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Regression Model of Public Interest in COVID-19 Vaccination Ahead of MotoGP

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ABSTRACT

This study explores the factors influencing public interest in COVID-19 vaccination in Central Lombok Regency, Indonesia, ahead of the 2022 MotoGP. The lack of a clear herd immunity threshold in the region motivated this research to understand how accessibility, perceived effectiveness, trust in government, and upcoming events impact citizens' vaccination decisions. Using a quantitative survey approach, this study collected data from 332 individuals aged 12-70 who had received complete vaccination. Easy access to immunization (X1), belief in the efficacy of vaccines (X2), confidence in government (X3), and attendance at MotoGP events (X4) are among the independent variables under investigation. The dependent variable focuses on residents' interest in receiving COVID-19 vaccination (Y). The use of the Successive Interval Method to organize the data and evaluate the MotoGP attendance component as an independent variable sets this research apart from other studies of a comparable nature.The research results showed that the MotoGP event had no impact. Instead, trust in government emerged as the most significant factor. These findings show that building public trust and consistently communicating vaccine effectiveness are important strategies for increasing vaccination rates in Central Lombok. This research emphasizes the importance of educational campaigns and ensuring vaccination options are easily accessible.

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A. INTRODUCTION

Around the world, including Indonesia, the COVID-19 vaccination campaign is still in place as a response to the pandemic. Along with lowering the COVID-19 disease's propagation (Kerr et al., 2021; Faturohman et al., 2021), vaccination can also reduce the impact caused by COVID-19 disease (El-Elimat et al., 2021) and form immunity against the virus that causes COVID-19 (Randolph and Barreiro, 2020). When a population is vaccinated against COVID-19 until it reaches a threshold where continuous transmission cannot occur, herd immunity is formed so that the COVID-19 outbreak will decrease. It will only be possible to develop herd immunity in a location where vaccination rates are high and uniform (Randolph and Barreiro, 2020; Kadkhoda, 2021). In fact, several regions in Indonesia have not yet reached this threshold value, so there is still a chance for COVID-19 transmission to occur in those areas.

Regency of Central Lombok, West Nusa Tenggara (NTB), is a super-priority travel destination with the potential to draw in a significant amount of local and international travellers. In addition, the Mandalika Circuit Area, which is situated in this neighbourhood, was selected as the site for a number of events, including the MotoGP 2022 competition and the World Superbike (WSBK), both of which are planned to take place on March 20, 2022. In praising the holding of these occasions to establish herd immunity on this massive scale, the residents of this district must fervently embrace the COVID-19 vaccination initiative. To protect against

new infections that tourists or onlookers who will watch the event might bring, achieving herd immunity is of utmost importance. As of January 6, 2022, when this research was proposed, information from the Ministry of Health of the Republic of Indonesia (2022) indicates that as many as 60.95% of the residents in Central Lombok Regency had gotten the second vaccination. Unfortunately, In order to grant herd immunity against COVID-19, this level has not yet exceeded the threshold. To acquire herd immunity against the Coronavirus, according to Randolph & Barreiro (2020), at least 67% of the population must be immune. In the meantime, this value needs to be between 84% and 90% to achieve a high level of security (Kadkhoda, 2021). Naturally, this is a concern if, at the time of the MotoGP event, this value has not yet achieved the group immunity level, as it may raise the possibility of COVID-19 transmission. Consequently, it is imperative to look into the reasons behind the Central Lombok district residents' lack of interest in receiving the COVID-19 vaccine and whether hosting this MotoGP event encourages them to do so. This can help the government determine the right strategy to increase public interest in vaccinating against COVID-19.

In some locations of Indonesia, some of the findings from earlier research suggest that there remains a deficiency in awareness of the COVID-19 vaccination, with the majority of individuals (54.1%) stating that they do not wish to receive it (Sutriyawan and Hidayatulloh, 2021). The COVID-19 vaccination initiative was well accepted by only 43.1% of the Sumatran population. According to the analysis's findings, there is a connection between knowledge, access to information, and family acceptance of the COVID-19 vaccination campaign (Lasmita et al., 2021).

The public's desire to receive a COVID-19 vaccination may be influenced by a variety of variables. The vaccine's efficacy, the amount of vaccine information available, and the types of occupation on vaccination acceptability were all evaluated in the study (Harapan et al., 2020) as well as (Lazarus et al., 2021). According to (Irfan et al., 2022), attitude variables, views of the pandemic's risk, and impressions of the vaccine's benefits all have a favorable influence on people's intentions to get the COVID-19 vaccine. People's intentions to receive the COVID-19 vaccine are positively impacted by attitude factors, beliefs about the risk of the pandemic, and perceptions of the vaccine's advantages. According to another study, group beliefs, self-effectiveness, perceived danger, and understanding of the pandemic are the elements that affect a person's readiness to approve of pandemic prevention programs (Irfan et al., 2022). In a different study, it was determined that a variety of variables contributed to the Indonesian population's lack of interest in receiving the COVID-19 vaccination, including the dearth of information offered about the types of vaccines, the number of vaccines available, and the safety of the vaccine itself (Olivina, 2021). Perceived benefits, convenience of use, effectiveness of the vaccine are other elements that influence Indonesians' acceptance of the COVID-19 vaccine (Harapan et al., 2016; Cerda and García, 2021; Nirbachita et al., 2021). The acceptability of the COVID-19 vaccination was unaffected by a person's level of religiosity (Faturohman et al., 2021). Other nations throughout the world likewise lack public support for administering the COVID-19 vaccination. Problems with the COVID-19 vaccine's effectiveness and safety, beliefs that the disease carries minimal danger, and poor vaccination rates are a few of the contributing causes.

Furthermore, utilizing a mathematical model, (Faturohman et al., 2021) investigated the parameters influencing the COVID-19 vaccine's adoption. The Technology Acceptance Model (TAM) was employed in his study to identify the elements affecting COVID-19 immunisation uptake in Indonesia. Findings showed that reported ease of use was positively connected with perceived benefit, and that perceived benefit was strongly correlated with acknowledgement of receiving the COVID-19 vaccine. Religion and the amount of COVID-19 information had no discernible impact on vaccine acceptance. Another study used an adjusted Cognitive-Affective-Normative (CAN) model to assess variables that affect people's intentions to take the COVID-19 vaccine. The findings indicate that social influence is the second most significant element influencing an individual's intention to receive COVID-19 vaccination after vaccine effectiveness (Pelegrin-Borondo et al., 2021). Another study was conducted by (Jiang et al., 2021) to explore attitudes, knowledge, willingness, and key factors influencing acceptance of COVID-19 vaccination among students from three universities in China using multivariate linear regression. The results of a study of a total of 3,256 participating students showed that even though they showed a strong desire to get the COVID-19 immunization (86%), they knew a lot about immunizations (77.9%), they had a low perception of the risk of COVID-19 and a less positive attitude towards vaccination (69.8%). The main influencing factors are gender, age, specialisation, grades, living environment, spending level, trips to risky areas, and family members' vaccination experience. Furthermore, (Mir et al., 2021) used Structural Equation Modelling (SEM) in their research and found a significant correlation between perceptions of benefits, social norms, and trust and the attitudes of the Indian people towards the COVID-19 vaccination. In contrast, risk perception and exposure to social media showed no significant effect on people's attitudes towards COVID-19 vaccination. People's intention to get the COVID-19 vaccination is strongly connected with their social norms, beliefs, and attitudes concerning the vaccine. On the other hand, it was discovered that the use of social media did not influence people's decision to receive the COVID-19 vaccine. In addition, (Akther and Nur, 2022) discovered that conspiracy theories have an impact on people's willingness to get the COVID-19 vaccine using a different model method called Partial Least Squares Structural Equation Modelling (PLS-SEM). How-

ever, attitudes and acceptability of COVID-19 vaccination are positively impacted by individual awareness, perceived advantages of COVID-19 immunisation, and perceived ease of getting COVID-19 vaccinations.

These five studies used a statistical model approach to analyse people's attitudes and components of the COVID-19 vaccine's community acceptability ; however, these were distinct from this study in terms of the model technique used and the parameters investigated. This research aims to make a regression model of public of Central Lombok Regency interest in the COVID-19 vaccination ahead of the MotoGP 2022 and to determine the influence of the MotoGP 2022 Event and other factors, i.e. the simplicity of receiving a COVID-19 vaccination, faith in the efficacy of the COVID-19 vaccine and confidence in the government. The statistical techniques employed and the factors involved in the organization of MotoGP 2022 set this study apart from the pertinent studies that were previously discussed. This research is important so that we can find out what strategies can be recommended to the government to raise awareness of the COVID-19 immunization among the residents of Central Lombok Regency, NTB.

B. RESEARCH METHOD

This study belongs to a particular category of descriptive quantitative research. Data were gathered using a questionnaire, and they were then presented honestly without trying to generalise (Sugiyono, 2017). This study was conducted at the research site, Central Lombok Regency, NTB, between May 2022 and August 2022. The population that was observed for this study is Central Lombok Regency in West Nusa Tenggara. The observation of this population was done based on observations of the sample, which included 332 Central Lombok Regency individuals between the ages of 12 and 65 who were old enough to receive COVID-19 immunisation. This study employs observational methods to count the number of Central Lombok Regency people who have received the complete COVID-19 vaccine. In addition, surveys were given out to those who had completed the COVID-19 vaccination in Central Lombok Regency to learn more about their motivations. The questionnaire is distributed to respondents both online and offline and comprises statements on people's reasons for participating in the COVID-19 vaccine. The questionnaire's answer options were rated on a Likert scale from 1 to 5.

The Method of Successive Interval (MSI) must first be used to convert the ordinal data from the questionnaire responses into interval data in order to perform multiple linear regression modelling (Asdar, 2011; Ningsih and Dukalang, 2019). Using Excel, the author transforms the data. Furthermore, the authors tested the validity and reliability of the questionnaire statement items and then performed multiple linear regression analyses.

The independent variables in this study include the simplicity of receiving of COVID-19 vaccination (X1), faith in the efficacy of the COVID-19 vaccine (X2) and confidence in the government (X3), and the MotoGP 2022 event (X4), while the dependent variable is interest in the COVID-19 vaccination (Y). To create a mathematical model, the author employed a multiple linear regression analysis technique. The mathematical model is:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 \tag{1}$$

Description:

Y	=	dependent variable
X_1	=	independent variable
a	=	intercept
b_i	=	coefficient of regression

The model represented by Equation (1) is used to understand how independent variables influence a person's interest in getting the COVID-19 vaccine. After the regression model is obtained, a simultaneous test, partial test, and coefficient of determination test are carried out. The author also tests the classic assumptions on the residual variables. Concluding remarks are made at the end, and this study's methodology is shown in Figure 1.

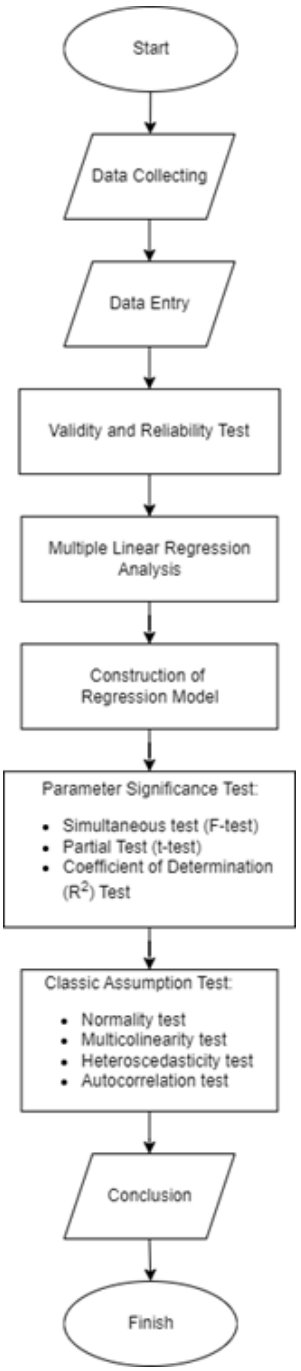

Figure 1. Research Flowchart Using Multiple Linear Regression Analysis (Theofani and Sediyono, 2022)

C. RESULT AND DISCUSSION

1. Data Collecting

In recapitulation of the results of distributing questionnaires to respondents, the demographics of respondents were obtained, as displayed in Table 1.

Table 1. Data on the Respondent's Demography

Age Range	Total	Percentage (%)
12 17	239	71.99
18 23	47	14.16
24 29	10	3.01
30 35	7	2.11

36 41	2	0.6
42 47	7	2.11
48 53	9	2.71
54 59	6	1.81
60 65	5	1.51
Gender	**Total**	**Percentage (%)**
Male	151	45.5
Female	181	54.5
Profession	**Total**	**Percentage (%)**
Students	288	86.75
Teacher/Lecturer	10	3.01
Housewife	10	3.01
Farmer	13	3.88
Private Sector Employee	4	1.2
Entrepreneur	7	2.11
Qualification	**Total**	**Percentage (%)**
Primary School	19	5.7
Junior High School	285	14.16
Senior High School	6	3.01
Bachelor Degree	18	2.11
Postgraduate	4	0.6
Districts	**Total**	**Percentage (%)**
Batukliang	39	11.7
Batunyala	16	4.8
Bonjeruk	21	6.3
Jonggat	40	12
Kopang	1	0.3
Labangka	1	0.3
Pengadang	14	4.2
Praya	32	9.3
Pringgarata	108	32.5
Pujut	3	0.9
Puyung	3	0.9
Sengkol	18	5.4
Teratak	18	5.4
having comorbidities	**Total**	**Percentage (%)**
Yes	9	2.71
No	323	97.29

Table 1 shows that adolescents aged 12 to 17 made up most of the responses (71.9%). There were 45.5% fewer male respondents than female respondents in this survey or a difference of 54.5%. The bulk of the adolescent respondents to this study (86.75%) were students. Of the 156 responders who said they would be willing to receive the full COVID-19 vaccine, 55.13 percent were female. None of the respondents over 65 said they would like to receive the COVID-19 vaccination.

The data is arranged in tabular form and saved in the form of an Excel file. The data obtained is ordinal. This data is then transformed with Excel using the Method of Successive Interval (MSI) to become interval data. Then, this data is imported into R software, which is used for data analysis.

2. Data Entry

After being compiled in Excel, the data is imported into R software. The value of each variable is the sum of the respondent's answer scores for each statement sub-item in the questionnaire. Next, the data is re-checked in the software R to ensure that there are no errors or inconsistencies in the data left behind. A description of the data is then carried out to get a general idea of the data distribution and variable characteristics as Figure 2.

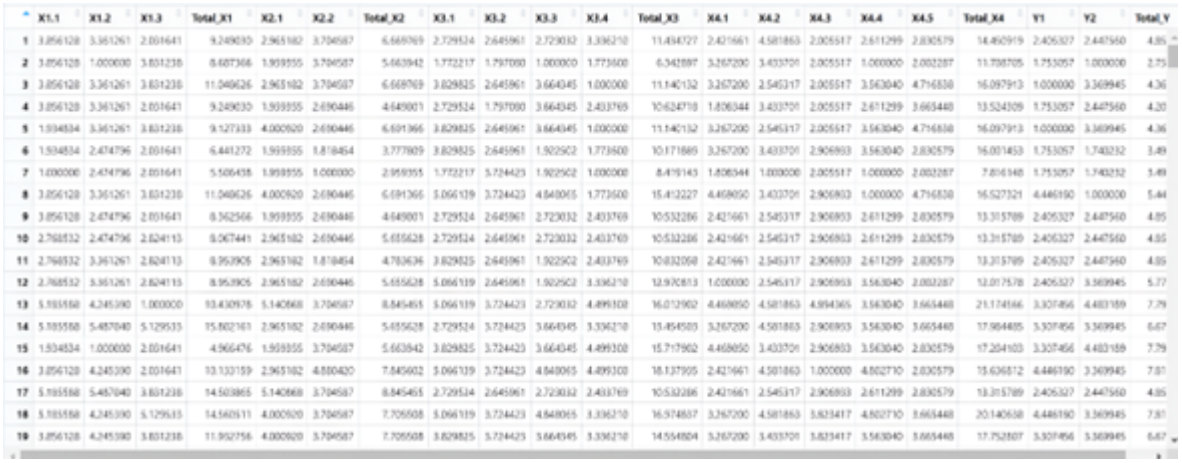

Figure 2. Transformed Data Imported into R

3. Validity and Reliability Test

The results of testing the validity and reliability of the questionnaire in this study using R software are shown in Table 2. Decision-making criteria are used in the validity test for every item in the questionnaire statement; namely, should the p-value be smaller than $\alpha = 0.05$'s significance, the statement items are said to be valid, while the reliability test of the questionnaire is based on Cronbach's Alpha coefficient values. A Cronbach's alpha coefficient value of 0.60.7 indicates acceptance of reliability, and a Cronbach's Alpha value of 0.8 or more indicates a higher level of reliability (Ursachi et al., 2015).

Table 2. Results of Testing the Validity and Reliability

No	Statement	Sig.	Validity	Cronbachs alpha	Reliability
	The simplicity of receiving of COVID-19 vaccination (X1)				
1	COVID-19 vaccine is readily available.	0.000	Valid	0.692	Realible
2	There are plenty of COVID-19 immunization service locations.	0.000	Valid		
3	It is simple to find information about the COVID-19 vaccination's implementation.	0.000	Valid		
	Faith in the efficacy of the COVID-19 vaccine (X2)				
1	In my opinion, receiving the COVID-19 vaccination can shield individuals from the possibility of contracting the virus.	0.000	Valid	0.721	Realible
2	I think getting vaccinated against COVID-19 can lower the virus's transmission rate.	0.000	Valid		
	Confidence in the Government (X3)				
1	I think the COVID-19 epidemic can be defeated by the government.	0.000	Valid	0.792	Realible
2	I agree with every government initiative aimed at combating the COVID-19 pandemic.	0.000	Valid		
3	I agree with the government's immunization campaign against COVID-19 in order to combat the epidemic.	0.000	Valid		
4	If the government offers the COVID-19 vaccination, I'm willing to take it.	0.000	Valid		
	MotoGP 2022 Event (X4)				
1	A MotoGP event is an interesting event to visit.	0.000	Valid	0.660	Realible
2	I am interested in witnessing the MotoGP event, which is being held in the Mandalika Circuit Area	0.000	Valid		
3	The MotoGP Event in the Mandalika Circuit Area has a risk of increasing the transmission of COVID-19.	0.000	Valid		
4	I feel the need to protect myself from the transmission of COVID-19 as a result of organising the MotoGP Event in the Mandalika Circuit Area	0.000	Valid		
5	I feel the need to get the complete COVID-19 vaccine to be protected from transmission of COVID-19 as a result of holding a MotoGP Event in the Mandalika Circuit Area	0.000	Valid		
	Interest in COVID-19 Vaccination (Y)				
1	I'm ready to willingly take the full COVID-19 vaccination.	0.000	Valid	0.845	Realible
2	I'm willing to ask friends and relatives who haven't had the shot to consider getting the full COVID-19 vaccine.	0.000	Valid		

Each variable, namely X1, X2, X3, X4, and Y, is significant at a p-value of 0.000, which is less than $\alpha = 0.05$, according to

the test findings in Table 3. This indicates the validity of each statement item on the questionnaire. The reliability test findings showed that the questionnaire items were reliable with Cronbach's Alpha values for X1, X2, X3, X4, and Y, respectively, of 0.692, 0.721, 0.792, 0.660, and 0.845, which are all greater than 0.6.

4. Multiple Linear Regression Analysis

TA correlation analysis between the independent variables and the dependent variables must be performed first (Ainiyah et al., 2016) before performing the regression analysis in order to build a mathematical model of public interest for COVID-19 vaccination in welcoming events in the Mandalika Circuit Area in Central Lombok Regency. Four scatter plots (X1, X2, X3, and X4) which illustrate the relationship between the dependent variable (Y) and the independent variables is depicted in Figure 3. A straightforward linear regression line that aims to depict the overall trend in the data is also included in each plot.

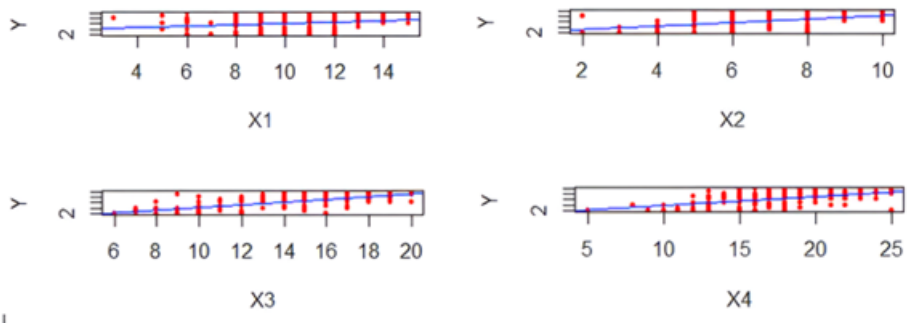

Figure 3. Scatter diagram of the relationship pattern between variables X1, X2, X3, and X4 with variable Y

Each independent variable's trend for the survey data displayed in Figure 3 essentially follows a straight line with a positive slope. This shows that there is a linear association between the variables Y and the variables X1, X2, X3, and X4. Table 3 displays the R-derived correlation coefficients between the independent and dependent variables.

Table 3. orrelation between Dependent and Independent Variables

Independent Variables	Dependent Variable	Coefficient of Correlation (r)
The simplicity of receiving of COVID-19 vaccination (X1)	Interest in COVID-19 Vaccination (Y)	0.262
Faith in the efficacy of the COVID-19 vaccine (X2)	Interest in COVID-19 Vaccination (Y)	0.499
Confidence in the Government (X3)	Interest in COVID-19 Vaccination (Y)	0.704
MotoGP 2022 Event (X4)	Interest in COVID-19 Vaccination (Y)	0.531

Table 3 shows that there are a positive correlation between independent variables and the dependent variable Y, 0.262, 0.499, 0.704, and 0.531, respectively. Thus, it can be said that there is a correlation between the simplicity of receiving of COVID-19 vaccination (X1), faith in the efficacy of the COVID-19 vaccine (X2), confidence in the government (X3), the MotoGP 2022 event (X4), and public interest in COVID-19 vaccination (Y). The four independent variables, X1, X2, X3, and X4, as well as the dependent variable Y, were combined to create a mathematical model after taking the correlation between the independent and dependent variables into account. R software was used to produce the following regression results (Figure 4):

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```
Call:
lm(formula = y ~ x1 + x2 + x3 + x4, data = data2)

Residuals:
    Min      1Q  Median      3Q
-3.8595 -0.9184  0.1199  0.7414
    Max
 3.8685

Coefficients:
            Estimate Std. Error
(Intercept) -0.70369    0.43881
x1          -0.01174    0.03534
x2           0.19339    0.05129
x3           0.31918    0.03224
x4           0.04800    0.03130
            t value Pr(>|t|)
(Intercept)  -1.604 0.109760
x1           -0.332 0.739875
x2            3.771 0.000193 ***
x3            9.900  < 2e-16 ***
x4            1.533 0.126147
---
Signif. codes:
  0 '***' 0.001 '**' 0.01 '*' 0.05
  '.' 0.1 ' ' 1

Residual standard error: 1.267 on 327 degrees of freedom
Multiple R-squared:  0.4884,    Adjusted R-squared:  0.4821
F-statistic: 78.03 on 4 and 327 DF,  p-value: < 2.2e-16
```

Figure 4. Regression Results of X1, X2, X3, X4, and Y using R Software

5. Construction of Regression Model

The regression coefficients for X1, X2, X3, and X4 are computed based on the R output in Figure 3, and they are respectively -0.01174, 0.19339, 0.31918, and 0.04800; the regression equation's constant is -0.70369. Thus, the linear regression model of the public's interest in COVID-19 vaccination ahead of the MotoGP, which is represented by Equation (2), can be rewritten specifically as:

$$Y = -0.70369 - 0.01174X_1 + 0.19339X_2 + 0.31918X_3 + 0.04800X_4 \tag{2}$$

Furthermore, parameter tests were carried out on the regression model (Equation (2)).

6. Parameter Significance Test

Parameter significance tests in multiple linear regression include simultaneous tests, partial tests and coefficient of determination tests (Theofani and Sediyono, 2022).

1. Simultaneous Test (F-test)

   The purpose of a simultaneous or model feasibility test is to evaluate how well the regression statistically estimates the true value. The goodness of fit of the model is measured by the F value (F-test), which indicates whether all the independent variables X1, X2, X3, and X4 simultaneously affect the dependent variables. The F-test of the model is based on the F value on the output of the regression test. F values are significant at p values less than 2.2×10^{-16}. This value is less than the significance value of = 0.05, which means that the resulting linear regression equation is feasible to use.
2. Partial Test (t-Test)

   The t-test was also used to do partial testing in order to ascertain the partial impact of the independent variables on the dependent variables. The test results with R produced p-value = 0.739875 for the variable X1, p-value = 0.000193 for the variable X2, significant at p = less than 2×10^{-16} for the variable X3, and significant at p = 0.126147 for the variable X4. The probability value for X2 and X3 is less than the significance value = 0.05, indicating that the variables confidence in the government (X3) and faith in the efficacy of the COVID-19 vaccine (X2) partially influence the interest of the public of Central Lombok Regency in the project.

   The factors X1 and X4 do not significantly affect the variable Y, as shown by the partial test (t-test) findings. Hence, the model must be enhanced by eliminating these irrelevant variables. The factors X2 and X3, which significantly affect the Y variable, were then regressed back. The following are the findings of the regression analysis performed in R:

```
Call:
lm(formula = y ~ x2 + x3, data = data2)

Residuals:
    Min      1Q  Median      3Q     Max
-3.8306 -0.8762  0.0914  0.7155  4.1518

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -0.47148    0.35382  -1.333    0.184
x2           0.20788    0.04871   4.268 2.59e-05 ***
x3           0.34326    0.02762  12.426  < 2e-16 ***
---
Signif. codes:
0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.268 on 329 degrees of freedom
Multiple R-squared:  0.4847,    Adjusted R-squared:  0.4816
F-statistic: 154.7 on 2 and 329 DF,  p-value: < 2.2e-16
```

Figure 5. Regression Results X2 and X3 with Y using R Software

According to the results in Figure 5, the constant value is -0.47148, and the regression coefficients for variable X2 and variable X3 are, respectively, 0.20788 and 0.34326. As a result, the following is the regression model of the Central Lombok Regency public' interest in receiving the COVID-19 vaccination in order ahead of the MotoGP event:

$$Y = -0.47178 + 0.20788X_2 + 0.34326X_3 \tag{3}$$

Analogous to the analysis of the previous regression model (Equation (2)), the parameter significance test was also carried out on the revised regression model, namely Equation (3). The test results are obtained as follows:

1. Simultaneous Test (F-Test)
   Based on the R output, significant F values are obtained at p values less than 2.2×10^{-16}. This value is less than the significance value of = 0.05, which means that variables of X2 and X3 simultaneously influence the variable of Y. Thus, X2 and X3 that the resulting linear regression equation is feasible to use.
2. Partial Test (t-Test)
   The test results using R obtained a t-value significant at the p-value of 2.59×10^{-5} for X2, significant at the probability p-value less than 2.2×10^{-16} for X3. The probability value for X2 and X3 is less than the significance value of 0.05, which means that the variable faith in the efficacy of the COVID-19 vaccine (X2) and confidence in the government (X3) influence the public interest for COVID-19 vaccination.
3. Coefficient of Determination (R2) Test
   The next step is determine the coefficient of determination R2 for the percentage of influence of the independent variables on the dependent variables. The adjusted coefficient of determination for the regression model (Equation (3)) based on the output R is 0.4816, meaning that the variable faith in the efficacy of the COVID-19 vaccine (X2) and confidence in the government (X3) have a contribution of 48.16% in influencing the interest of the people of Central Lombok Regency towards COVID-19 vaccination. The rest is the contribution of other factors not observed in this study.
   Based on the test results, the model is statistically significant (p-value < 0.05) in explaining Y using X2 and X3. Both independent variables have positive and statistically significant relationships with the dependent variable. A positive coefficient of X2 in Equation (3) suggests that there's a positive relationship between X2 and Y. This means that as the faith in the efficacy of COVID-19 vaccine increases, the interest in COVID-19 vaccination is expected to increase by an average of 0.20788 units, holding trust in government constant. Similar to X2, the positive coefficient indicates a positive relationship between X3 and Y. An increase in confidence in the government is associated with an average rise of 0.34326 units in the interest in COVID-19 vaccination while holding X2 constant.

7. Classical Assumption Test

The classical assumption test is carried out in the linear regression model, which is represented in Equation (3). This testing includes the normality test, multicollinearity test, heteroscedasticity test and autocorrelation test, which were run to see if the model matched the prerequisites for multiple linear regression analysis. The following justifies the assumption test's findings.

1. Test for Normality

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In multiple linear regression, the residual variable is subjected to a normality test on the data to ascertain whether or not the residual distribution is normally distributed. Using a certain mathematical model, the residual is the difference between the anticipated and observed quantities (Shamaan et al., 2015). If the significance value is greater than or equal to 0.05, the data are typically normally distributed; otherwise, the data are not normally distributed if the significance value is less than 0.05. The Kolmogorov-Smirnov test, which is suitable for data samples bigger than 50 (Mishra et al., 2019), is used in this study to determine whether the residual variable is normally distributed.

Figures 6 (a) indicate that the residual variable model (1) yields a symmetrical curve, and Figure 6 (b) shows that the data points are clustered around a straight line; as a result, Equation (2), the revised regression model, can be considered to satisfy the requirement of normality.

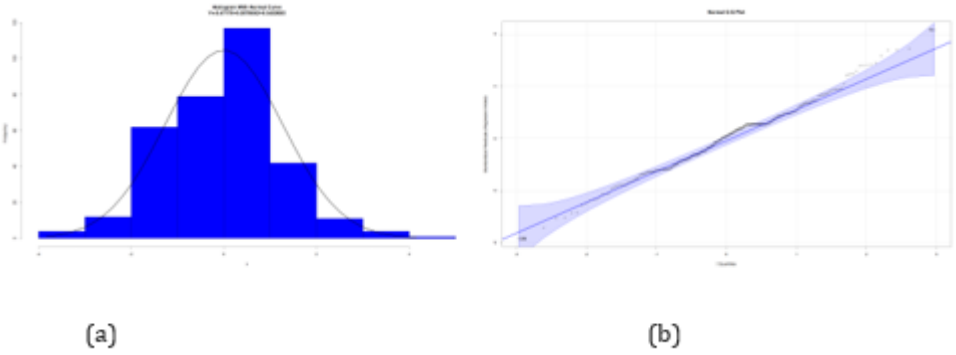

Figure 6. (a) Visualisation of the Residual Variable Distribution with a Histogram; (b) Visualisation of the Residual Variable Distribution with a Normal Q-Q Plot

It is necessary to check the normality of the distribution of residual variables, as shown in Figure 3. The Kolmogorov-Smirnov test is used to determine the normality of residual variables. The results of checking using R software are as follows:

```
        Asymptotic one-sample Kolmogorov-Smirnov test

data:  model2$residuals
D = 0.063253, p-value = 0.1403
alternative hypothesis: two-sided
```

Figure 7. Result of Kolmogorov-Smirnov Test in R

Figure 7 shows that at a significance level of = 0.05, the p-value of 0.1403 is larger. It means that at a significance level of 0.05, there is not enough evidence to conclude that the model residuals violate the assumption of normality. Thus, it can be concluded that the residual variable of this regression model is normally distributed.

2. Multicollinearity Test

   The results of the multicollinearity test in the regression model show a linear connection between the independent variables. To ascertain whether there is multicollinearity between the variables efficiency of the COVID-19 immunization (X2) and trust in the government (X3) in this study, a multicollinearity test was conducted. The Variance Inflation Factor (VIF) value indicates whether multicollinearity exists. If VIF is less than 10, there is no multicollinearity issue with the regression model (Shrestha, 2020). The R output for the multicollinearity test is as follows:

```
      x2       x3
1.361543 1.361543
```

Figure 8. The Results of Multicollinearity Test with R

Based on the output Figure 8, the same VIF value is obtained for variables X2 and X3. The VIF value is 1.361543 less than 10. Thus, it can be said that the chosen regression model's independent variables do not have a multicollinearity issue.

3. Test for Heteroscedasticity

The heteroscedasticity test was used for each observation in the regression model to determine the variance of the residuals (Halunga et al., 2017). The Breusch Pagan Godfrey test was applied by the researchers in this study. If the p-value is less than $\alpha = 0.05$, then there is heteroscedasticity.

```
        studentized Breusch-Pagan test

data:  model
BP = 4.1731, df = 2, p-value = 0.1241
```

Figure 9. The Results of Heteroscedasticity Test with R

The value of p = 0.1241 based on the Breusch-Pagan Test (Figure 9) exceeded significance $\alpha = 0.05$. It indicates that homoscedasticity is present in the variance of the residual variable . It means that the standard errors of the coefficients and the associated p-values from hypothesis testing are more reliable.

4. Test of Autocorrelation
   An autocorrelation test is utilized to determine whether there is a linear relationship between the errors in a time series data (Ainiyah et al., 2016). The information utilized in this study came from answers to a questionnaire, and it was examined to ascertain the extent to which various factors influenced public interest in the COVID-19 vaccine. Time-series data is not what this data is. Thus, an autocorrelation test is not necessary in this investigation.

The results of the study showed that the people living in Central Lombok Regency were still interested in holding the 2022 MotoGP event and getting the COVID-19 immunization. Public confidence in the effectiveness of the COVID-19 vaccination (X2) and public trust in the government are factors that impact public interest. This is consistent with the finding results of (Mir et al., 2021; Akther and Nur, 2022), which show that belief in the COVID-19 has an impact on immunization uptake, but their research does not analyze whether plans to hold a MotoGP event can influence people's desire to get the COVID-19 vaccine. Therefore, the novel aspect of this study is an examination of how organizing MotoGP events affects individuals' willingness to receive COVID-19 vaccinations. This implies that individuals will be more interested in government programs if they can boost public confidence in them and offer vaccines that have been shown to be successful.

D. CONCLUSION AND SUGGESTION

The results of this study indicate that the simplicity of receiving of COVID-19 vaccination and organising the MotoGP 2022 event does not affect the interest of the public of Central Lombok Regency, NTB, to vaccinate against COVID-19. The factors that influence the community's interest are people's faith in the efficacy of the COVID-19 vaccine (X2) and confidence in the government. On the other hand, this stands out from the findings of other studies, which never considered the implications of hosting international competitions like MotoGP 2022 while examining the interest of the residents of Central Lombok Regency to receive a COVID-19 vaccination. Based on the analysis' findings, it can be deduced that the interest of the residents of Central Lombok Regency in undergoing the COVID-19 vaccination will rise if the government is successful in upholding public confidence and working to ensure vaccination effectiveness. This includes giving out the COVID-19 vaccine, which has been acknowledged for its effectiveness by Pfizer, BioNTech, and Moderna and informing the general public about the significance of the COVID- 19.

This study only used four independent variables; more variables should be used in future studies that are related to this one in order to increase the validity. Additionally, this study is anticipated to have consequences for policymakers on how to enhance public awareness of COVID-19.

REFERENCES

Ainiyah, N., Deliar, A., and Virtriana, R. (2016). The classical assumption test to driving factors of land cover change in the development region of northern part of west java. *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 41:205–210. https://doi.org/10.5194/isprsarchives-XLI-B6-205-2016.

Akther, T. and Nur, T. (2022). A model of factors influencing covid-19 vaccine acceptance: A synthesis of the theory of reasoned action, conspiracy theory belief, awareness, perceived usefulness, and perceived ease of use. *PLoS One*, 17(1):e0261869. https://doi.org/10.1371/journal.pone.0261869.

Asdar, B. (2011). Method of successive interval in community research: Ordinal transformation data to interval data in mathematic education study. *International Journal of Social Science and Humanities Research*, 4(2):356–363.

Cerda, A. A. and García, L. Y. (2021). Hesitation and refusal factors in individuals' decision-making processes regarding a coronavirus disease 2019 vaccination. *Frontiers in public health*, 9:626852. https://doi.org/10.3389/fpubh.2021.626852.

El-Elimat, T., AbuAlSamen, M. M., Almomani, B. A., Al-Sawalha, N. A., and Alali, F. Q. (2021). Acceptance and attitudes toward covid-19 vaccines: A cross-sectional study from jordan. *Plos one*, 16(4):e0250555. https://doi.org/10.1371/journal.pone.0250555.

Faturohman, T., Kengsiswoyo, G. A. N., Harapan, H., Zailani, S., Rahadi, R. A., and Arief, N. N. (2021). Factors influencing covid-19 vaccine acceptance in indonesia: an adoption of technology acceptance model. *F1000Research*, 10. https://doi.org/10.12688/f1000research.53506.1.

Halunga, A. G., Orme, C. D., and Yamagata, T. (2017). A heteroskedasticity robust breusch–pagan test for contemporaneous correlation in dynamic panel data models. *Journal of econometrics*, 198(2):209–230. https://doi.org/10.1016/j.jeconom.2016.12.005.

Harapan, H., Anwar, S., Setiawan, A. M., Sasmono, R. T., et al. (2016). Dengue vaccine acceptance and associated factors in indonesia: A community-based cross-sectional survey in aceh. *Vaccine*, 34(32):3670–3675. https://doi.org/10.1016/j.vaccine.2016.05.026.

Harapan, H., Wagner, A. L., Yufika, A., Winardi, W., Anwar, S., Gan, A. K., Setiawan, A. M., Rajamoorthy, Y., Sofyan, H., and Mudatsir, M. (2020). Acceptance of a covid-19 vaccine in southeast asia: a cross-sectional study in indonesia. *Frontiers in public health*, 8:381. https://doi.org/10.3389/fpubh.2020.00381.

Irfan, M., Shahid, A. L., Ahmad, M., Iqbal, W., Elavarasan, R. M., Ren, S., and Hussain, A. (2022). Assessment of public intention to get vaccination against covid-19: Evidence from a developing country. *Journal of Evaluation in Clinical Practice*, 28(1):63–73. https://doi.org/10.1111/jep.13611.

Jiang, N., Gu, P., Liu, K., Song, N., and Jiang, X. (2021). Acceptance of covid-19 vaccines among college students: a study of the attitudes, knowledge, and willingness of students to vaccinate. *Human Vaccines & Immunotherapeutics*, 17(12):4914–4924. https://doi.org/10.1080/21645515.2021.2013077.

Kadkhoda, K. (2021). Herd immunity to covid-19: alluring and elusive. https://doi.org/10.1093/ajcp/aqaa272.

Kerr, J. R., Freeman, A. L., Marteau, T. M., and van der Linden, S. (2021). Effect of information about covid-19 vaccine effectiveness and side effects on behavioural intentions: two online experiments. *Vaccines*, 9(4):379. https://doi.org/10.3390/vaccines9040379.

Lasmita, Y., Misnaniarti, M., and Idris, H. (2021). Analisis penerimaan vaksinasi covid-19 di kalangan masyarakat. *Jurnal Kesmas (Kesehatan Masyarakat) Khatulistiwa*, 8(4):195. https://doi.org/10.29406/jkmk.v9i4.3056.

Lazarus, J. V., Ratzan, S. C., Palayew, A., Gostin, L. O., Larson, H. J., Rabin, K., Kimball, S., and El-Mohandes, A. (2021). A global survey of potential acceptance of a covid-19 vaccine. *Nature medicine*, 27(2):225–228. https://doi.org/10.1038/s41591-020-1124-9.

Mir, H. H., Parveen, S., Mullick, N. H., and Nabi, S. (2021). Using structural equation modeling to predict indian people's attitudes and intentions towards covid-19 vaccination. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, 15(3):1017–1022. https://doi.org/10.1016/j.dsx.2021.05.006.

Mishra, P., Pandey, C. M., Singh, U., Gupta, A., Sahu, C., and Keshri, A. (2019). Descriptive statistics and normality tests for statistical data. *Annals of cardiac anaesthesia*, 22(1):67–72. https://doi.org/10.4103/aca.ACA_157_18.

Ningsih, S. and Dukalang, H. H. (2019). Penerapan metode suksesif interval pada analsis regresi linier berganda. *Jambura Journal of Mathematics*, 1(1):43–53. https://doi.org/10.34312/jjom.v1i1.1742.

Nirbachita, B., Toheeb, M., Jagdish, K., and Price, J. H. (2021). The nature and extent of covid-19 vaccination hesitancy in healthcare workers. *Journal of Community Health*, 46(6):1244–1251. https://doi.org/10.1007/s10900-021-00984-3.

Olivina, H. (2021). Willingness of indonesian public on the vaccination programme as an effort to prevent covid-19. *Muhammadiyah International Public Health and Medicine Proceeding*, 1(1):57–66. https://doi.org/10.53947/miphmp.v1i1.24.

Pelegrin-Borondo, J., Arias-Oliva, M., Almahameed, A. A., and Román, M. P. (2021). Covid-19 vaccines: a model of acceptance behavior in the healthcare sector. *European Research on Management and Business Economics*, 27(3):100171. https://doi.org/10.1016/j.iedeen.2021.100171.

Randolph, H. E. and Barreiro, L. B. (2020). Herd immunity: understanding covid-19. *Immunity*, 52(5):737–741. https://doi.org/10.1016/j.immuni.2020.04.012.

Shamaan, N., Shukor, M., Masdor, N., Sabullah, M., and Shukor, M. (2015). Testing the normality of residuals on regression model for the growth of moraxella sp. b on monobromoacetic acid. *Bulletin of Environmental Science and Sustainable Management (e-ISSN 2716-5353)*, 3(1):16–18. https://doi.org/10.54987/bessm.v3i1.263.

Sugiyono (2017). Peta pulau jawa, letak astronomis-geografis, dan keadaan alamnya. In *Metode Penelitian Kunatitatif Kualitatif dan R&D*.

Sutriyawan, A. and Hidayatulloh, R. (2021). Factors related to public acceptance of the covid 19 vaccine. *International Journal of Clinical Science and Medical Research*, 1(2):41–45.

Theofani, G. and Sediyono, E. (2022). Multiple linear regression analysis on factors that influence employees work motivation. *Sinkron: jurnal dan penelitian teknik informatika*, 6(3):791–798. https://doi.org/10.33395/sinkron.v7i3.11453.

Ursachi, G., Horodnic, I. A., and Zait, A. (2015). How reliable are measurement scales? external factors with indirect influence on reliability estimators. *Procedia Economics and Finance*, 20:679–686. https://doi.org/10.1016/s2212-5671(15)00123-9.

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