

# Effects Of Mental Disorders On Employee Innovative Performance: Evidence From The Indonesian Fertilizer Industry

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# Effects of Mental Disorders on Employee Innovative Performance: Evidence from the Indonesian Fertilizer Industry

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## ABSTRACT

The purpose of this study is to investigate the role of mental disorders in employee innovative performance. Decision making and creativity among the employees of Indonesian fertilizer companies was also considered in this study. By implementing a research survey, 200 questionnaires were distributed among the employees of fertilizer companies. Structural Equation Modeling (SEM) was the preferred method for data collection. The study concludes that mental disorders play a crucial role in employee innovative performance. The employees suffering from mental disorders do not perform worse and cannot contribute to the innovative activities of the company. Mental disorders decrease the employee performance and influence decision making which further affects innovative performance. Mental disorders also influence employee creativity which affects innovative performance. Therefore, mental disorders have an effect on innovative performance of the employees, as influences decision making and employee creativity.

**KEY WORDS:** Psychological illness, decision making, creativity, innovative performance, fertilizer companies.

**JEL Classification:** D91, D23.

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## 1. Introduction

Fertilizer companies grow exponentially in importance among various countries, and are an essential part of agricultural activities. Agriculturally developed countries require extensive services from the fertilizer industry. Therefore, fertilizer companies provide significant support to the agricultural sectors of all countries (Acha & Mossneh, 2020). They also provide various chemicals which are helpful in resolving various issues with crops. Therefore, there is a relationship between the agricultural and fertilization industries.

Indonesia's fertilizer industry has a positive effect on agricultural products. It releases many agricultural products which help crops survive and the industry flourish. This industry plays an important, positive developmental role in Indonesia, as it provides

numerous business opportunities (Ali & Sari, 2019; Wisesa et al., 2019). According to the literature, this industry has significantly affects the economy. Due to the handsome contribution of fertilizer industry into the Indonesian economy, it is considered crucial and the Indonesian government is focusing heavily on its performance (Gultom et al., 2020).. Considering the relationship of agricultural and fertilization industries, the performance of the latter affects the former. Products provided by the fertilizer industry are of key importance to the agriculture industry.

The Indonesian fertilizer industry's growth from 2016 to 2019 is shown in Figure 1. Consumption value in USD million is shown in relation to the Indonesian industry. It is clear that the Indonesian fertilizer industry is growing sustainably in each year. In 2016, the consumption of this industry amounted to 1411.2 million. In 2017, the consumption of this industry amounted to 1489.8, while in 2018, the consumption was 1495.4 and finally, in 2019, the consumption reached 1532.6 million. Increase in

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the consumption of this industry is the indication of growth which leads to better performance (Dalle et al., 2020). Higher performance of this industry is very important because of its relationship with agriculture (Utami et al., 2016). In this regard, the Indonesian government's focus is to boost this industry, as it plays a vital role in various revenue-generating activities. Additionally, the industry's significance can be attributed to the number of created employment opportunities.

However, the issues in this industry may negatively affect performance. Due to the issues in this sector, the performance of fertilizer companies has a negative influence. The negative influence in this industry may negatively affect both fertilizer and agriculture industries. Employees are always the most important part of every company which has influence in every sector (Razzaq et al., 2019). Generally speaking, various organizations and their employees face the issues related to psychological wellbeing. Mental disorders are one of the major issues which negatively affect employee performance, which ultimately has a negative effect on company performance. According to the current study, mental disorders affect employee decision making. Factors affecting decision making play a significant role in performance (Dalle & Hastuti, 2017). Mentally disturbed minds are unable to make better decisions. Moreover, mental disorders also disturb the creativity of the employees. Creative performance of the employee has role in creativity as the mental disorders have an effect on the ability of human mind (Badcock, 2019).

There are numerous studies available in the literature discussing fertilizer companies (Sanders et al., 2013; Sanusi, 2015; Yadav et al., 2009), however, innovative performance was not a topic in any of them. Various studies discuss innovation among companies, but mental disorders are not considered. It is very important to discuss this issue among the companies, because of the effects on innovative performance. The relationship between mental disorders, decision making, creativity, and employee innovative performance is not considered by the previous investigations. Moreover, this study examined the mediating effect of decision making between mental disorders and innovative performance which is also not considered by other studies. Along with this, the mediation effect of

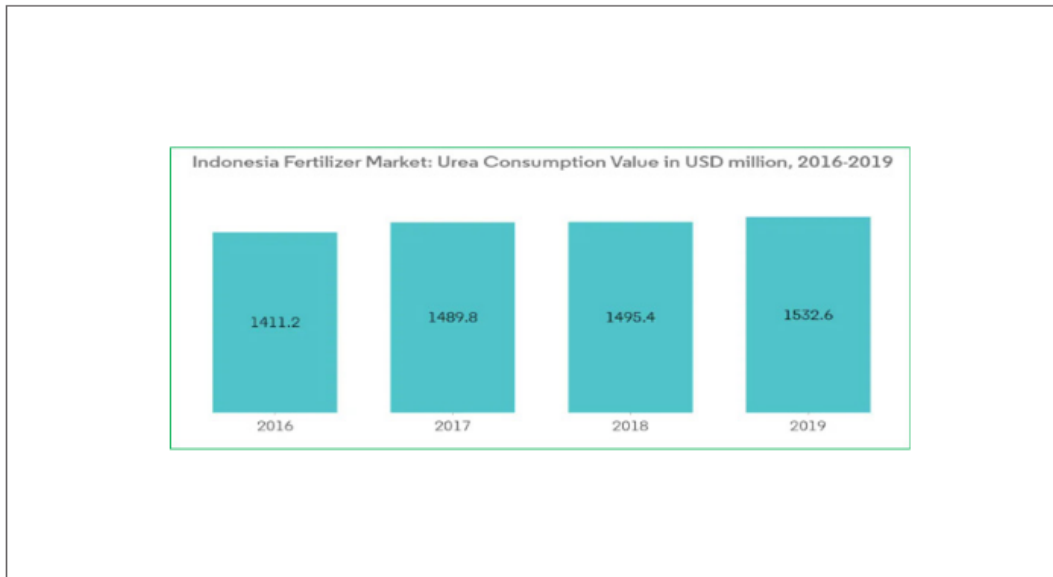
employee creativity was also not considered between mental disorders and innovative performance by previous studies. Hence, this study provides significant practical and theoretical contribution.

## 2. Hypotheses Development

Fertilizer companies are crucial in improving the effectiveness of crop productivity. These companies provide various nutrients to fertile the soil and increase the productivity of crops. Increase in the productivity of crops is crucial in agricultural performance (Ripoche et al., 2015). Different crops require different chemicals and in different weather conditions various insects may attack crops which significantly affects them influences productivity. Therefore, powerful medicines are always required from the fertilizer companies to destroy the harmful agent and increase the productivity of crops. There is an important relationship between the productivity of crops and fertilizer companies. Different countries focus on the production of different crops, such as wheat, cotton, rice, and sugarcane are the most famous crops produced by different nations. However, all these crops required significant medication.

Crop production is one of the branches of agriculture that deals with making crops for use as food as well as fiber. Indonesia has a well-developed crop production infrastructure. The Indonesia keeps vast and rich arable fertile soils which produce high quality crops. Indonesia is one of the world's main manufacturer of an extensive range of agricultural tropical products as well as merchandise, including palm oil, cocoa, natural rubber, cassava, coffee, tea, rice, and tropical spices. All these agricultural products are highly important and connected with fertilizer companies. These companies provide different products which has an effect on productivity. Indonesia's land soil is also suitable for crop production (Lisson et al., 2010).

However, among the fertilizer companies, there are various other factors which affect the performance of these companies. These different factors are related to the employees of the organizations. According to this study, mental disorders play an important role in employee performance which affects company performance. Mental disorders affect employees of various organizations (Kirk-Brown & Van Dijk, 2016). The



**Figure 1.** Indonesian fertilizer industry growth.  
Source: IFA, Mordor Intelligence

current study highlights that mental disorders influence decision making abilities of employees and employee creativity which alters innovative performance. Therefore, the relationship between mental disorders, decision making, creativity and employee innovative performance was examined in this study. Figure 2 shows the relationship between mental disorders, decision making, creativity and employee innovative performance.

Mental disorders can be described as “a disease or period of sickness affecting the body or mind.” They also denote to a widespread range of mental health conditions — disorders that influence individuals’ mood, thinking, as well as behavior. Examples of mental illness include depression, eating disorders, anxiety disorders, schizophrenia, and addictive behaviors. Mental disorders are linked to innovative performance. They shape the behavior of the employee towards the job and define the performance. Literature also highlights that psychology has a relationship with performance (Schinke et al., 2018). A positive psychological effect on the employee has positive consequences regarding performance. However, a negative psychological effect negatively affects employee per-

formance. Innovative performance is one of the most important elements of an organization. Employee innovative performance leads the company towards success, which is a well-explored phenomenon in the literature (Belderbos, Gilsing, Lokshin, Carree, & Sastre, 2018). Generally, mental disorders have a negative effect on innovative performance of the employee. The more prevalent the disorders, the less innovative the performance. Thus, the above discussion leads to the following hypothesis;

Hypothesis 1: Mental disorders have a negative effect on innovative performance.

Moreover, mental disorders are linked with decision making processes of employees. Decision making is the procedure of selecting by classifying a decision, assembling information, and measuring alternative resolutions. A step-by-step decision-making procedure can help one make more cautious, thoughtful decisions by establishing related information as well as defining various alternatives. The making of a decision is an important part of job performance (Vohs et al., 2018). Decision making is a highly important psychological process. In psychology, decision-making is observed as the cognitive procedure consequential in

the collection of a good or a course of action among numerous alternative opportunities. Decision-making is the procedure of classifying as well as selecting alternatives, grounded in values, preferences and beliefs of the decision-maker. An employee suffering from a mental disorder negatively affects performance. Relationship between mental disorders and employee performance is already described in the literature (Huang & Simha, 2018).

Hypothesis 2: Mental disorders negatively affect decision making.

Negative effects of mental disorders on employee decision making further affect innovative performance. Decrease in employee decision making ability decreases employee innovativeness. Therefore, decision making has a relationship with innovative performance of employees at organizations. Previous studies also highlighted the important association between decision making and innovative performance (Hughes et al., 2019; Su et al., 2016). Therefore, better decision making increases the changes of better innovative performance. The fact that improved decision making has a positive influence on innovative performance is evident from practice. Moreover, from above discussion, it is evident that mental disorders have a significant effect on innovative performance. Mental disorders also have a significant effect on decision making and decision making has a significant effect on innovative performance. The relationship between these three variables allows the decision making to be treated as a mediating variable between mental disorders and innovative performance by following the recommendations of Baron and Kenny (1986). Hence, the above discussion on previous studies lead to the below hypotheses;

Hypothesis 3: Decision making has a positive effect on innovative performance.

Hypothesis 4: Decision making mediates the relationship between mental disorders and innovative performance.

The above discussion highlighted that mental disorders affect innovation performance and employee decision making. Moreover, mental disorders also have an effect on employee creativity. There is a direct effect of mental disorders on employee creative behavior. It is also given that psychologist and creative behavior are linked (Jang, 2018). Creative behavior can

be described as a creative act, or a set of acts, which is manifested through behavior. Creative behavior is not passive; it is an action, which supports creative output or a solution to a challenge. Creative performance of the employee has the ability to generate new ideas and lead towards innovative performance. However, mental disorders have a negative effect on employee creativity. The employees suffering from mental disorders cannot improve their job performance and act creatively. Therefore, psychological factors decrease the employee creative performance. Decrease in creative performance also affects innovative performance, as creative performance or creativity has a relationship with innovative performance (Brem & Utikal, 2019; Christensen-Salem et al., 2020; Song et al., 2020). Moreover, similar to the decision making, creativity also is also used as mediating variable between mental disorders and innovative performance.

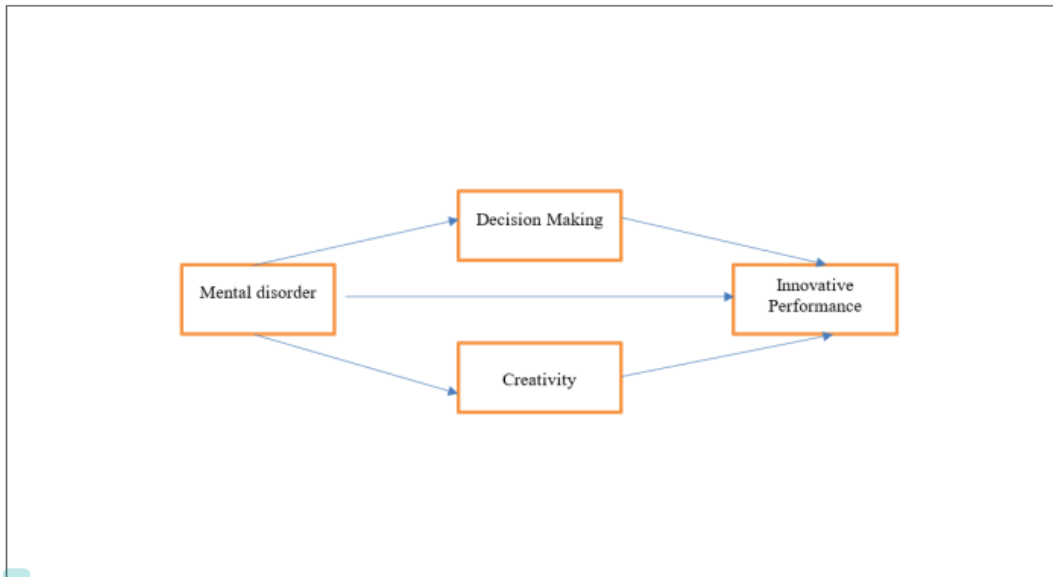
Hypothesis 5: Mental disorders negatively affect creativity.

Hypothesis 6: Creativity has a positive effect on innovative performance.

Hypothesis 7: Creativity mediates the relationship between mental disorders and innovative performance.

### 3. Research Method

The current study explored the relationship between mental disorders, decision making, creativity, and employee innovative performance. In analysis, four variables were measured. To measure the variables, a questionnaire was developed with the help of previous studies. The questionnaire included various questions regarding mental disorders, decision making, creativity and employee innovative performance. Mental disorders were measured by asking questions related to depression, anxiety disorders, schizophrenia, eating disorders and addictive behaviors. Decision making was measured by asking questions related to the participation of the employee in various matters. Employee creativity was measured by evaluating questions related to the employee's creative behavior towards new idea generation. The behavior of the employee towards new idea generation serves as evidence of the employee's creativity. Finally, the innovative performance of the employee was measured by examining the contribution of the employee in different innovation related activities and their achievements.



**Figure 2.** Theoretical framework of the study showing the relationship between mental disorder, decision making, creativity and employee innovative performance.

Questionnaires were used for data collection. A Likert scale was used to collect the data. In the questionnaire, all the questions were close-ended. None of the question was open-ended, therefore, respondents were bound to answer on a specific rating. Employees of Indonesian fertilizer companies, including managerial and non-managerial employees, were selected as the respondents of the study. In addition to this, this study distributed the questionnaires to the employees using cluster sampling, the most suitable technique to collect data from wide population. 200 questionnaires were distributed among the employees of fertilizer companies. A total of 110 questionnaires were returned and used for data analysis. Hence, 110 questionnaires were entered into the Excel sheet and data was analyzed to check the missing value and outlier which is very important to examine in order to get accurate results from the collected data (Aydin & Şenoğlu, 2018).

#### 4. Findings

Data analysis of the study used Smart PLS to obtain the end results. Step wise PLS-SEM was performed in this study in which the first step is given in Figure 3. Figure 3 shows the measurement model of PLS highlighting the factor loadings. Factor loadings also given in Table 2. PLS outer model for reliability and

validity is widely used and acceptable process (F. Hair Jr et al., 2014; J. F. Hair et al., 2012; Zahra et al., 2019). According to previous studies, factor loadings must be above 0.7, few studies shows that factor loadings must be above 0.5. The Table 2 shows that all the factor loadings are above minimum threshold level.

Furthermore, this study examined Cronbach alpha, composite reliability (CR) and average variance extracted (AVE) which is shown in Table 3. Discriminant validity by using cross-loadings is given in Table 4. According to J. Hair et al. (2017), CR and AVE must be above 0.7 and 0.5, respectively. All the values are above minimum level as shown in Table 3.

In the next process, PLS-Structural model was used (Dahri, Hameed, Nawaz, Sami, & Bux Shah, 2019; Henseler, Ringle, & Sinkovics, 2009). After the analysis of reliability as well as validity, this study used t-value and beta value for hypotheses testing. Hypotheses testing is given in Figure 4. All the hypotheses having t-value above 1.96 was accepted, however, below t-value 1.96 was not accepted. Table 5 shows the direct effect results and Table 6 shows the indirect effect results. All the hypotheses have t-value above 1.96, therefore, all the hypotheses are supported.

Table 1. Missing Value and Outlier

	No.	Missing	Mean	Median	Min	Max	SD	Kurtosis	Skewness
PI1	1	0	3.327	3	1	7	2.955	-1.113	0.367
PI2	2	0	3.473	4	1	7	1.053	-0.168	0.302
PI3	3	0	3.345	3	1	7	2.082	-1.155	1.406
PI4	4	0	3.491	4	1	7	2.118	-1.231	0.307
PI5	5	0	3.4	3	1	7	1.023	-0.244	0.314
PI6	6	0	3.418	4	1	7	2.082	-1.202	0.335
DM1	7	0	2.782	2	1	7	2.095	-0.192	1.07
DM2	8	0	2.791	2	1	7	1.265	-0.506	0.035
DM3	9	0	2.664	2	1	7	2.099	0.058	1.208
DM4	10	0	2.645	2	1	7	1.837	0.35	1.116
DM5	11	0	2.545	2	1	7	1.891	0.429	1.192
DM6	12	0	2.627	2	1	7	1.123	-0.083	0.153
CR1	13	0	2.818	2	1	7	2.077	-1.274	1.012
CR2	14	0	2.691	2	1	7	2.088	-0.197	1.057
CR3	15	0	2.682	1	1	7	1.358	-0.568	1.059
CR4	16	0	2.645	2	1	7	2.034	0.019	1.13
CR5	17	0	2.755	2	1	7	2.05	-1.006	1.152
IP1	18	0	3.427	4	1	6	1.626	-1.204	0.209
IP2	19	0	3.355	3	1	6	1.756	-1.402	0.128
IP3	20	0	3.4	3	1	6	2.597	-0.297	0.11
IP4	21	0	3.273	3	1	6	1.656	-1.419	0.018
IP5	22	0	3.327	3	1	6	1.596	-1.318	1.184
IP6	23	0	3.327	3	1	6	2.641	-0.402	0.074

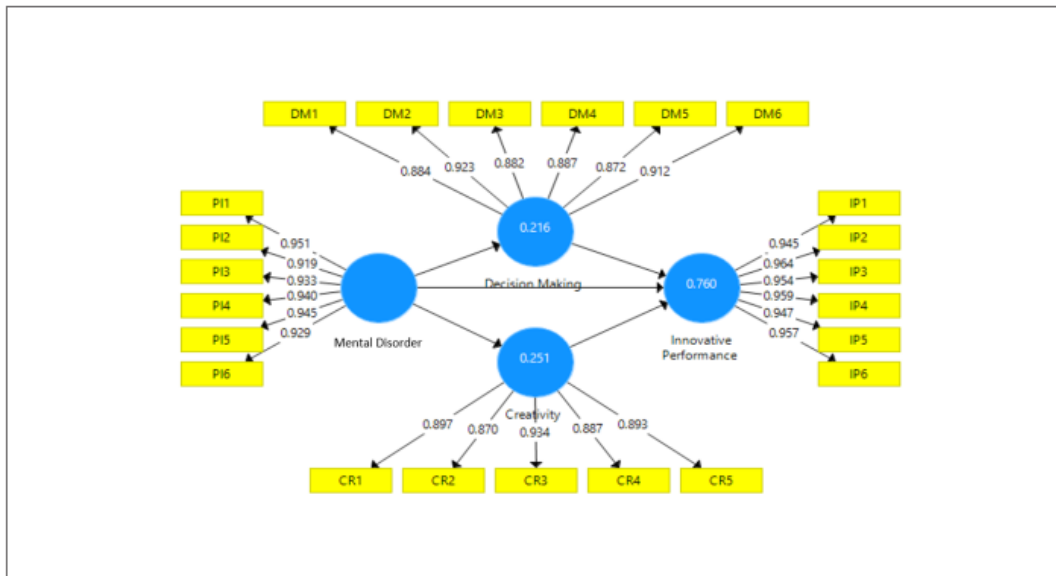


Figure 3. PLS outer model.

Table 2. Factor Loadings

	Creativity	Decision Making	Innovative Performance	Mental disorder
CR1	0.897			
CR2	0.87			
CR3	0.934			
CR4	0.887			
CR5	0.893			
DM1		0.884		
DM2		0.923		
DM3		0.882		
DM4		0.887		
DM5		0.872		
DM6		0.912		
IP1			0.945	
IP2			0.964	
IP3			0.954	
IP4			0.959	
IP5			0.947	
IP6			0.957	
PI1				0.951
PI2				0.919
PI3				0.933
PI4				0.94
PI5				0.945
PI6				0.929

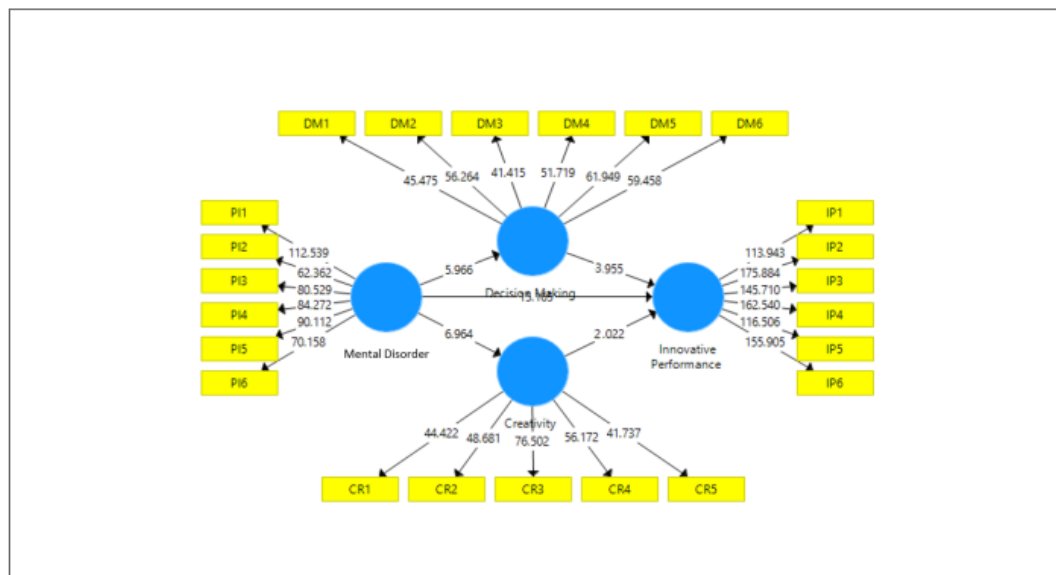


Figure 4. PLS-structural model.



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Table 3. CR and AVE

	Alpha	rho_A	CR	(AVE)
Creativity	0.939	0.94	0.953	0.804
Decision Making	0.949	0.952	0.96	0.798
Innovative Performance	0.98	0.981	0.984	0.911
Mental disorder	0.972	0.972	0.977	0.877

Table 4. Discriminant Validity

	Creativity	Decision Making	Innovative Performance	Mental disorder
CR1	0.897	0.865	0.507	0.425
CR2	0.87	0.86	0.552	0.465
CR3	0.934	0.89	0.552	0.459
CR4	0.887	0.866	0.484	0.445
CR5	0.893	0.84	0.47	0.45
DM1	0.845	0.884	0.504	0.461
DM2	0.893	0.923	0.513	0.436
DM3	0.861	0.882	0.422	0.333
DM4	0.82	0.887	0.486	0.409
DM5	0.872	0.882	0.499	0.412
DM6	0.881	0.912	0.53	0.424
IP1	0.495	0.471	0.945	0.803
IP2	0.505	0.497	0.964	0.81
IP3	0.557	0.537	0.954	0.775
IP4	0.574	0.549	0.959	0.84
IP5	0.553	0.532	0.947	0.839
IP6	0.598	0.58	0.957	0.818
PI1	0.43	0.382	0.766	0.951
PI2	0.48	0.432	0.839	0.919
PI3	0.469	0.451	0.778	0.933
PI4	0.46	0.442	0.791	0.94
PI5	0.495	0.463	0.796	0.945
PI6	0.476	0.437	0.821	0.929

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## 5. Implications and Limitations of the Study

This study considered the vital relationship between mental disorders, decision making, creativity and employee innovative performance which is not considered by the previous studies. In this direction, this study followed the literature gap examining the effect of mental disorders on innovative performance of employees. Previous studies did not discuss

the innovative role of employee in relation to the mental disorders. Especially, the relationship between mental disorders and innovation performance among Indonesian fertilizer companies is not considered. This relationship was not clear among the employee of fertilizer companies. Along with this, the current study also considered the decision making and employee creativity with mental disorders and innovative performance. Both the decision making,

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**Table 5.** Results (Direct Effect)

	(O)	(M)	SD	T Statistics	P Values
Creativity -> Innovative Performance	0.025	0.024	0.012	2.022	0.042
Decision Making -> Innovative Performance	0.204	0.203	0.052	3.955	0
Psychological Illness -> Creativity	-0.501	-0.508	0.072	6.964	0
Psychological Illness -> Decision Making	-0.465	-0.471	0.078	5.966	0
Psychological Illness -> Innovative Performance	-0.761	-0.759	0.05	15.165	0

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**Table 6.** Results (Indirect Effect)

	(O)	(M)	SD	T Statistics	P Values
Psychological Illness -> Creativity -> Innovative Performance	-0.022	-0.021	0.01	2.19	0.036
Psychological Illness -> Decision Making -> Innovative Performance	0.095	0.094	0.025	3.79	0

and employee creativity are used as mediating variables. The mediation effect of decision making, and employee creativity was not considered regarding mental disorders and innovative performance in previous studies. Practically, this study is important for Indonesian fertilizer companies. The practitioners can develop strategies related to the creative performance of employees. This study suggested that mental wellbeing and health of employees should be prioritized. Employees suffering from mental disorders should be treated by the companies in order to improve performance.

This study is limited to the Indonesian fertilizer companies only. The performance of these fertilizer companies has different among various countries. In some countries the agriculture is at very low level due to not having agriculture land. Therefore, the current model in other fertilizer companies may give the different results. Hence, the results cannot be generalized in other companies. Moreover, this study considered the psychological illness only and did not include other psychological factors. Therefore, future studies should consider other factors related to the psychology.

## 6. Conclusion

The purpose of this study was to investigate the role of mental disorders in employee innovative performance. Decision making and creativity of employees was also considered in

this study. Indonesian fertilizer companies were selected for this study. After data collection, results of the study were obtained with the help of statistical software. The results of the analyses describe insights valuable for the fertilizer companies.

The findings state that mental disorders play a crucial role in employee innovative performance. Mental disorders at workplace disturb the regular employee activity. Generally, mental disorders decrease the performance of the employees. The employees suffering from mental disorders do not perform better and cannot contribute to the innovative activities of the company. Mentally disturbed employees cannot achieve their targets and cannot cope with the pressure and stress during high workload. Mental disorders decrease the performance of employees. Therefore, mental disorders have a negative effect on employees' performance. It has direct and indirect effect on the innovative performance of employees. Indirectly, it affects innovative performance through decision making and employee creative performance. Mental disorders negatively affect decision-making ability of the employees. It leads to negative decision making which ultimately negatively affects innovative performance of the employees, as the research among fertilizer companies of Indonesia shows. Moreover, mental disorders play a role in employee creativity. Generally, employee creativity

influences employee performance. Mental disorders have a negative effect on employee performance related to the creativity which negatively affects employee creative performance. Hence, mental disorders influence decision making and decision making has further influence on innovative performance. Mental disorders also influence employee creativity which further influences innovative performance. Finally, mental disorders among employees have negative effects on employee innovative performance by affecting decision making and employee creativity.

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