

HUMAN RESOURCE MANAGEMENT | RESEARCH ARTICLE

# Exploration of the Influence of Big Five Personality Traits on Innovative Behavior

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## ABSTRACT

This study aims to analyze the relationship between Big Five Personality and innovative work behavior case study from Liquid Petroleum Gas (LPG) depot owners and employees in Tegal Regency, Indonesia. This study uses a quantitative approach with the correlational design method, while the data analysis technique includes instrument testing consisting of validity and reliability tests. After the instrument test, model and hypothesis testing were carried out to analyze the data. Data was collected through an e-survey using Google Forms and distributed to various LPG depots in the Tegal Regency. The research sample used a purposive sampling technique of 153 respondents selected to represent the population. This study lasted two months, from October to November 2024, to better understand the factors influencing innovative behavior in LPG distribution. The hypothesis test results showed that of the five dimensions of Big Five Personality, only Conscientiousness and Agreeableness significantly influence Innovative Work Behavior, with a value of  $t = 2.536$ ,  $\text{Sig.} = 0.012$  for Conscientiousness and  $t = 2.268$ ,  $\text{Sig.} = 0.025$  for Agreeableness. Meanwhile, Openness to Experience ( $t = 0.469$ ,  $\text{Sig.} = 0.640$ ), Extraversion ( $t = -0.812$ ,  $\text{Sig.} = 0.418$ ), and Neuroticism ( $t = 0.809$ ,  $\text{Sig.} = 0.420$ ) do not have a significant effect on Innovative Work Behavior because their significance values are greater than 0.05. Thus, not all personality dimensions have a significant role in encouraging innovative work behavior.

**Keywords:** Personality Assessment, Employee Performance, Innovative Work Behavior, Big Five Personality, Innovation.

**JEL Code:** M12, M54, O31, J24.

## I. Introduction

LPG (Liquid Petroleum Gas) is currently the primary fuel many choose as a substitute for kerosene. According to data from Pertamina Patra Niaga, two types of LPG products are circulating in the community: non-PSO (Public Service Obligation) LPG and PSO (Public Service Obligation) LPG. Non-PSO LPG is non-subsidized LPG sold in 12 kg or 5.5 kg cylinders and is intended for the middle to upper class because the price is higher. Meanwhile, PSO LPG is subsidized LPG sold in 3 kg cylinders and is intended for the middle to lower class at a more affordable price than non-PSO LPG. The use of 3 kg LPG gas has increased after the government implemented a conversion program from kerosene to LPG gas for household needs. This policy opens up great opportunities for the industrial sector, especially in distributing 3 kg LPG gas to end consumers, such as households and micro businesses. However, replacing kerosene with LPG provides benefits but has positive



and negative impacts. One of the positive impacts is the creation of business opportunities for the distribution of 3 kg LPG gas, which impacts the micro economy. However, the longer the LPG gas distribution chain also causes the price of 3 kg LPG that reaches the end consumer to become more expensive. In distributing LPG gas to the end consumer, all of it is managed by Pertamina with a closed-loop supply chain system, namely the flow of products that starts from consumers and returns to the factory to be processed, then distributed back to consumers as new products. In the 3 kg LPG gas distribution, the gas is first taken from an SPPBE (Bulk LPG Filling and Transportation Station) depot, then received by the agent and forwarded to the sub-agent, the LPG base. The 3 kg LPG agent is leading in distributing 3 kg LPG gas. At the same time, the base is located under the agent and functions as part of the distribution channel that can buy LPG from large agents at a predetermined price, which applies throughout the region, including Tegal Regency. Tegal Regency is located in Central Java Province, with an area of approximately 1,141.8 km<sup>2</sup> divided into 18 sub-districts. According to data from the Central Statistics Agency (BPS) of Tegal Regency, the population 2024 is estimated to reach around 1.7 million people. Along with the increasing population, the demand for energy, including LPG consumption, is also increasing, especially for household needs, small industries, and transportation that use LPG as the primary fuel. This increase in population certainly affects energy consumption in the Tegal Regency, so it is important to ensure sufficient LPG supply to meet the community's energy needs optimally.

The increasing energy needs in the Tegal Regency, especially LPG consumption, require a more innovative approach to managing its supply and distribution. In this case, innovative work behavior is critical to facing various challenges. Innovative work behavior is defined as the overall actions of individuals that lead to introducing and implementing new ideas, products, processes, and procedures for a person's work role, work unit, or organization. Innovative work behavior can benefit individuals, groups, or organizations by increasing organizational efficiency and effectiveness, company competitiveness, and employee work productivity. In facing the challenges of increasing energy needs in Tegal Regency, innovative work behavior with the role of the Big Five Personality dimension is a psychological model that identifies five main dimensions in human personality, namely: Openness to Experience (openness to experience), openness to this experience measures the extent to which a person is open to ideas, new experiences, and change (P. T. Costa & McCrae, 1997). Conscientiousness (persistence) refers to the extent to which a person is reliable, organized, and responsible (P. T. Costa & McCrae, 1997). Extraversion (extraversion) extraversion measures the extent to which a person tends to be energetic and enjoys social interactions; Agreeableness (agreement) agreement measures the extent to which a person is cooperative, kind, and caring towards others (P. Costa & McCrae, 1992). Moreover, neuroticism (neuroticism) measures the extent to which a person tends to feel negative emotions such as anxiety, anger, or sadness (P. T. Costa & McCrae, 1997).

Combining these five dimensions can strengthen innovative behavior in overcoming energy supply problems in the Tegal Regency efficiently and sustainably. Previous studies tend to focus on technical aspects of energy or policies related to LPG distribution. Pratiwi, A. (2021) examined how Indonesian society views the transition from LPG use to induction stoves recommended by the government. This study identified various social, economic, and environmental factors influencing people's switch to alternative energy sources. Meanwhile, Setiawan (2020) developed a website-based LPG gas supply chain distribution system to increase efficiency in the distribution process. This study offers an information technology solution that enables better LPG distribution management and monitoring. However, studies exploring the relationship between personality dimensions and innovative behavior in the energy sector, especially in the Tegal Regency, are still limited. Therefore, this study aims to fill this gap by analyzing the role of Big Five Personalities in influencing innovative work behavior, which is expected to support efficient and sustainable LPG management. With this approach, the study provides theoretical contributions to developing literature on personality and innovation. It offers practical solutions to support the sustainability of LPG supply in the Tegal Regency.

Research on innovative work behavior has become important in various fields, especially in organizations and human resource management. This concept is widely studied to understand how individuals generate, promote, and implement new ideas that benefit the organization. According to Janssen (2000), innovative work behavior consists of three main dimensions: idea generation, idea promotion, and

idea implementation. These dimensions reflect important stages in the innovation process in the work environment. Research on the influence of personality on innovative work behavior often uses the Big Five Personality framework. As explained by P. T. Costa and McCrae (1997), this theory maps five dimensions of human personality: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. These dimensions are often associated with an individual's tendency to show creativity, cooperation, and adaptability when facing work challenges.

Previous studies have shown that openness to experience positively correlates with creativity and innovative behavior (Sung, S. Y., & Choi, 2009). Meanwhile, Conscientiousness and Extraversion were also found to have significant contributions in supporting innovative work behavior. However, the impact of dimensions such as Agreeableness and Neuroticism tends to vary depending on the work context and organizational environment. In the context of energy distribution, such as at the LPG depot in the Tegal Regency, research related to innovative work behavior is still minimal. This study attempts to fill this gap by examining how the Big Five Personality dimensions influence innovative work behavior in facing the energy distribution challenges in the area. Using a quantitative approach, this study is expected to provide theoretical contributions in developing human resource management science and practical insights for LPG depot managers to improve operational efficiency through work innovation. In the increasingly competitive LPG distribution industry, employee innovative behavior is a key factor in improving company efficiency and competitiveness. However, little research has explored how individual characteristics, especially the Big Five Personality Traits, influence employees' tendencies to behave innovatively. Do certain personalities drive innovation more than others? How do the Big Five dimensions—neuroticism, extraversion, openness, agreeableness, and conscientiousness—contribute to innovative behavior in the context of LPG distribution? In addition, to what extent can management optimize these factors to create a more innovative work environment? These questions form the basis of this study to understand the relationship between personality and innovation in the LPG distribution sector.

## II. Literature Review and Hypothesis Development

### 2.1. Innovative Work Behavior

Innovative work behavior refers to a series of individual actions involving creating, promoting, and implementing new ideas to improve efficiency, effectiveness, and quality of work (Janssen, 2000). De Jong and Den Hartog (2010) describe this behavior as consisting of three main stages: idea exploration, idea generation, and idea implementation. These three stages play a role in building a framework that supports innovation within the organization and creates added value for the work environment. Previous research shows that innovative work behavior is influenced not only by individual factors but also by environmental factors such as organizational culture, managerial support, and organizational policies that facilitate creativity (Scott & Bruce, 1994; Amabile, 1996). Psychological factors also play an important role, especially in the context of personality. The Big Five Personality Traits Model (Costa & McCrae, 1992) suggests that specific personality dimensions, such as openness to experience and extraversion, can increase an individual's tendency to behave innovatively at work (George & Zhou, 2001). In the context of LPG distribution, understanding innovative work behavior becomes increasingly relevant as the industry faces challenges that require creative and efficient solutions. Innovation in logistics processes, marketing strategies, and supply chain management can provide a competitive advantage for companies. Recent studies have also emphasized that organizations that create a work climate that supports innovation are more likely to optimize business processes and increase customer satisfaction (Anderson, Potočnik, & Zhou, 2014). Therefore, further research is needed to understand how individual personality and organizational factors influence innovative behavior in the LPG distribution sector.

## 2.2. Big Five Personality

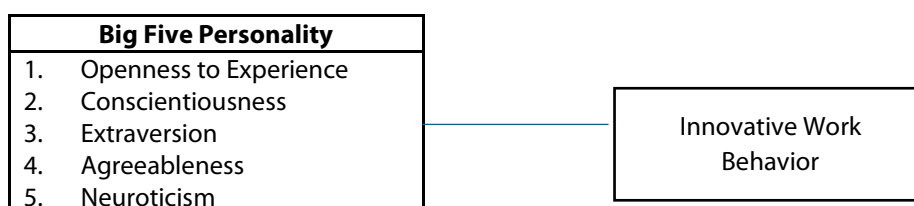
Epistemologically, personality comes from the Ancient Greek word *prosopon* or *persona*, which means "mask," commonly used by actors in theater. This mask describes the behavior displayed in the social environment, thus creating an impression of self that others capture (Alwisol, 2009). According to Larsen, R. J., & Buss (2010), personality is defined as a series of traits and psychological mechanisms found in an individual, which are arranged in a stable (enduring) manner and influence the way a person interacts and adapts to the metaphysical, physical, and social environment. According to Alwisol (2009), personality is a distinctive pattern of thoughts, feelings, and behaviors that distinguish one individual from another, unchanging over time and situation. The Big Five Personality theory was first introduced in 1981 by Goldberg (1981). Big Five Personality refers to an individual's personality consisting of five dimensions formed through factor analysis. The five dimensions of the Big Five Personality are closely related to biological or hereditary factors. The biological basis of the five factors is firm, while the influence of social experience is considered relatively small (Cervone, D., & Pervin, 2012).

Feist, J., & Feist (2009) stated that the Big Five Personality is a personality model that is effective in predicting and explaining behavior. This approach is used in psychology to understand human personality based on traits arranged in five personality domains formed through factor analysis. Traits show that personality contains various characteristics that often influence individual responses, which are the essential elements of personality (Friedman, H. S., & Schusstack, 2006). Personality is not just an attitude influenced by the subconscious but emphasizes each individual's uniqueness and ability to adapt to the environment (King, 2010). The Big Five Personality Model, as explained by P. T. Costa & McCrae (1997), identifies five main dimensions of human personality, namely:

1. Openness to Experience: Openness to new experiences and creative ideas.
2. Conscientiousness: Conscientiousness, discipline, and responsibility.
3. Extraversion: Energy, enthusiasm, and ability to interact with others.
4. Agreeableness: Cooperative, empathetic, and caring attitude towards others.
5. Neuroticism: Emotional stability and ability to manage stress.

## 2.3. Relationship of Big Five Personality with Innovative Work Behavior

Research examining the relationship between personality and innovative work behavior found that openness to experience (openness) and extraversion (extraversion) have a significant positive relationship with innovation (McCrae, R. R., & Costa, 2003). Meanwhile, conscientiousness can support the implementation of ideas because individuals with this trait are more organized and focused on goals. Conversely, neuroticism has a negative impact because of the tendency of individuals who are easily anxious or stressed. In the context of LPG distribution in the Tegal Regency, this study attempts to integrate the theory of Big Five Personality and innovative work behavior to provide deeper insight into how personality influences innovation in this specific work environment. Thus, this study is expected to provide theoretical and practical contributions to human resource management and organizational innovation. This framework describes the relationship between the Big Five Personality and dimensions that influence innovative work behavior:



**Figure 1. Conceptual Framework**

Based on the theory above, the hypothesis of this study is:

H1: There is a positive relationship between Openness to Experience and Innovative Work Behavior. Recent research shows a positive relationship between Openness to Experience and innovative work behavior. Liu et al. (2023) emphasized that in the work context, individuals with high levels of Openness tend to be more able to adapt and create innovative solutions to challenges. This study revealed that when individuals feel psychologically safe, they are more likely to share innovative ideas and contribute to innovation in the workplace.

H2: There is a positive relationship between Conscientiousness and Innovative Work Behavior.

Conscientiousness has also been shown to affect innovative work behavior positively. A study by Kumar and Lavanya (2024) found that individuals with high levels of Conscientiousness are more likely to seek feedback and adapt to performance pressure, contributing to innovative behavior. In addition, research by Qie (2023) showed that Conscientiousness is a moderating factor that strengthens the relationship between perceptions of human resource management practices and innovative work behavior. These findings suggest that conscientious and organized individuals are more likely to engage in innovative behavior when they feel supported by good management practices.

H3: There is a positive relationship between Extraversion and Innovative Work Behavior.

Extraversion also shows a positive relationship with innovative work behavior. Research by Shah et al. (2022) shows that more extroverted individuals tend to be more active in sharing ideas and collaborating with coworkers, which can increase innovation. In addition, research by Yang et al. (2021) found that extraversion diversity in groups can encourage innovative behavior in a service context, suggesting that high social interaction among extroverted individuals can strengthen creativity and innovation.

H4: There is a positive relationship between Agreeableness and Innovative Work Behavior.

Agreeableness, which includes cooperativeness and empathy, also contributes to innovative work behavior. Research by Muksoud et al. (2022) shows that supportive and collaborative leadership behavior can increase innovation among team members, especially when team members have high levels of Agreeableness. This suggests that more agreeable individuals are better at working together and creating an environment that supports innovation.

H5: There is a positive relationship between Neuroticism and Innovative Work Behavior.

Although Neuroticism is often considered a negative trait, some studies suggest that there are contexts in which this trait can contribute to innovative work behavior. Research by Kundi et al. (2021) suggests that emotional stability can moderate the relationship between performance pressure and work engagement, which may contribute to innovation. Additionally, research by Chen & Huang (2024) suggests that individuals with higher levels of Neuroticism may be more sensitive to stress. However, it may also develop innovative coping strategies to address challenges faced at work.

### III. Research Method

#### 3.1. Sample Criteria

The research sample used a purposive sampling technique consisting of LPG depot owners and employees in the Tegal Regency. LPG depot owners' criteria included those with an official business license and running operational activities for at least one year. As for employees, the sample was selected from those who had at least one year of work experience at an LPG depot and were actively involved in daily operational activities. The purposive sampling method was used in this study to ensure that the selected respondents had

relevant experience and understanding of LPG depot operations. The selected depot owners must have an official business license and have been operating for at least one year because they better understand regulations, business strategies, and challenges in LPG distribution. Meanwhile, sampled employees must have at least one year of work experience and be actively involved in daily operations to provide accurate insights into the work process and potential for innovation in the field.

This criterion was chosen because the study focuses on innovative work behavior in LPG distribution, which includes exploration, development, and implementation of new ideas. By selecting respondents with direct experience and involvement, the data obtained becomes more valid and can accurately describe the reality in the field. Purposive sampling allows this study to obtain more in-depth information and by the study's objectives, compared to random sampling methods that may produce respondents with a lower level of relevance. Respondents were selected based on their willingness to participate in this study and provide complete data. To conduct this study, online distribution was done using a Google form distributed throughout the LPG Bases in the Tegal Regency. This study lasted about 2 months, from October to November 2024. This study involved 153 respondents from various LPG Bases in the Tegal Regency as samples or responses. The following is the data collected as part of this study illustrated in Table 1:

**Table 1. Respondent Data**

<b>Gender</b>	<b>Frequency</b>	<b>%</b>
Man	103	67.32%
Woman	50	32.68%
<b>Age</b>	<b>Frequency</b>	<b>%</b>
Less than 30 Years old	38	28.84%
30-40 Years	52	33.99%
41-50 Years	48	31.37%
Over 50 Years	15	9.80%
<b>Years of service</b>	<b>Frequency</b>	<b>%</b>
1	49	32.03%
2-5	93	60.78%
6-9	11	7.19%
10	0	0%
<b>Level of education</b>	<b>Frequency</b>	<b>%</b>
Primary School	55	35.95%
Junior High School	31	20.26%
Senior High School	33	21.57%
D3/ Bachelor	34	22.22%
<b>Employment Status</b>	<b>Frequency</b>	<b>%</b>
Owner	77	50.33%
Employee	76	49.67%

Source: Processed Primary Data, 2024

The conclusion of the data presented shows that the majority of respondents are male (67.32%), with most being in the age group of 30 to 40 years (33.99%) and 41 to 50 years (31.37%). Respondents aged less than 30 years comprised 28.84%, while those aged over 50 years were only 9.80%. In terms of service, most respondents have a length of service between 2 to 5 years (60.78%), with a small portion having a length of service of 1 year (32.03%) and very few having a length of service of more than 6 years. In terms of education, most respondents had elementary school education (35.95%) and junior high school (20.26%), with those with high school education (21.57%) and D3/S1 (22.22%) being fewer. Regarding employment status, the distribution between owners (50.33%) and employees (49.67%) was almost balanced. Overall, this sample is dominated by men of productive age, relatively short working periods, and varying levels of education, and there is an almost equal division between owners and employees.

The age range of respondents in this study can affect the dimensions of personality and innovative behavior, which impacts the study's conclusions. The age group of 30 to 50 years who dominate the sample tend to have a balance between work experience and openness to innovation, although the majority's education level is still low. Meanwhile, respondents under 30 may be more adaptive to technological changes and innovation, but their work experience is still limited. In contrast, those over 50 are few, which may indicate that a younger and more productive workforce influences innovation in LPG distribution. This factor is important in interpreting the study results because younger ages can contribute to exploring new ideas. In contrast, more mature ages tend to focus on implementing experience-based innovations, so age dynamics in the sample affect the observed innovative behavior patterns.

Demographic diversity in the sample plays an important role in ensuring that research findings can be generalized to the broader population. In this study, most respondents were productive-age men with varying levels of education. However, there were limitations in representing the age group above 50 years and respondents with more extended working periods. The lack of representation of certain groups can lead to bias in understanding innovative behavior because factors such as age, education, and work experience can influence how individuals explore and implement new ideas. Therefore, although this sample provides a sufficient picture of innovative behavior in LPG distribution, generalizing the research results needs to be done with caution, mainly when applied to groups with different demographic characteristics.

### 3.2. Procedure and Measurement

Sampling using an e-survey method using Google Forms distributed throughout LPG Bases in Tegal Regency. This study conducted a validity test using factor analysis assisted by the SPSS 26 application. The first step is to check the KMO (Kaiser-Meyer-Olkin) value and Bartlett's test to evaluate sample suitability. A good KMO value is  $\geq 0.5$ , and Bartlett's test must be significant to continue factor analysis. After that, in the Rotated Component Matrix table, indicator items with loading factors  $\geq 0.5$  are considered valid, while items with loading factors less than 0.5 or empty columns need to be eliminated. This procedure ensures that all items in the research instrument are valid and reliable. In this study, the data collection method used a questionnaire distributed to all study samples; the number of questions consisted of 50 questions with the distribution of answers using a Likert scale (1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree).

Validation of the Big Five Inventory (BFI) scale and the innovative behavior questionnaire is critical to ensure that the instruments used in this study accurately measure aspects of personality and innovative behavior in the context of LPG distribution. The BFI scale, which consists of five main dimensions of personality (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism), has been validated in various previous studies but needs to be retested in the population studied to ensure its reliability and validity according to the characteristics of the respondents. Meanwhile, the innovative behavior questionnaire used also needs to go through construct validity and reliability tests, mainly because the context of this study focuses on LPG distribution, which has its operational characteristics. Given that the questionnaire uses a Likert scale, validity tests (convergent and discriminant) and reliability (e.g., Cronbach's Alpha) are needed to ensure that each item in the questionnaire truly reflects the dimensions of innovative behavior being measured. With good validation, the research results will be more reliable and relevant in explaining the relationship between personality and innovation in the population studied. Several studies have validated the Big Five Inventory (BFI) instrument and the innovative behavior questionnaire in a similar context. For example, a study by Suwanda Priyadi and Bhina Patria (2023) examined the validity of the BFI's internal structure using data from the Indonesian Family Life Survey (IFLS5). The results showed that the BFI-15 was suitable for a heterogeneous Indonesian population, although the scale reliability was low. In addition, a study by Tuti Alawiyah (2018) tested the construct validity of the BFI through confirmatory factor analysis on 250 female entrepreneurs in Pulomerak District, Banten. These findings support the use of BFI in Indonesian entrepreneurship. However, validation of the innovative behavior questionnaire in the context of LPG

distribution is still limited. Therefore, it is important to conduct validity and reliability tests of the instrument, specifically on the population being studied, to ensure the accuracy and relevance of the measurement.

### 3.3. Pilot Test and Questionnaire Revision

Before the main distribution, a pilot test was conducted on 30 respondents from a population with characteristics similar to those of the research sample. The results of the validity and reliability tests showed that several items in the questionnaire had a low correlation to the measured constructs ( $r < 0.30$ ), and Cronbach's Alpha values for several dimensions were still below the threshold of 0.70. Therefore, revisions were made by reducing or reformulating several unclear questions and adjusting the terminology better to suit the operational context of the LPG base. These improvements were implemented in the final version by ensuring that each item was by the theoretical indicators and relevant to the research context. Retesting on a small sample post-revision showed increased reliability, with all dimensions having Cronbach's Alpha values above 0.70.

### 3.4. Selection of LPG Bases for Questionnaire Distribution and Objectivity of the Process

LPG bases were selected using a purposive sampling method, taking into account several criteria, namely:

- Have an official business license and have been operating for at least one year to ensure that owners and employees have sufficient experience to assess the factors studied.
- Have a minimum of five operational employees to ensure representation in managerial and operational aspects.
- Be in an area with varying levels of LPG demand to see the impact of market dynamics on innovative behavior and personality dimensions.

To maintain objectivity in the distribution process, the researcher used a random approach in selecting respondents at each base, ensuring that owners and employees had an equal opportunity to participate. The questionnaires were distributed in printed and digital formats, with clear instructions regarding the purpose of the study and data anonymity.

### 3.5. Respondent Rate

The response rate is still calculated based on the number of respondents who meet the purposive sampling criteria compared to the number of questionnaires that have been distributed. In this context, because the study first collects data on the target population, the response rate is calculated by considering the number of individuals identified as targets who meet the criteria.

This study collected initial data to identify LPG depot owners and employees who met the criteria, such as owners with official business licenses and employees with at least one year of work experience. After that, the questionnaire was only distributed to this group, so the response rate was calculated based on the number of questionnaires returned and valid compared to the total number distributed to the identified groups.

### 3.6. Justification for Selecting Multiple Linear Regression Analysis

Multiple linear regression analysis was chosen because this study aims to see several independent variables' simultaneous and partial effects on the dependent variable. This method is superior to other methods, such as simple regression or logistic regression, because:

- The dependent variable is on a continuous scale, per the assumptions of linear regression.

- Several independent variables are tested simultaneously, allowing analysis of the relative effects of each factor on innovative behavior.
- Can control the effects of other variables that can affect the relationship between the independent and dependent variables.

This method is compared to non-linear regression, but the results of the linearity test show that the relationship between the independent and dependent variables is quite linear, so linear regression remains the most appropriate choice.

### 3.7. Selection of Analysis Methods

In this study, data analysis was carried out using validity, reliability, model, and hypothesis tests with multiple linear regression techniques. The selection of this method is based on the purpose of the study, which is to test the influence of several independent variables on one dependent variable simultaneously.

#### 1. Validity and Reliability Tests

- Validity tests ensure that the research instrument measures the intended concept. Validity is tested using Pearson Correlation, Kaiser-Meyer-Olkin (KMO), and Bartlett's Test if factor analysis is used.
- Reliability tests are carried out to measure the consistency of respondents' answers using Cronbach's Alpha, where values above 0.7 indicate that the research instrument has good reliability.

#### 2. Model Tests

- Using the coefficient of determination test ( $R^2$ ) to see to what extent the independent variables can explain the dependent variable.
- The F test determines whether the overall model is significant in explaining the dependent variable.

#### 3. Hypothesis Testing with Multiple Linear Regression: The multiple linear regression method was chosen because:

- This model allows the analysis of the simultaneous influence of several independent variables on one dependent variable.
- Can show the significance of each independent variable on the dependent variable through the t-test (partial).
- Allows testing the strength of the relationship between variables through the regression coefficient ( $\beta$ ) and p-value.

## IV. Results and Discussion

### 4.1. Results of Study

#### a) Validity Test and Reliability Test

The results of the instrument testing in this study were carried out in 3 rounds. In the first factor analysis, the KMO value of 0.816 indicates that the data meets the requirements for further analysis. Furthermore, in the Rotated Component Matrix table, all items have a loading factor greater than 0.5, except for several items that have low values, namely O1, O2, C2, C9, E6, E8, A1, A6, A7, A8, A9, N5, N6, N7, N8, I1, I4, and I6, which need to be eliminated. After elimination, the second-factor analysis showed an increase in KMO to 0.826, which indicates a better data fit. However, item E6 still has a low loading factor value, so it needs to be eliminated in further analysis. In the third factor analysis, although the KMO value decreased slightly to 0.823, this result still showed adequate fit for further analysis, and all items were well grouped without empty

columns, indicating that the data were ready for further analysis. This procedure ensures that all items in the research instrument are valid and reliable. The results of the instrument test are presented in Table 3 below:

**Table 2. Validity Test**

Variable Name	Indicator	Validity Test Result					
		1	2	3	4	5	6
Openness to Experience	O3	.788					
	O4	.777					
	O5	.803					
	O6	.800					
	O7	.788					
	O8	.912					
	O9	.913					
	O10	.784					
Conscientiousness	C1		.814				
	C3		.864				
	C4		.877				
	C5		.894				
	C6		.846				
	C7		.890				
	C8		.755				
Extraversion	E2			.831			
	E3			.870			
	E4			.886			
	E5			.930			
	E7			.917			
Agreeableness	A2				.925		
	A3				.946		
	A4				.939		
	A5				.953		
Neuroticism	N1					.823	
	N2					.833	
	N3					.924	
	N4					.859	
Innovative Work Behavior	I2						.923
	I3						.926
	I5						.952

Source: Statistics Output, 2024

After the validity test was conducted, all research instruments were declared valid and reliable. In the Openness to Experience variable, eight items were declared valid and reliable with a Cronbach's Alpha value of 0.936. The Conscientiousness items declared valid were 7, with a Cronbach's Alpha value of 0.939. The Extraversion variable consists of 5 valid items with a Cronbach's Alpha of 0.942, Agreeableness has four valid items with a Cronbach's Alpha value of 0.981, and Neuroticism consists of 4 valid items with a Cronbach's Alpha of 0.923. Meanwhile, the Innovative Work Behavior variable has three valid items with a Cronbach's Alpha value of 0.958. These results indicate that all instruments have perfect internal consistency so that they can be trusted to measure the variables in the study. The details are presented in the following table 3:

**Table 3. Reliability Test**

No	Variable	Item	Cronbach's Alpha	Result
1	Openness to Experience	8	0,936	Reliable
2	Conscientiousness	7	0,939	

No	Variable	Item	Cronbach's Alpha	Result
3	Extraversion	5	0,942	
4	Agreeableness	4	0,981	
5	Neuroticism	4	0,923	
6	Innovative Work Behavior	3	0,958	

Source: Statistics Output, 2024

b) Model Testing and Hypothesis Testing

After conducting the instrument test, the following testing stage is the Model and Hypothesis Testing. The details are shown in the following table 4:

**Table 4. Model Testing and Hypothesis Testing**

Hipotesis	Model Test		Hypothesis Test		Result
	R <sup>2</sup>	(F) Sig.	t	Sig.	
Openness to Experience → Innovative Work Behavior	.068	.009	0,469	0,640	Rejected
Conscientiousness → Innovative Work Behavior			2,536	0,012	Accepted
Extraversion → Innovative Work Behavior			-0,812	0,418	Rejected
Agreeableness → Innovative Work Behavior			2,268	0,025	Accepted
Neuroticism → Innovative Work Behavior			0,809	0,420	Rejected

The coefficient of determination ( $R^2$ ) is used as an indicator to measure the extent to which the Big Five Personalities can explain variations in Innovative Work Behavior in the research model. Based on the statistical results, the  $R^2$  value was obtained at 0.068, indicating that the Big Five Personalities in this study could only explain 6.8% of changes or variations in Innovative Work Behavior. Meanwhile, 93.2% of the changes were influenced by other factors outside the research model. This low  $R^2$  value indicates that the model used is less effective in explaining the relationship between the Big Five Personalities and the dependent.

The low  $R^2$  value has several practical implications that must be considered in interpreting the research results. First, the low  $R^2$  value indicates that the Big Five Personalities are not the only dominant factors influencing Innovative Work Behavior. This suggests that other variables, such as the work environment, leadership, organizational culture, or intrinsic motivation, may play a more significant role in driving innovation in the workplace. Therefore, these results remind managers and HR practitioners that a personality-based approach alone may not be enough to improve employee innovative behavior; there need to be other policies that support creativity and innovation, such as innovation training or incentives. For further research, it is recommended that the model be expanded by including other more contextual variables. For example, adding factors of innovation climate in the organization, transformational leadership, or self-efficacy can help clarify a more comprehensive relationship with innovative behavior. In addition, a mixed-method approach that combines quantitative data with in-depth interviews can provide richer insights into how personality interacts with external factors in driving innovation in the workplace.

The F-value is used to evaluate whether the Big Five Personalities together significantly influence Innovative Work Behavior. The t value is used to see the role of the Big Five Personalities partially (alone) in predicting changes in Innovative Work Behavior (hair et al., 2010). Based on the test results, an F value of 0.009 was obtained, with a significance level exceeding 0.05. This shows that simultaneously, the Big Five Personalities in this study do not significantly influence Innovative Work Behavior. This result also indicates that although some Big Five Personalities may have a significant effect partially (individually), the overall research model is not yet significant. Therefore, the simultaneous effect of the Big Five Personalities cannot be used as a basis for explaining changes in Innovative Work Behavior in this study. The hypothesis test results showed that of the five dimensions of the Big Five Personalities, only Conscientiousness and Agreeableness significantly affect Innovative Work Behavior, with a value of  $t = 2.536$ ,  $Sig. = 0.012$  for Conscientiousness and  $t = 2.268$ ,  $Sig. = 0.025$  for Agreeableness. Meanwhile, Openness to Experience ( $t = 0.469$ ,  $Sig. = 0.640$ ),

Extraversion ( $t = -0.812$ ,  $\text{Sig.} = 0.418$ ), and Neuroticism ( $t = 0.809$ ,  $\text{Sig.} = 0.420$ ) do not have a significant effect on Innovative Work Behavior because their significance values are greater than 0.05. Thus, not all personality dimensions have a significant role in driving innovative work behavior.

#### 4.2. Discussion

##### a) The Effect of Openness to Experience on Innovative Work Behavior.

The results of the study indicate that the Openness to Experience dimension does not have a significant effect on innovative work behavior. Research by Nguyen et al. (2021) confirms that although Openness to Experience is often considered a factor that supports innovation, its influence may not be visible in specific contexts, such as in more structured work environments. In addition, research by Aldrin and Hastuti Aldrin & Hastuti (2023) shows that although Openness to Experience contributes to innovative behavior, its contribution is not always significant compared to other personality dimensions.

##### b) The Effect of Conscientiousness on Innovative Work Behavior.

The study results indicate that the Conscientiousness dimension, which reflects responsibility, discipline, and attention to detail, supports innovative work behavior. Research by Qie (2023) shows that individuals with high levels of Conscientiousness tend to be more involved in innovative behavior because they are more disciplined in pursuing and implementing new ideas. In addition, research by Aman-Ullah et al. (2024) also supported this finding by showing that Conscientiousness functions as a moderator that strengthens the relationship between innovative leadership and sustainable performance.

##### c) The Influence of Extraversion on Innovative Work Behavior.

The study results indicate that the Extraversion dimension, which is often associated with sociability, high energy, and enthusiasm, does not significantly affect innovative work behavior in the LPG base environment—research. Vo et al. (2023) show that although Extraversion can encourage social interaction, its effect on innovation may not be significant in some contexts. This is in line with the findings by Krishnan et al. (Krishnan et al., 2023), which show that Extraversion does not always contribute positively to innovative behavior, depending on group dynamics and work context.

##### d) The Influence of Agreeableness on Innovative Work Behavior.

The study's results indicate that the Agreeableness dimension, which is related to cooperative attitudes, empathy, and the ability to work together, significantly affects innovative work behavior—research. Vo et al. (2023) showed that the cooperative characteristics of individuals with high levels of Agreeableness can enhance collaboration and idea-sharing, which are essential for innovation. In addition, research by Pareunt-Lamarache et al. (2021) also supports this finding by showing that more agreeable individuals tend to engage in more innovative behavior in the workplace.

##### e) The Effect of Neuroticism on Innovative Work Behavior.

The results showed that the Neuroticism dimension, which is usually associated with the tendency to experience negative emotions such as anxiety, stress, and emotional instability, did not have a significant effect on innovative work behavior. Research by Kundi et al. (2021) showed that although Neuroticism can affect psychological well-being, its effect on innovation is insignificant. In addition, research by Villarte and Tantiado (2024) also showed that individuals with high levels of Neuroticism may have difficulty contributing to innovation due to their tendency to feel anxious and emotionally unstable.

## V. Conclusion

Based on the analysis above, it can be concluded that the dimensions of Conscientiousness and Agreeableness have a significant influence on innovative work behavior. In contrast, the dimensions of Openness to Experience, Extraversion, and Neuroticism do not show the same relationship. This study supports and complements previous studies by showing that specific personality dimensions are more relevant in specific work contexts. In a more operational work environment, such as an LPG base, conscientiousness and agreeableness are the main factors that support innovative work behavior. In contrast, dimensions related to exploring new ideas or social interaction, such as Openness and Extraversion, are less relevant in more procedural jobs. This study also confirms that the influence of personality on innovation is very contextual, so human resource management strategies must be adjusted to the characteristics of the work environment. Based on the research results and its limitations, it is recommended to add more relevant Big Five Personalities, use more advanced analysis methods such as path analysis or Structural Equation Modeling (SEM), expand the population and sample so that the research results can be more generalized, and conduct additional testing to see the potential for interactions between the Big Five Personalities in order to understand more complex relationships between these variables.

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