

# Government Expenditure, Human Development Index and Regional Inequality in Indonesia

Marlyn E Alfons<sup>1</sup>, Nursini<sup>2</sup>, Fatmawati<sup>3</sup>, Abd Rahman R<sup>4</sup>

## Abstract

*This study was conducted with the aim of measuring and analyzing the effect of regional government spending on regional inequality through the Human Development Index in Indonesia. This analysis was conducted using the Williamson index as an indicator of regional inequality. This study uses variables of human development spending, infrastructure spending, economic spending, human development index and regional inequality. The research method used is the statistical panel data approach of 34 provinces in Indonesia in 2017-2023 with the Multiple Regression Equation model with AMOS program path analysis. The test results in this study state that directly the variables of human development spending, infrastructure spending, economic spending, and the human development index have a significant effect on regional inequality in Indonesia. Indirectly, the variables of human development spending and economic spending have a significant effect on regional inequality in Indonesia through the human development index, while the variable of infrastructure spending does not affect regional inequality through the human development index.*

**Keywords:** *Regional Government Spending, Human Development Index, Regional Inequality.*

## Introduction

Regional inequality in Indonesia is still a major challenge in national development (Barrios & Strobl, 2009; Hartati, 2019). Where regional disparities between provinces in Indonesia are based on the absence of equality in economic development (Handoko et al., 2020; Fang et al., 2010). The phenomenon of inequality is caused by differences in the availability of natural resources and different geographical conditions in each region (Cavanaugh & Breau, 2018; Eva et al., 2022). Thus, the ability of a region to carry out the development process is different, thus creating developed and underdeveloped regions (Daulay et al., 2021 ; Mansyur et al., 2021).

The gap between regions can also be seen from the existence of underdeveloped regions spread across Indonesia (Gulo, 2017; Nasution 2020). Based on Presidential Regulation (Perpres) No. 63 of 2020 concerning the Determination of Underdeveloped Regions for 2020-2024, there are still 62 underdeveloped regions that have been determined. High inequality can also be seen in several provinces, including; South Sumatra at 0.72, West Java at 0.70, East Java at 0.97, West Nusa Tenggara at 0.72, Central Sulawesi at 0.88, South Sulawesi at 0.72 while very high inequality is in Papua Province at 1.91 and West Papua at 1.48. According to Ardani in ( Athallah, TMP et al., 2023 ) inequality in a region is a consequence of development and is a stage in development itself.

To encourage development activities, it is inseparable from the role of the government in intervening (Jhingan, 2014; Lee & Rogers, 2019). This is reflected in the large amount of government spending, especially government spending issued to each region (Ghifara et al., 2022). This can also be seen from the amount of government spending allocated to each province in Indonesia (Suparno, 2014). According to Sukirno in ( Wahyuni, IGA P. et al., 2014) stated that government spending is consumption or goods and services and financing carried out by the government which is used for administrative purposes and development activities. The allocated regional spending funds are expected to encourage increased

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<sup>1</sup> Faculty of Economics and Business, Hasanuddin University, Email: marlyn201120@gmail.com

<sup>2</sup> Faculty of Economics and Business, Hasanuddin University.

<sup>3</sup> Faculty of Economics and Business, Hasanuddin University.

<sup>4</sup> Faculty of Economics and Business, Hasanuddin University.

economic growth accompanied by a reduction in inequality between regions in Indonesia (Filmer & Pritchett, 1999).

The gap that occurs is not only due to the large amount of government spending in each region, but is also felt in terms of the Human Development Index (HDI) (Mongan, 2019; Ramadanisa & Triwahyuningtyas, 2022). Although in general the HDI value of each province in Indonesia varies from year to year, if viewed based on the HDI value of each region, the gap can be felt. DKI Jakarta Province has an average HDI value of 82.46 and DI Yogyakarta has an average HDI of 81.07, which is the province in the highest HDI category. This is different from the HDI value in several provinces such as Papua at 62.25, West Papua at 66.66 and East Nusa Tenggara at 66.68. According to Amartya Sen in (Aprilianti, V., & Harkeni, A. 2021) who defines HDI as freedom so that people can feel the welfare achieved from the results of development.

Based on the description above, this study will examine and analyze the impact of government spending through the Human Development Index in each Province on Regional Inequality in Indonesia in 2017-2018, both directly and indirectly. This study is expected to be an evaluation material for the government in allocating resources through fiscal policies in the form of government spending that is oriented towards optimal distribution of development between regions.

## Literature Review

### *Regional Disparities*

According to Neo-Classical, Regional Development Inequality occurs because of differences in resources, labor, and capital owned by each region. The Neo-Classical Hypothesis is the theoretical basis for the occurrence of development inequality between regions. This includes the results of a study by Jeffrey G. Williamson who tested the truth of the Neo-Classical. According to Neo-Classical, regional inequality will decrease by itself. Neo-Classical argues that in the early stages of development carried out in developing countries, inequality actually increases, this is because when the development process is just starting in developing countries, the opportunities and chances for development that exist are generally utilized by regions whose development conditions are better. Meanwhile, regions that are still very backward are unable to utilize opportunities due to limited facilities and infrastructure and low quality of human resources. In addition to economic factors, socio-cultural factors also influence regional development inequality (Myrdal, 1976).

The truth of the Neo-Classical Hypothesis was then tested by Jeffrey G. Williamson in 1966 through a study of development inequality between regions in developed and developing countries. The results of the study showed that the Neo-Classical Hypothesis formulated theoretically was proven to be true empirically. This means that the development process of a country does not automatically reduce regional inequality, but in the early stages of development the opposite actually occurs. Proof of this hypothesis can be seen in the early stages of development in the United States where there was inequality between the lagging southern states compared to the more developed northern states.

The measure of development inequality between regions that was first discovered was the Williamson Index. In Statistics, this index is actually a coefficient of variation that is commonly used to measure a difference. The term Williamson Index emerged as a tribute to Jeffrey G. Williamson who first used this technique to measure development inequality between regions. The Williamson Index uses Gross Regional Domestic Product (GRDP) per capita as the basic data. The reason is clear because what is being compared is the level of development between regions. Thus, the formulation of the Williamson Index can be statistically displayed as follows:

$$IW = \frac{\sqrt{\sum(Y_i - Y)^2 f_i/n}}{Y}$$

Information:

IW = Williamson Index

$f_i$  = Population of district/city  $i$  (people)

$n$  = Number of residents (people)

$Y_i$  = GRDP per capita of district/city  $i$  (Rupiah)

$Y$  = Average GRDP per capita of the Province

The criteria used to determine whether the gap is at a low, medium, or high level gap. The following are the criteria:

Low level gap, if  $IW < 0.3$

Medium level gap, if  $0.3 \leq IW \leq 0.4$

High level gap, if  $IW > 0.4$

#### *Human Development Index*

According to the United Nation Development Programme (UNDP), human development is focused on the issue of expanding people's choices to live a life full of freedom and dignity. The concept of human development is different from the concept of classical development whose main focus is economic growth. To ensure the achievement of the goals of the human development concept, four main things need to be considered. In short, the four main things contain the principles of productivity, equity, sustainability and empowerment.

Human Capital Theory according to (Frank, RH, & Bernanke, 2007), human capital is a combination of education, experience, training, skills, habits, health, energy and initiative that affect human productivity. According to (Todaro & Smith, 2015) the human development index is an index that measures national socio-economic development, based on a combination of measurements from aspects of education, health and income which when increased will increase productivity.

Amartya Sen in his book *Development as Freedom* (Sen, 1999) explains about the Human Development Index (HDI). The freedom that Sen means is the freedom where society can feel prosperous as a result of development achievements. Human Development Index (HDI) is an indicator used to measure the level of human development in a region, which is calculated through a comparison of life expectancy, education and decent living standards. HDI is used as an indicator to assess the quality of development and to classify whether a country is a developed country, a developing country, or an underdeveloped country and also to measure the influence of economic policies on quality of life. The Human Development Index by UNDP is grouped into 4 (four) categories, namely:

HDI is said to be low if the HDI value is  $< 60$

HDI is called moderate if the HDI value is  $\leq 60; < 70$

HDI is said to be high if the HDI value is  $\leq 70; < 80$

HDI is said to be very high if the HDI value is  $\geq 80$

*Local Government Spending*

According to Dumairy (1999) the role of government in the economy can be categorized into four types of roles, namely: allocation role, distribution role, stabilization role, and dynamic role. One form of government role in the economy is fiscal policy, according to William A. McEachern (2000) government spending is one form of fiscal policy.

Mangkoesobroto (1993) stated that the theory of government expenditure in macro was put forward by three different economists, namely Rostow and Musgrave, Adolf Wegner, and Peacock and Wiseman. Rostow and Musgrave relate the development of government expenditure to the stages of economic development, namely the early stage, the middle stage and the advanced stage. The development of government expenditure by Adolf Wagner explains that the increasing per capita income in an economy means that government expenditure will relatively increase. So that the curve of increasing government expenditure is exponential. Wagner's famous law is "The Law of Expanding State Expenditure" where government expenditure continues to increase due to the increasing role of government in managing all activities related to society, law, education, recreation and culture. (Vildzah & Muhammad, 2016).

Government expenditure is the value of spending made by the government that is used for the benefit of the community. Government expenditure reflects government policy (Yaqin et al., 2015). If the government has set a policy to purchase goods and services, government expenditure reflects the costs that must be incurred by the government to implement the policy (Mangkoesobroto, 1993).

Government spending is spending issued by the government in accordance with the objectives of government policy in running the economy. Government spending is reflected in the State Budget (APBN) and the Regional Budget (APBD). According to Government Regulation of the Republic of Indonesia Number 12 of 2019 concerning Regional Financial Management, the Classification of Government Spending according to its function is divided into 9 functions, namely; 1) public services, 2) order and security, 3) economy, 4) environmental protection, 5) housing and public facilities, 6) health, 7) tourism, 8) education, 9) social protection.

*Framework of Mind*

The research framework is based on the problems that have been described and then explained in the image below.

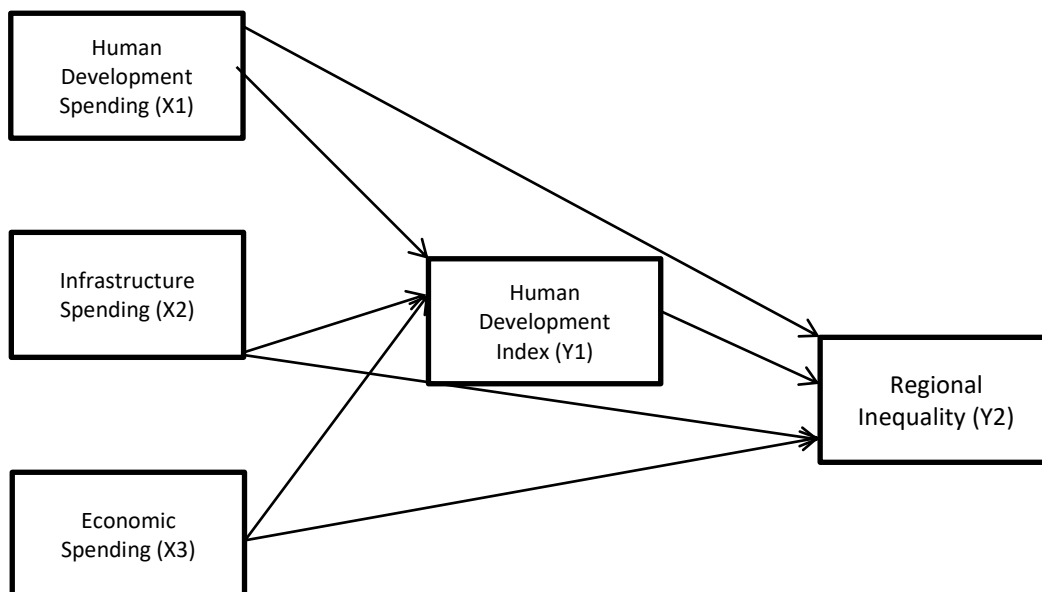


Figure 1. Framework of Thought

### *Hypothesis Development*

The formulation of the hypothesis based on the conceptual framework above is as follows:

- H1 : Human Development Spending is thought to have a significant effect on regional inequality.
- H2 : Infrastructure spending is thought to have a significant effect on regional inequality.
- H3 : Economic spending is thought to have a significant effect on regional inequality.
- H4 : The Human Development Index is thought to have a significant influence on regional inequality.
- H5 : Human Development Spending is thought to have a significant effect on regional inequality through the human development index.
- H6 : Infrastructure spending is thought to have a significant effect on regional inequality through the human development index.
- H7 : Economic spending is thought to have a significant effect on regional inequality through the human development index.

### **Methodology**

This research is included in quantitative research using a statistical approach for sampling and a predetermined population. The research was conducted in 34 provinces in Indonesia. The data sources used in this study are secondary data from the National Statistics Agency and the Directorate General of Fiscal Balance (DJPK) with a time span of 2017-2023. The data used are government spending data classified based on functional spending categories. The spending data consists of (1) human development spending; (2) infrastructure spending; (3) economic spending. Furthermore, human development index data; and regional inequality data with the Wiliamson Index value.

The data analysis method used in this study is panel data regression analysis through path analysis using AMOS. The panel data regression model equation in this study can be formulated in the following model:

$$Y_1 = \beta_0 + \beta_1 \text{Ln}X_{1it} + \beta_2 \text{Ln}X_{2it} + \beta_3 \text{Ln}X_{3it} + \mu_{it} \quad (2.1)$$

$$Y_2 = \beta_0 + \beta_1 \text{Ln}X_{1it} + \beta_2 \text{Ln}X_{2it} + \beta_3 \text{Ln}X_{3it} + \beta_4 Y_{1it} + \mu_{it} \quad (2.2)$$

Information:

X1 = Human Development spending

X2 = infrastructure spending

X3 = economic spending

Y1 = Human Development Index

Y2 = regional inequality

## Results and Discussion

The path analysis model for data processing results using the AMOS program is presented in the following figure:

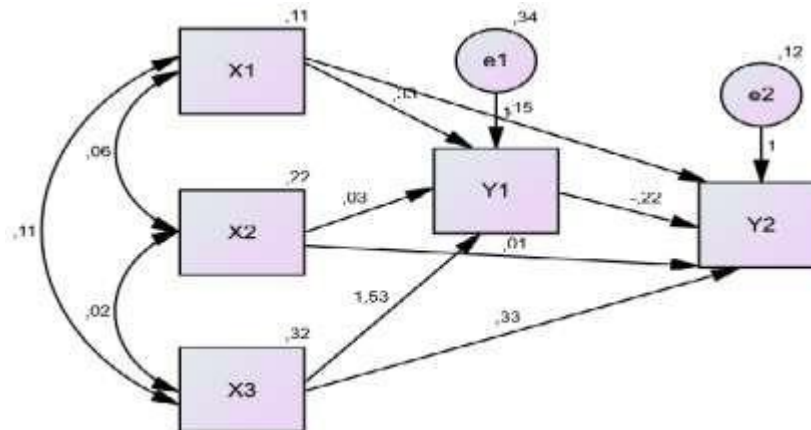


Figure 2. Regression Coefficient

*Critical ratio* is the value for t-count. This critical ratio is the basis for seeing the partial influence or two variables. To assess *the critical ratio* of each path as follows: Human development spending against the Human Development Index of 2.152, Infrastructure spending against the Human Development Index of 0.368, Economic spending against the Human Development Index of 17.924. Furthermore, Human Development Spending against regional disparities of 2,069, Infrastructure spending against regional inequality of 4,540, Economic spending against regional inequality of -4.429, Human Development Index to regional inequality of 6.129.

Normality Test Table

Variable	Min	Max	Skew	cr	Kurtosis	cr
X3	11.260	13.800	-.372	-2.346	-.429	-1.351
X2	10.930	13.310	-.556	-3.504	.100	.315
X1	11.690	13.360	.592	3.726	-.172	-.542
Y1	68.110	74.000	-.058	-.365	-.288	-.907
Y2	.110	.260	.835	5.261	.180	.565
Multivariate					.480	.376

Source: AMOS Output

Normality assumption testing to see how far the level of normality of the data used in this study. The normality test can be seen in the cr (critical ratio) or skewness value. With the condition that the cr (critical ratio) or skewness value is  $-2.58 \leq cr \leq 2.58$  at a significance level of 0.01 (1%). The assumption of univariate and multivariate normality of data can be done by observing the value of the assessment of normality test results from the AMOS program.

Based on the results of the normality test, the results of the study obtained the *skewness value* of all indicators showing normally distributed data because the *skewness value* of all indicators shows below  $-2.58 \leq cr \leq 2.58$ , this indicates that the univariate data distribution is normal and can be used for further estimation. While the multivariate normality test also provides a value below or  $\geq 2.58$ , namely 0.376, which means that the data is normally distributed. Therefore, data analysis can be continued to the next stage.

Hypothesis testing is done by analyzing the significance of the regression magnitude. By using the AMOS program, the estimation results are presented in the table below:

**Table 1.** Direct Effect Estimation Results

Direct Influence	Coefficient	Standard Error	P-Value	Caption
X1--- >Y1	0.329	0.153	0.031	Significant
X2--- >Y1	0.033	0.089	0.713	Not Significant
X3--- >Y1	1,526	0.085	0.000	Significant
X1--- >Y2	0.015	0.007	0.039	Significant
X2--- >Y2	0.020	0.004	0.000	Significant
X3--- >Y2	-0.028	0.006	0.000	Significant
Y1--- >Y2	0.019	0.003	0.000	Significant

Significant 5%

Source: AMOS Output

**Table 1.** Results of Indirect Effect Estimation

Indirect Influence	Coefficient	Standard Error	P-Value	Caption
X1---->Y1 ---- >Y2	0.006	0.000	2,036	Significant
X2---->Y1 ---- >Y2	0.001	0.000	0.370	Not Significant
X3---->Y1 ---- >Y2	0.029	0.000	5.973	Significant

Source: AMOS Output

#### *The Impact of Human Development Spending on the Human Development Index*

The results of the statistical test of human development spending on the human development index have a positive and significant effect, seen from the probability and significance values of  $0.031 < 0.05$ . Where the probability value is 0.031 while the alpha value is 0.05 or a significance of 5%. This shows that the higher the human development spending will result in an increase in the human development index. The results of this study are in line with research conducted by Mongan, JJS (2019) which states that the percentage of local government spending in the fields of education and health has a positive and significant effect on the HDI.

Another concept of human resources is the Human Capital theory. According to (Frank, RH, & Bernanke (2007), human capital is a combination of education, experience, training, skills, habits, health, energy and initiative that affect human productivity. For this reason, the Government must continue to provide spending allocations in the education and health sectors which will be used to build educational facilities and infrastructure and make investments in forming human capital. Human capital is a productive investment in people; includes knowledge, skills, abilities, and ideas (Todaro & Smith, 2011). This is an important component in supporting development programs, especially economic development. The amount of government spending in the education and health sectors will determine how much the development results are achieved.

#### *The Impact of Infrastructure Spending on the Human Development Index*

The results of the statistical test of infrastructure spending on the human development index have a positive but insignificant effect, seen from the probability and significance values of  $0.713 > 0.05$ . Where

the probability value is 0.713 while the alpha value is 0.05 or a significance of 5%. This study is in line with Yasinta, BL (2018) who stated that infrastructure spending has an insignificant effect but has a positive direction on the HDI variable.

Infrastructure spending is used for the development of public infrastructure where the community can use it to support the economy which will have an impact on increasing the human development index. However, there are still many areas that have not developed, especially in the infrastructure development sector such as access to electricity, clean water and highways as one of the main factors supporting the economy that can improve people's welfare. (Ratuludji, SP, et al. 2023).

Infrastructure spending is also spending that is directly related to the acceleration of the development of public and economic service facilities in order to increase employment opportunities, reduce poverty, and reduce the gap in public services between regions (Zaenuddin, 2018).

#### *The Influence of Economic Spending on the Human Development Index*

The results of the statistical test of economic spending on the human development index have a positive and significant effect, seen from the probability and significance values of  $0.000 < 0.05$ . Where the probability value is 0.000 while the alpha value is 0.05 or a significance of 5%. This shows that the higher the economic spending will result in an increase in the human development index. The study is supported by the results of Putra et al. (2017) who also studied economic function spending with results that had a very positive and significant effect on the HDI.

#### *The Impact of Human Development Spending on Regional Inequality*

The results of the statistical test of human development spending on regional inequality have a positive and significant effect, seen from the probability and significance values of  $0.039 < 0.05$ . Where the probability value is 0.039 while the alpha value is 0.05 or a significance of 5%. This shows that the higher the human development spending, the lower the regional inequality. This study is in line with the results of previous studies which explain that education and health spending directly affect regional development inequality in Eastern Indonesia. (Ramadanti, V., et al., 2023).

#### *The Impact of Infrastructure Spending on Regional Inequality*

The results of the statistical test of infrastructure spending on regional inequality have a positive and significant effect, seen from the probability and significance values of  $0.000 < 0.05$ . Where the probability value is 0.000 while the alpha value is 0.05 or a significance of 5%. This shows that the higher the infrastructure spending, the lower the regional inequality. This is in line with research by Athallah, TMP & Bintoro, NS (2023) which states that government spending has an effect on regional inequality. The higher the budget allocated by the central government, the lower the regional inequality with other regions.

#### *The Influence of Economic Spending on Regional Inequality*

The results of the statistical test of economic spending on regional inequality have a negative but significant effect, seen from the probability and significance values of  $0.000 < 0.05$ . Where the probability value is 0.000 while the alpha value is 0.05 or a significance of 5%. This shows that the higher the economic spending, the lower the regional inequality.

#### *The Influence of The Human Development Index on Regional Inequality*

The results of the statistical test of the human development index on regional inequality have a positive and significant influence, seen from the probability and significance values of  $0.000 < 0.05$ . Where the probability value is 0.000 while the alpha value is 0.05 or a significance of 5%. This shows that the higher the economic spending will result in a decrease in regional inequality. This result is in line with the research results of Aprilianti, V., & Harkeni, A. (2021) that HDI significantly affects regional inequality, namely HDI



can reduce the level of regional inequality. This result is also in accordance with the research of Zusanti, et al (2020) which used the Random Effect Model (REM) method on the Provinces in Java Island for the period 2010-2018 concluding that HDI has a negative and significant influence on regional inequality in Java Island. Nurhuda, et al (2011) found that increasing the Human Development Index can reduce economic inequality in East Java Province.

#### *The Influence of Human Development Spending on Regional Inequality Through the Human Development Index*

The results of the statistical test of human development spending on regional inequality through the human development index have a positive and significant effect, seen from the probability and significance values of  $2.036 > 1.96$ . Where the probability value is 2.036 while the significance value is 1.96. This shows that the higher the human development spending provided by the government will encourage a better human development index so that it will affect low regional inequality. So it can be indicated that government spending can have a meaningful effect on increasing the human development index so that it will result in low regional inequality in Indonesia. The results of this study are in line with research by Ramadanti, V., et al. (2023) which states that education and health variables indirectly have a significant effect on regional development inequality in Eastern Indonesia through the human development index and economic growth.

#### *The Influence of Infrastructure Spending on Regional Inequality Through the Human Development Index*

The results of the statistical test of infrastructure spending on regional inequality through the human development index have a positive value but do not have a significant effect, seen from the probability and significance values of  $0.370 < 1.96$ . Where the probability value of 0.370 is smaller than the significance value of 1.96. This shows that the economic spending provided by the government has not been able to encourage a better human development index so that it will affect low regional inequality. Thus, government spending has not been able to provide a meaningful influence on increasing the human development index which results in low regional inequality in Indonesia. The results of this study are supported by research by Ramadanti, V., et al. (2023) the variable of regional government spending in the infrastructure sector does not have an indirect effect on regional development inequality through the human development index and economic growth.

#### *The Influence of Economic Spending on Regional Inequality Through the Human Development Index*

The results of the statistical test of economic spending on regional inequality through the human development index have a positive and significant influence, seen from the probability and significance values of  $5.973 > 1.96$ . Where the probability value is 5.973 while the significance value is 1.96. This shows that the higher the economic spending provided by the government will encourage a better human development index so that it will affect low regional inequality. So it can be indicated that government spending can have a meaningful influence on increasing the human development index so that it will result in low regional inequality in Indonesia.

## **Conclusion**

The results of the study indicate that directly the variables of human development spending and economic spending have a significant effect on the human development index while infrastructure spending has no effect on the human development index. Directly the variables of human development spending, infrastructure spending, economic spending and the human development index have a significant effect on regional inequality in Indonesia.

The results of the study indicate that indirectly the variables of human development spending and economic spending have a significant effect on regional inequality through the human development index. While infrastructure spending indirectly does not have a significant effect on regional inequality through the human development index.

## Statement

## Author Contributions

All authors contributed to this writing from the preparation of writing, conceptual, methodology, data analysis, editing, revision results. And all authors have read and approved the published version of the manuscript.

## Data Availability Statement

The data presented in this study is available according to research needs.

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## Conflict of Interest

In this study the authors declare no conflict of interest.

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