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A comparative study of personality traits across gender and location in the IT sector

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Abstract

Personality traits play a central role in shaping workplace behavior, adaptability, and performance. Guided by the Five-Factor Model (FFM), the present study examined the distribution of personality traits among information technology (IT) employees, with a focus on gender- and location-based differences. Data were collected from 60 IT professionals working in Bengaluru and Lucknow using the Big Five Personality Inventory (BFI short version). Descriptive statistics and independent-samples t-tests were employed for analysis. Results indicated that the majority of participants were moderate extroverts (70%), suggesting balanced sociability and assertiveness. Gender-based comparisons revealed significant differences in emotional stability and openness to experience, with males scoring higher on both dimensions. No significant gender differences were observed for extraversion, conscientiousness, or agreeableness. Location-based analyses showed no significant differences across any of the five traits, indicating broadly similar personality profiles among IT employees in Bengaluru and Lucknow. These findings suggest that while gender influences certain personality dimensions, regional variations within urban IT sectors are less pronounced. The study contributes to literature on personality and occupational behavior, highlighting implications for organizational practices such as team composition, employee well-being, and talent management. Future research with larger and more diverse samples is recommended to explore broader demographic influences on personality expression in professional contexts.

Keywords: Big Five personality traits, Information technology employees, Gender differences, Location-based differences, and Workplace behavior

Introduction

Personality traits play a crucial role in shaping individual behavior, interpersonal interactions, and workplace effectiveness. The Five-Factor Model (FFM), commonly known as the Big Five personality traits—extraversion, emotional stability, conscientiousness, agreeableness, and openness to experience—provides a widely accepted framework for examining personality across cultures and occupational groups (McCrae & Costa, 2008) [5]. Within organizational settings, these traits have been linked to job performance, adaptability, and overall well-being (Barrick & Mount, 1991; Judge & Zapata, 2015) [1, 9]. Extraversion, in particular, has been consistently identified as a socially relevant trait, influencing sociability, assertiveness, and energy levels. Prior studies highlight that most individuals fall within moderate levels of extraversion rather than at extreme ends, suggesting adaptive advantages for balanced social engagement (Grant *et al.*, 2011; Soto, 2019) [7, 13]. Other traits such as conscientiousness and agreeableness contribute to cooperative workplace behaviors, while emotional stability is often associated with resilience and lower stress reactivity (Schmitt *et al.*, 2008) [6]. Openness to experience, on the other hand, reflects creativity, curiosity, and adaptability to novel contexts (Weisberg, DeYoung, & Hirsh, 2011) [8].

Research has also emphasized the influence of demographic variables such as gender and location on personality expression. Gender-based differences have been reported across cultures, with findings often indicating that women tend to score higher on agreeableness and neuroticism, while men sometimes report higher emotional stability and openness (Feingold, 1994; Schmitt *et al.*, 2017) [2, 12]. Similarly, regional variations, though less pronounced than cross-cultural differences, may emerge due to environmental, cultural, and socioeconomic factors (Rentfrow, Jokela, & Lamb, 2015) [10].

In the context of India, studies suggest that despite cultural and linguistic diversity, personality traits remain relatively consistent across regions, particularly within urban populations (McCrae *et al.*, 2008; Chopra, 2016) ^[5, 11]. However, given the rapid growth of the information technology (IT) sector and its emphasis on adaptability, teamwork, and innovation, understanding personality traits among IT employees is increasingly relevant.

The present study therefore aims to examine the distribution of personality traits among IT employees, with a particular focus on differences across gender and location (Bengaluru and Lucknow). By exploring these dimensions, the study seeks to contribute to the growing literature on personality and workplace dynamics while offering insights into how demographic factors shape the expression of the Big Five traits in professional contexts.

Objectives of the Study

Based on the review of literature and the scope of the present research, the study was guided by the following objectives:

- To examine the distribution of personality traits among IT employees with reference to the Big Five dimensions (Extraversion, Emotional Stability, Conscientiousness, Agreeableness, and Openness to Experience).
- To analyze gender differences in personality traits of IT employees.
- To investigate location-based variations in personality traits between employees working in Bengaluru and Lucknow.

Result and Discussion

Table 1: Percentage distribution of the respondents according to their personality traits

Personality				
	Frequency	Percent	Valid Percent	Cumulative Percent
Highly extrovert	16	26.7	26.7	26.7
Moderate extrovert	42	70.0	70.0	96.7
Ambivert	2	3.3	3.3	100.0
Total	60	100.0	100.0	

A frequency analysis was conducted to assess the distribution of participants based on their levels of extraversion (Table 1). Results showed that the majority of participants were classified as moderate extroverts (70.0%), followed by highly extroverts (26.7%), while only a small proportion were identified as ambiverts (3.3%). This indicates that most participants in the sample demonstrated a moderate level of extraversion, with relatively few falling into the ambivert category.

These findings are supported by previous research on personality distribution within populations. For instance, McCrae and Costa (2008) ^[5] noted that extraversion is typically expressed on a continuum, with the majority of individuals falling in the middle rather than at the extreme ends. Similarly, Grant *et al.* (2011) ^[7] observed that ambiverts, while effective in adaptive social and

Methodology

The population of the study consisted of IT employees working in different organizations in Bengaluru and Lucknow. These two cities were selected to capture regional diversity and organizational culture differences within the Indian IT sector. A purposive sampling technique was employed to select participants, as the study specifically targeted employees working in IT roles such as engineers, consultants, analysts, managers, and specialists.

A total of 60 IT employees participated in the study, ensuring adequate representation across gender, age, and designation. The sample size was considered sufficient for conducting statistical analyses such as t-tests, correlations, and regression, which require moderate sample sizes to achieve reliable results. The Big Five Personality Inventory (BFI short version) was used to measure personality dimensions, including extraversion, agreeableness, conscientiousness, emotional stability (neuroticism), and openness to experience. The scale is widely recognized for its reliability and has been extensively applied in organizational research.

Data Collection Procedure

Permission was sought from respective organizations and individual participants before data collection. The questionnaires were distributed in both online and offline formats to ensure convenience for participants. Respondents were briefed about the objectives of the study, the voluntary nature of their participation, and confidentiality of their responses.

occupational behaviors, represent a relatively small portion of the population compared to those with moderate levels of extraversion. More recently, Soto (2019) ^[13] highlighted that moderate extraversion is common across cultures, suggesting that while some individuals exhibit strong sociability and assertiveness, most balance these traits with periods of reservation.

Taken together, the present findings align with existing literature indicating that personality traits such as extraversion are normally distributed in populations, with extreme categories (i.e., highly extrovert or ambivert) being less frequent. This distribution also reflects the adaptive advantage of moderate extraversion, which may allow individuals to flexibly navigate social and personal contexts without the limitations of extreme outgoingness or introversion.

Table 2: Group Statistics of Personality Traits across Gender among IT Employees

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Extraversion	Male	30	15.0000	3.93919	.71919
	Female	30	15.6667	3.65148	.66667
Emotional stability	Male	30	12.1667	4.01792	.73357
	Female	30	11.8000	3.24197	.59190
Conscientiousness	Male	30	16.5333	2.25501	.41171
	Female	30	17.0000	2.18143	.39827
Agreeableness	Male	30	17.5000	4.30517	.78601
	Female	30	16.0000	2.03419	.37139
Openess To Experience	Male	30	14.8000	2.94080	.53691
	Female	30	12.9667	4.00416	.73106

Table 2.1: Independent sample t-test to compare the Personality Traits of the IT employees according to their Gender

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Extraversion	Equal variances assumed	.001	.979	-.680	58	.499	-.66667	.98066	-2.62966	1.29633
	Equal variances not assumed			-.680	57.670	.499	-.66667	.98066	-2.62990	1.29657
Emotional stability	Equal variances assumed	1.346	.251	2.296	58	.025	2.13333	.92918	.27338	3.99329
	Equal variances not assumed			2.296	54.676	.026	2.13333	.92918	.27097	3.99570
Conscientiousness	Equal variances assumed	.013	.910	-.815	58	.419	-.46667	.57282	-1.61329	.67996
	Equal variances not assumed			-.815	57.936	.419	-.46667	.57282	-1.61332	.67998
Agreeableness	Equal variances assumed	7.630	.008	1.725	58	.090	1.50000	.86934	-.24017	3.24017
	Equal variances not assumed			1.725	41.334	.092	1.50000	.86934	-.25523	3.25523
Openess to experience	Equal variances assumed	10.189	.002	2.021	58	.048	1.83333	.90704	.01770	3.64897
	Equal variances not assumed			2.021	53.234	.048	1.83333	.90704	.01423	3.65244

Independent-samples *t*-tests were conducted to compare personality traits between males and females (Table 2 and Table 2.1). For Extraversion, there was no significant difference between males ($M = 15.00$, $SD = 3.94$) and females ($M = 15.67$, $SD = 3.65$), $t(58) = -0.68$, $p = .499$. However, for Emotional Stability, males ($M = 12.17$, $SD = 4.02$) scored significantly higher than females ($M = 11.80$, $SD = 3.24$), $t(58) = 2.30$, $p = .025$, with a mean difference of 2.13 (95% CI [0.27, 3.99]). For Conscientiousness, no significant difference was found between males ($M = 16.53$, $SD = 2.26$) and females ($M = 17.00$, $SD = 2.18$), $t(58) = -0.82$, $p = .419$. Regarding Agreeableness, Levene's test indicated unequal variances, $F(1, 58) = 7.63$, $p = .008$. Using adjusted values, males ($M = 17.50$, $SD = 4.31$) did not significantly differ from females ($M = 16.00$, $SD = 2.03$), $t(41.33) = 1.73$, $p = .092$. Finally, for Openness to Experience, males ($M = 14.80$, $SD = 2.94$) scored significantly higher than females ($M = 12.97$, $SD = 4.00$), $t(53.23) = 2.02$, $p = .048$, with a mean difference of 1.83 (95% CI [0.01, 3.65]).

The results of the present study revealed both significant and non-significant gender differences across personality traits. For Extraversion and Conscientiousness, no significant differences were observed between males and females, suggesting that both genders demonstrated comparable levels of sociability and diligence. This finding aligns with Costa, Terracciano, and McCrae (2001), who found that gender differences in Extraversion and Conscientiousness are often minimal or inconsistent across cultures.

In contrast, significant gender differences were observed in Emotional Stability and Openness to Experience. Males scored higher in Emotional Stability, indicating lower levels of neurotic tendencies compared to females. This aligns with prior research demonstrating that women often report higher neuroticism and lower emotional stability, which has been attributed to both biological predispositions and greater exposure to stressors (Schmitt *et al.*, 2008) [6]. Similarly, findings on Openness to Experience revealed that males scored significantly higher than females. Some cross-cultural studies have reported comparable results, suggesting that men may be more inclined toward novelty-seeking and intellectual exploration, whereas women may express openness differently through aesthetic and interpersonal domains (Weisberg, DeYoung, & Hirsh, 2011) [8].

Interestingly, no significant gender differences emerged in Agreeableness, despite prior meta-analyses often reporting that women score higher in this trait (Feingold, 1994; Schmitt *et al.*, 2017) [2, 12]. The nonsignificant result in this sample may reflect contextual or cultural influences, as personality traits are shaped not only by biological factors but also by social expectations and environmental demands. Taken together, these findings suggest that while some personality traits (e.g., Extraversion and Conscientiousness) show little gender differentiation, others (Emotional Stability and Openness to Experience) reflect more robust gender-based variations. These results contribute to the broader literature on gender differences in personality by highlighting both universal trends and potential cultural nuances.

Table 3: Group Statistics of Personality Traits across Location among IT Employees

Group Statistics					
	Location	N	Mean	Std. Deviation	Std. Error Mean
Extraversion	Bengaluru	30	14.6667	4.34172	.79269
	Lucknow	30	16.0000	3.05129	.55709
Emotional stability	Bengaluru	30	11.3667	3.89060	.71032
	Lucknow	30	10.8333	3.60156	.65755
Conscientiousness	Bengaluru	30	16.5000	2.04686	.37370
	Lucknow	30	17.0333	2.37056	.43280
Agreeableness	Bengaluru	30	16.0000	4.02578	.73500
	Lucknow	30	17.5000	2.54274	.46424
Openess to experience	Bengaluru	30	13.1333	3.69280	.67421
	Lucknow	30	14.6333	3.40874	.62235

Table 3.1: Independent sample t-test to compare the Personality Traits of the IT employees according to their Location

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Extraversion	Equal variances assumed	.029	.864	-1.376	58	.174	-1.33333	.96886	-3.27273	.60606
	Equal variances not assumed			-1.376	52.029	.175	-1.33333	.96886	-3.27748	.61081
Emotional stability	Equal variances assumed	.380	.540	.551	58	.584	.53333	.96795	-1.40424	2.47090
	Equal variances not assumed			.551	57.658	.584	.53333	.96795	-1.40448	2.47115
Conscientiousness	Equal variances assumed	.749	.390	-.933	58	.355	-.53333	.57182	-1.67795	.61128
	Equal variances not assumed			-.933	56.793	.355	-.53333	.57182	-1.67846	.61180
Agreeableness	Equal variances assumed	.094	.760	-1.725	58	.090	-1.50000	.86934	-3.24017	.24017
	Equal variances not assumed			-1.725	48.961	.091	-1.50000	.86934	-3.24703	.24703
Openess to experience	Equal variances assumed	.992	.323	-1.635	58	.108	-1.50000	.91754	-3.33665	.33665
	Equal variances not assumed			-1.635	57.632	.108	-1.50000	.91754	-3.33690	.33690

Independent-samples *t*-tests were conducted to examine differences in personality traits between participants from Bengaluru and Lucknow (Table. 3 and Table 3.1). For Extraversion, no significant difference was found between Bengaluru ($M = 14.67$, $SD = 4.34$) and Lucknow ($M = 16.00$, $SD = 3.05$), $t(58) = -1.38$, $p = .174$. Similarly, no significant difference emerged for Emotional Stability, with Bengaluru ($M = 11.37$, $SD = 3.89$) and Lucknow ($M = 10.83$, $SD = 3.60$), $t(58) = 0.55$, $p = .584$. For Conscientiousness, participants from Bengaluru ($M = 16.50$, $SD = 2.05$) and Lucknow ($M = 17.03$, $SD = 2.37$) did not differ significantly, $t(58) = -0.93$, $p = .355$. Likewise, no significant differences were found for Agreeableness, Bengaluru ($M = 16.00$, $SD = 4.03$) and Lucknow ($M = 17.50$, $SD = 2.54$), $t(58) = -1.73$, $p = .090$. Finally, for Openness to Experience, scores did not differ significantly between Bengaluru ($M = 13.13$, $SD = 3.69$) and Lucknow ($M = 14.63$, $SD = 3.41$), $t(58) = -1.64$, $p = .108$.

The present study examined whether personality traits differed between participants from Bengaluru and Lucknow. Results indicated no significant differences across the Big Five personality dimensions, including Extraversion, Emotional Stability, Conscientiousness, Agreeableness, and Openness to Experience. These findings suggest that despite potential cultural, linguistic, and lifestyle differences between the two cities, participants demonstrated broadly similar personality profiles.

This outcome is consistent with previous research showing that while regional differences in personality can exist, they are often subtle and less pronounced than gender or cultural variations at the national level (Rentfrow, Jokela, & Lamb, 2015) [10]. For example, Rentfrow *et al.* (2008) found that regional clustering of personality traits in the United States was modest, with environmental and socioeconomic contexts exerting only a small influence. Similarly, Schmitt

et al. (2007) [4] reported that cultural differences in personality traits are more pronounced across countries rather than within sub-regions of the same country.

In the Indian context, research by McCrae *et al.* (2008) [5] noted that despite linguistic and cultural diversity, Indians share relatively consistent personality characteristics when measured using the Five-Factor Model. The absence of significant differences in the present study may thus reflect shared cultural values, collectivist orientations, and similarities in educational and occupational backgrounds among participants from both Bengaluru and Lucknow. Furthermore, as both cities are urban centers, participants may have been exposed to comparable social and economic environments that shape personality expression in similar ways (Chopra, 2016) [5].

Conclusion

The present study examined the distribution of personality traits among IT employees, with particular attention to gender- and location-based differences across the Big Five dimensions. Findings revealed that the majority of participants were moderate extroverts, suggesting a balanced approach to sociability and assertiveness, consistent with prior research highlighting the adaptive advantages of moderate extraversion (Grant *et al.*, 2011; Soto, 2019) [7, 13].

Gender-based analyses indicated both similarities and differences across traits. While no significant differences were found for extraversion and conscientiousness, males demonstrated higher levels of emotional stability and openness to experience compared to females. These findings align with cross-cultural evidence suggesting that men often report lower neurotic tendencies and greater openness to novelty, whereas women may express openness in aesthetic or interpersonal domains (Schmitt *et al.*, 2008; Weisberg *et*

al., 2011)^[6, 8]. Interestingly, agreeableness did not significantly differ between genders, diverging from prior meta-analyses that often report higher female agreeableness (Feingold, 1994; Schmitt *et al.*, 2017)^[2, 12].

In contrast, location-based comparisons revealed no significant differences across personality traits between employees in Bengaluru and Lucknow. This suggests that, despite cultural and linguistic diversity, IT professionals from urban centers may share common personality characteristics shaped by comparable occupational, educational, and social environments (McCrae *et al.*, 2005; Rentfrow *et al.*, 2015)^[3, 10].

Taken together, the findings underscore the importance of considering demographic variables when examining personality in workplace contexts. While gender differences remain evident in specific traits, regional variations appear less pronounced within the IT sector. These results contribute to the growing literature on personality and occupational behavior by highlighting the nuanced ways in which personality traits manifest across demographic groups.

Future research may benefit from expanding the sample size, including employees from rural and semi-urban areas, and incorporating longitudinal designs to capture developmental changes in personality over time. Such efforts would provide a deeper understanding of how personality influences workplace outcomes and may guide the development of tailored human resource practices, team dynamics, and organizational policies.

Conflict of Interest

The authors declare that they have no conflict of interest.

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