



# Correlation between Big Five Personality and Workplace Attitude in People in Research and Manufacturing Sector

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## ABSTRACT

Studies have shown a correlation between neuroticism and aggressive behaviors. In this study, we use data collected from employees working in the manufacturing and research sector to form associations between big-five personalities and aggressive workplace behavior. A correlation was established between personality (neuroticism, openness, agreeableness, extraversion, and conscientiousness) and aggression (physical aggression, anger, verbal aggression, and hostility). Additionally, the study also examines any correlation between aggression and participant's motives (need for power, need for achievement, and need for security). The sample consists of 47 participants from a research and manufacturing unit of India. B5T was used to measure the big five personality aspects and a brief aggression questionnaire was used to measure four aspects of aggression. Using the Pearson Correlation, a statistically significant positive correlation was established between neuroticism and two subsets of aggression—anger and hostility. Additionally, there was a positive correlation between openness to new experiences and physical aggression, another subset of aggression. This result was not supported by the existing literature. Thus, more research is needed to examine this link. Interestingly, this paper found no statistically significant negative correlation between aggression and agreeableness that is well documented in other studies. Moreover, no significant correlation between people's motivations and behavior was found. A workplace can employ the use of these results to see which personality type would best benefit from which kind of aggressive intervention. Hence, they can help provide a more targeted intervention for aggressive behavior in the workplace.

**Keywords:** Workplace, Aggression, Big five personality, Digital health, Neuroticism, Motives.

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## INTRODUCTION

Workplace aggression is “a general term encompassing all forms of behavior by which individuals attempt to harm others at work or their organization”.<sup>1</sup> Workplace aggression that is insider-initiated usually involves “shouting at and spreading rumors about colleagues” rather than homicide or physical assault.<sup>2</sup>

Since one's behavior is established by personality, aggressive behavior can be linked to certain traits in the Big Five personality. The five traits of the Big Five personality are openness to new experiences, neuroticism (emotional instability), extraversion (social expressiveness), agreeableness (ability to work with others), and conscientiousness (dependability).<sup>3</sup> In previous literature, an “Angry Effect was most strongly related to neuroticism, whereas Behavioral Aggression was associated with low agreeableness. Cynical cognition represented a blend of neurotic and disagreeable characteristics”.<sup>4</sup> Aggression can be caused by various reasons

“social stress, social rejection, provocation, frustration, bad moods, exercise, alcohol intoxication, violent media, pain or discomfort, ego depletion, anonymity, hot temperatures, noise, the presence of weapons, and threatening or fear-inducing stimuli”.<sup>5,6</sup>

Implicit and explicit hostile behaviors in the workplace can lead to major mental and physical health-related issues.<sup>7</sup> Hence, it is imperative to be aware of the prevalence of such acts, especially in a place where people spend the majority of their day. Individual or situational differences can cause aggression and can be self-destructive or retaliatory, depending on the aggressor's cognitive processing.<sup>8</sup> Aggression is behavioral, anger is emotional, and hostility is cognitive.<sup>9</sup> For this study, the behavioral aspect of aggression has been divided into two aspects—physical aggression and verbal aggression. Hostile characteristics include “suspiciousness, cynicism, resentment, jealousy, and bitterness.”<sup>10</sup>

Though there have been multiple studies in the field, this paper specifically explores the correlation between personality and aggressive behaviors in research and manufacturing-based workplaces in south India. This paper takes a less violent outlook on workplace violence in India than the existing literature. There has been thorough research conducted on murderous workplace violence<sup>11</sup> or workplace bullying.<sup>12</sup> Though research on those topics is important, it fails to analyse a more general form of aggression—hostility (cognitive), anger (emotional), verbal aggression (behavioral), and physical aggression (behavioral). The population of employees is an additional unique point of this paper. The most common population to be assessed about workplace violence is healthcare staff.<sup>13,14</sup> This study examines the manufacturing and research sector, which is made up of the HR department, administration, IT department, engineers, scientists, etc. This might reveal if there is a difference in the way different sectors experience workplace aggression. It will add generalisability to the overall workplace violence research in India. Additionally, it also analyses the relationship between people's motivation and aggressive behaviors which have not been delved into by other papers.

In the study, the personality is divided into neuroticism, openness, agreeableness, extraversion, and conscientiousness. Additionally, participant's motives—need for power, need for achievement, and need for security—were also assessed and included. Aggression is subdivided into physical aggression, anger, verbal aggression, and hostility. The focus of this study is to answer three questions—is there any correlation between the big five personality types to aggression and its subtypes? Is there a correlation between people's motives to aggression? If there is a correlation, then in what direction is it?

Knowing which personality types display which kind of aggressive behavior, the hiring departments of companies can better streamline their employee onboarding process. They can filter out people for specific job requirements faster and more efficiently. Furthermore, companies can employ this knowledge to provide a more targeted workplace aggression intervention when needed. The interventions themselves can be designed in a way to get the best result.

## MATERIAL AND METHOD

### Method

This study was a descriptive survey type of research. The research was conducted in a unit boasting many research and manufacturing companies in close proximity. A total of 8 companies consented to participate. The employees were selected by their respective company's human resource department. The participants signed a consent form that outlines that the survey is voluntary. Brief aggression questionnaire (BAQ)<sup>15</sup> was used to assess aggressive behaviors and big five personality test (B5T)<sup>16</sup> was used to calculate the personality type and people's motives. The questionnaires were presented digitally using Google Forms and were completely anonymous.

### Statistical Analysis

The data collected was cleaned in Microsoft Excel and analyzed through IBM SPSS. To find a statistically significant correlation between them, they were analyzed using Pearson's Correlation Matrix.

### Sample Size

A total of 48 participants took the survey. Out of that, 1 survey was omitted due to incomplete submission. Hence, the total sample size was 47 participants (n = 47). 57.4% (27) were males and 42.6% (20) were females. 55.3% (26) participants had changed cities for their jobs, while 44.7% (21) participants lived without their families.

### Inclusion Criteria

To be part of the survey, the participants had to be:

- Fluent in English comprehension

### Exclusion Criteria

The surveys that were excluded include:

- Incomplete surveys

### B5T

B5T<sup>16</sup> measures the five aspects of personality—openness, conscientiousness, extraversion, agreeableness, and neuroticism—and three aspects of participant's motives—need for security, need for power, and need for achievement. The questionnaire has a good reliability and validity score with strong test-retest reliability<sup>16</sup>. The total number of questions is equal to 68 (50 on personality with 10 for each trait and 18 on motive with 6 for each trait). To answer the question, a four-point Likert scale is used (1-Does not apply at all to 4-Applies exactly).

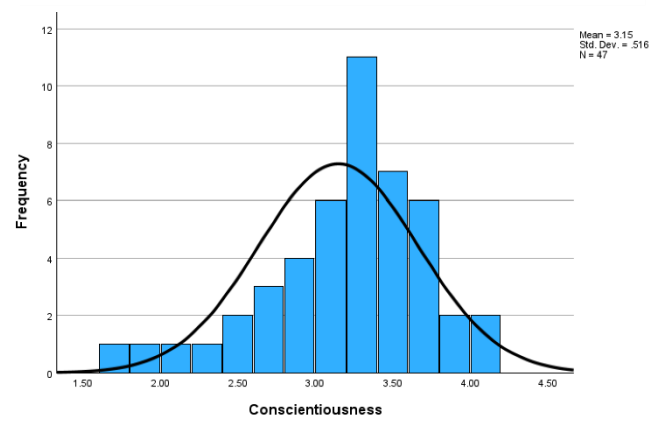
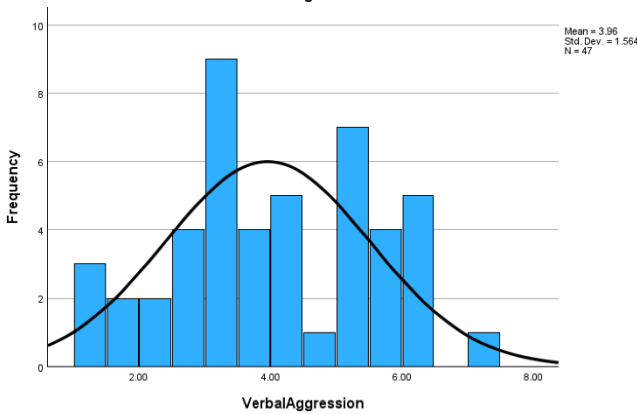
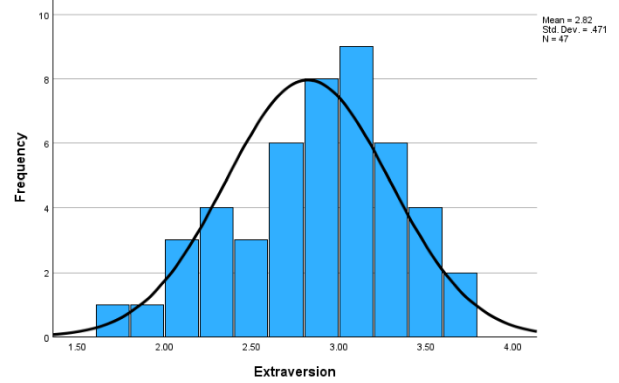
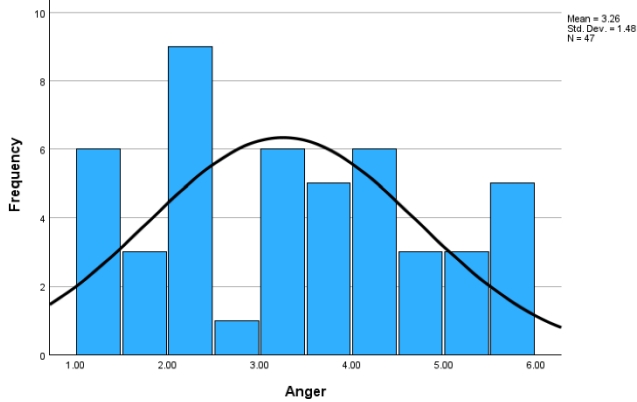
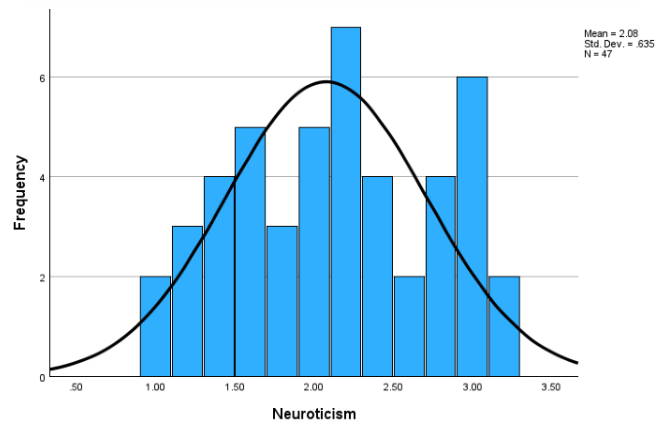
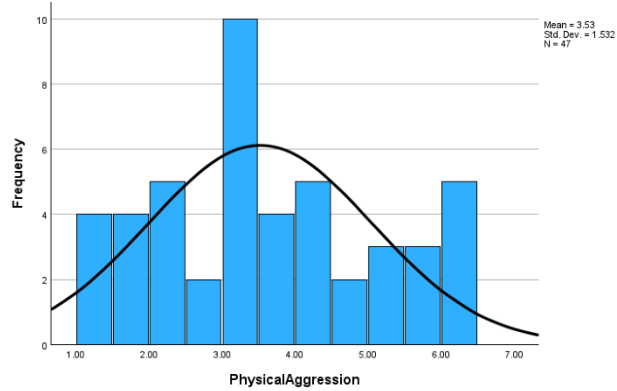
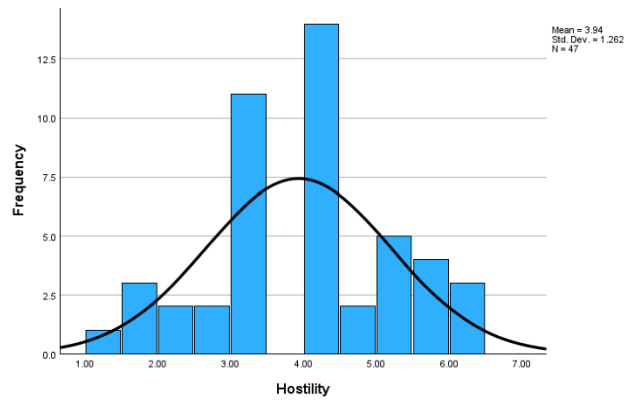
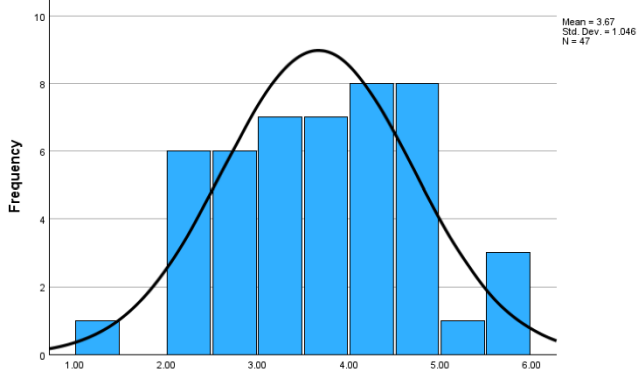
### BAQ

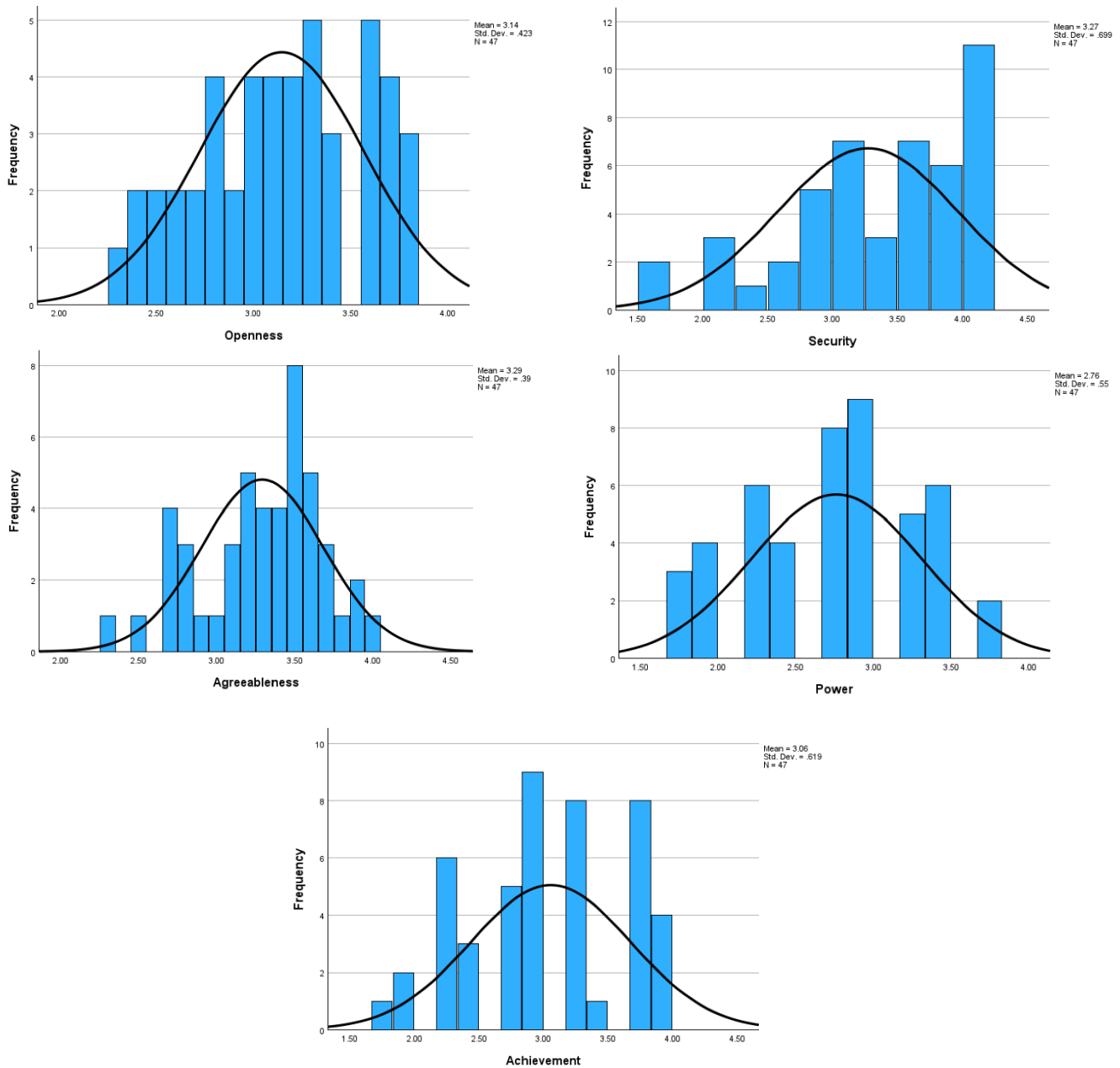
BAQ<sup>15</sup> measures four aspects of aggression—physical aggression, verbal aggression, anger, and hostility. It is a shortened version of the original Buss-Perry Aggression Questionnaire.<sup>10</sup> BAQ showed good reliability and validation.<sup>17</sup> The questionnaire consists of 12 total questions (3 questions for each category). A seven-point Likert scale was used (1-Extremely Uncharacteristic of Me to 7-Extremely Characteristic of Me).

## RESULTS

Figure 1 shows the distribution of personality, aggression, and motives of the people in the research and manufacturing unit in India. All forms of aggressive tendencies were similar to each other.

Three personality traits were found to be really high and one really low among this population—agreeableness, conscientiousness, openness and neuroticism, respectively. According to Satow, the general population shows a 77.3% score in agreeableness (research and manufacturing population: 82.3%), 66.9% score in conscientiousness (research and manufacturing population: 78.8%), and 71.7% score in openness (research and manufacturing population: 78.6%). Additionally, the general population shows a 65.1% score in





**Figure 1:** Histograms of aggression, physical aggression, anger, verbal aggression, hostility, neuroticism, extraversion, conscientiousness, openness, agreeableness, security, power, and achievement

neuroticism (research and manufacturing population: 51.9%) and a 64.6% score in extraversion (research and manufacturing population: 70.6%).

Individual motive analysis revealed that the general population has a need for achievement to be 61.3% (research and manufacturing population: 76.5%), a need for power to be 53.1% (research and manufacturing population: 69%), and a need for security to be 74.6% (research and manufacturing population: 81.8%).

In Table 1, the Pearson Correlation is used to establish the relationship between the big five personality traits, aggression, and its subparts. The analyses show that there

was no significant correlation between aggression and any of the personality traits (neuroticism, extraversion, openness, agreeableness, and conscientiousness).

On comparing neuroticism with subparts of aggression, there was a statistically significant positive correlation between anger ( $p = 0.038$ ) and hostility ( $p = 0.008$ ). Additionally, there was a statistically significant positive correlation between openness and physical aggression ( $p = 0.029$ ).

In Table 2, we are comparing the individual's basic motives (need for power, need for achievement, and need for security) to aggression. There was no statistically significant relationship seen.

**Table 1:** Correlation between Big Five Personality Traits and Aggression

		Correlations									
		Aggression	PhysicalAggression	Anger	VerbalAggression	Hostility	Neuroticism	Extraversion	Conscientiousness	Openness	Agreeableness
Aggression	Pearson Correlation	1	.633**	.794**	.686**	.766**	.262	.204	-.070	.206	-.129
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	.075	.170	.638	.164	.386
	N	47	47	47	47	47	47	47	47	47	47
PhysicalAggression	Pearson Correlation	.633**	1	.300*	.163	.333*	.108	.114	-.120	.319*	-.152
	Sig. (2-tailed)	<.001		.040	.274	.022	.469	.445	.421	.029	.309
	N	47	47	47	47	47	47	47	47	47	47
Anger	Pearson Correlation	.794**	.300*	1	.407**	.590**	.303*	.102	.067	.150	-.105
	Sig. (2-tailed)	<.001	.040		.005	<.001	.038	.494	.656	.316	.484
	N	47	47	47	47	47	47	47	47	47	47
VerbalAggression	Pearson Correlation	.686**	.163	.407**	1	.359*	.001	.207	-.137	.056	-.005
	Sig. (2-tailed)	<.001	.274	.005		.013	.993	.163	.360	.711	.971
	N	47	47	47	47	47	47	47	47	47	47
Hostility	Pearson Correlation	.766**	.333*	.590**	.359*	1	.381**	.159	.004	.053	-.116
	Sig. (2-tailed)	<.001	.022	<.001	.013		.008	.285	.980	.724	.438
	N	47	47	47	47	47	47	47	47	47	47
Neuroticism	Pearson Correlation	.262	.108	.303*	.001	.381**	1	-.167	-.105	-.144	-.198
	Sig. (2-tailed)	.075	.469	.038	.993	.008		.262	.481	.336	.181
	N	47	47	47	47	47	47	47	47	47	47
Extraversion	Pearson Correlation	.204	.114	.102	.207	.159	-.167	1	-.059	.146	.080
	Sig. (2-tailed)	.170	.445	.494	.163	.285	.262		.696	.326	.591
	N	47	47	47	47	47	47	47	47	47	47
Conscientiousness	Pearson Correlation	-.070	-.120	.067	-.137	.004	-.105	-.059	1	.256	.378**
	Sig. (2-tailed)	.638	.421	.656	.360	.980	.481	.696		.082	.009
	N	47	47	47	47	47	47	47	47	47	47
Openness	Pearson Correlation	.206	.319*	.150	.056	.053	-.144	.146	.256	1	.022
	Sig. (2-tailed)	.164	.029	.316	.711	.724	.336	.326	.082		.883
	N	47	47	47	47	47	47	47	47	47	47
Agreeableness	Pearson Correlation	-.129	-.152	-.105	-.005	-.116	-.198	.080	.378**	.022	1
	Sig. (2-tailed)	.386	.309	.484	.971	.438	.181	.591	.009	.883	
	N	47	47	47	47	47	47	47	47	47	47

\*\* Correlation is significant at the 0.01 level (2-tailed).  
\* Correlation is significant at the 0.05 level (2-tailed).

**DISCUSSION**

The current study is conducted to analyze the correlation between the big five personality traits and aggression. The data analysis reveals a significant positive correlation between neuroticism and some aspects of aggression, as extensively proved by other research studies.<sup>18 19</sup> The study shows that people with neurotic personalities have a higher chance of reacting with anger and hostility when faced with an adverse situation compared to people who have higher emotional stability<sup>20</sup>. High emotional instability causes people to react in a negative way and use aggressive tactics. People with high neuroticism typically exhibit “negative affect, including anxiety, irritability, anger, worry, frustration, self-consciousness, sensitivity to criticism, reactivity, hostility, and vulnerability.”<sup>21</sup>

People who have high openness have certain traits that mark them as curious — they are eager to “encounter a wide variety of ideas, feelings, and activities.”<sup>22</sup> Openness to experiences shows a significant positive correlation with physical aggression. This result does not match with previous research on big five personality and aggression. They tend to find no associations between openness and aggressive tendencies. On the contrary, a negative correlation is generally found between agreeableness and aggression.<sup>23,24</sup> One explanation for this can be the impact of the limitations of the

**Table 2:** Correlation between motives and aggression

		Correlations			
		Aggression	Security	Power	Achievement
Aggression	Pearson Correlation	1	.005	-.035	.057
	Sig. (2-tailed)		.976	.815	.704
	N	47	47	47	47
Security	Pearson Correlation	.005	1	.191	.321*
	Sig. (2-tailed)	.976		.199	.028
	N	47	47	47	47
Power	Pearson Correlation	-.035	.191	1	.505**
	Sig. (2-tailed)	.815	.199		<.001
	N	47	47	47	47
Achievement	Pearson Correlation	.057	.321*	.505**	1
	Sig. (2-tailed)	.704	.028	<.001	
	N	47	47	47	47

\* Correlation is significant at the 0.05 level (2-tailed).  
\*\* Correlation is significant at the 0.01 level (2-tailed).

study that have been discussed below (e.g., small sample size or inconsistent English comprehension skills). There is another possible explanation. Since people who have high openness to experiences are described by words such as “curious, original, broad-minded, and artistically sensitive”<sup>3</sup>, this can incite them to act in ways that are not conventionally acceptable and resort to physical violence. However, more research is needed to establish this.

The current study also delved into people’s motives and their association with aggressive behavior. Data analysis shows



that there is no statistically significant relationship between motives and aggression. There is not much-existing literature on this.

On analyzing and comparing the data for the research and manufacturing population to that of the general population, some differences can be noted. The research and manufacturing population displays high dependability and works well with others on new ideas. They also have lower rates of neuroticism compared to the general population, making them more emotionally stable and less likely to be hostile and angry.

A workplace is often an intermix of unique personalities working together towards a common goal. When the counterproductive workplace behavior interrupts this flow, targeted intervention is required. Personality traits are an excellent way to narrow down the people who would benefit from it appropriately. Additionally, the HR team can hire employees for their jobs based on the personality type that would complement the work requirements.

This study had numerous limitations that might have skewed the data. The participants knew that their data was collected and analysed by a researcher that worked in the company associated with their company. Hence, despite the clear instructions about the data being anonymously collected, people were hesitant to provide truthful information in case the Human Resources Department scrutinized their data. Thus, this might have impacted the accuracy of the collected data. The validated survey used to measure the participants' personalities and aggressive behaviors required a strong English comprehension skill. Since English is not the native language of the area, the English comprehension of the respondents was inconsistent and might have impacted the accuracy of the data collected. Due to multiple factors (English comprehension skills, cooperation level of the HR departments, etc.), we were only able to attain a sample size of 47 participants. This small sample size may have impacted the analysis of the results collected and the possibility of generalization of the outcome.

In future studies, these limitations can be controlled by conducting studies with bigger samples and recruiting participants from many outside companies. This will make the study more generalizable and, hence, more applicable to the general working population.

## CONCLUSION

This study showed a clear statistically significant correlation between big five personality types and subsets of aggression. Neuroticism (emotional instability) was shown to be positively correlated with anger (emotion) and hostility (cognition). There was also a positive correlation between openness to new experiences with physical aggression (behavior). There was no correlation found between people's motives and their displays of aggression.

These traits could be counterproductive to a well-harmonised workplace balance. Using the data from the study, the HR committee could make educated hiring decisions when onboarding new employees. They can match the aggression

levels of the employees according to the job that needs to be done. Furthermore, in case of workplace disputes, they can provide appropriate intervention methods that are designed efficiently to target the issues. Management departments can use this study's findings to suitably lead the team without conflicts by delegating work according to personality styles.

## Declaration of Participant Consent

All the participants signed a consent form prior to starting the survey.

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