement-oriented, hardworking have a tendency to criticize themselves. It is likely that individuals who are focused and goal-oriented can feel helpless and hopeless when they fail. They tend to blame themselves and focus more on self (internal factors) as opposed to situational (external factors). Booth (2019) conducted a study which revealed people high in negative affect show cognitive distortions, specific thinking errors which contribute to the maintenance of their condition.

From result table 3, it is noticeable that openness to experience emerged as a significant predictor of self-criticism. It has a positive relationship with self-criticism which means if an individual who is open to new ideas and creativity can criticize themselves. It is intermittent for a person to always have a preference for variety, be aesthetic and imaginary and this is in contrast with their personality traits and could lead to self-criticism.

Limitations

As with the majority of studies, the existing study is subjected to certain limitations. Nonetheless, these shortcomings could be taken into consideration and could be addressed in the future research.

- The sampling bias could have occurred and may not have represented the appropriate population concerned.
- There were limited chances to gain access to the appropriate type or geographic scope of participants and the sample was confined to one demographic area. Therefore, the sample may not reflect the general population.
- The sample size was constricted and insufficient for statistical measurements in order to conclude a valid research result. The sample size is not too large to ensure that the sample could be considered as a representative of a population and that the statistical result could be generalized to a larger population.
- The tools used in this research to collect the data were limited to measure the variables.
- Cognitive Distortion Scale (CDS) specifies that the participants should give the responses in accordance with their feelings and perceptions in the past one month. This research study was carried out during the global pandemic (COVID-19). Another tool could have been used to assess the impact on pre-existing distortions and the personality of the individuals.
- The correlational design was used for this present study and hence, it was certainly not possible to study the cause-effect relationship. This inhibited our ability to conduct a thorough analysis of the results and could have possibly not addressed a few issues that emerged during the analysis.

CONCLUSION

On assessing the relationship between personality traits and cognitive distortions, it was evident that neuroticism has significant positive correlation with all the five dimensions of cognitive distortions (self-criticism, self-blame, helplessness, hopelessness and

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preoccupation with danger). Majorly neuroticism has influenced all the dimensions of CDS. With an increase in distortions with emotionally unstable perception, it influences the population as a whole. Higher scores in the CDS dimensions are related to destructive or suicidal behavior. The ones already predisposed to such factors according to their personality trait seem the world is a dangerous place, and the same ideology is passed on through the generation due to their cognitive distortions of overgeneralization. This study can be further used to overcome these challenges through various interventions that are inevitable part of society. Therefore, it can be used to find how individuals with different personality traits are able to cope up with it and how dimensions like conscientiousness and agreeableness could be increased for the better.

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Conflict of Interest

The author declared no conflict of interest.

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