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# Governance Networks Analysis on Rice Distribution in Indonesia

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### Abstract

The rice distribution system in Indonesia suffers from complex problems involving numerous stakeholders with multiple perspectives. Departing from the situation, the researchers would like to analyze the problem of the national rice distribution by using the concept known as Governance Networks to attain an illustration of the good and strong rice distribution system in Indonesia. The distribution system has become a highly important element in rice problems throughout Indonesia. A strong distribution system will create a good market structure, including food and price stability. Therefore, the problems over the national rice distribution will be reviewed from the perspective of three aspects of Governance Networks, namely substantive complexity, strategic complexity, and institutional complexity. From the three aspects, the inter-factor relationship that has influenced the rice distribution in Indonesia can be identified, thus the driving factors for the performance and capacity growth in the rice distribution activities can be determined.

**Keywords** – Rice distribution, Governance networks, Substantive complexity, Strategic complexity, Institutional complexity

# Introduction

Rice distribution in Indonesia has suffered from complex problems. These problems include the distribution from the upstream to the downstream and from the production to the consumption stage. In addition, these problems have involved numerous stakeholders, resulting in the fact that food-related problems (especially the ones associated with rice) should be viewed comprehensively and continuously. On top of it, the institutions that deal with the management of rice distribution have not been well arranged. Specifically, the price of rice in all markets (traditional, modern ones wholesale) has fluctuated from January 2018 until January 2020. Then, since June 2020, the price of rice has been declining. For the consumers, the fluctuating and unpredictable price of staple food has caused some sort of concern since these consumers do not only desire to have an affordable but also a stable price.

According to the results of a survey by Indonesian Central Bureau of Statistics (BPS), the pattern of rice distribution in Indonesia involves at least four chains. On the part of rice producers or millers, the distribution still involves two intermediary traders, namely distributors and retailers or self-service providers, before the rice arrives in the hands of the consumers. As a result, the price rise from the producers to the final consumers can be approximately 25.35 percent.<sup>2</sup>

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<sup>&</sup>lt;sup>2</sup> Biro Pusat Statistik. Kajian Konsumsi Bahan Pokok Tahun 2017, 7-10.

From the aspect of production, the farmers sell the rice to the middlemen or the rice cutters. As producers, the farmers have the right to keep the grain and rice reserves for household consumption. Meanwhile, the rice cutters sell part of their grain to the rice millers, and the rice millers will sell the grain to the wholesalers. These wholesalers have large-scale warehouses and, therefore, they have the capacity to sell the grain of the rice to the rice wholesales from one city to another or even from one island to another. Eventually, the rice will be purchased by retailers. At the same time, the rice is kept in a warehouse owned by the Indonesian Bureau of Logistics (Bulog). In every province, city, and village, rice warehouses are managed by the regional government and the community.

The length of the distribution chain in Indonesia has led to a discrepancy in income between the farmers (from the aspect of production) and the consumers. Concerning the statement, the biggest profit margin is found in the middle path name in the middlemen and the wholesalers. On the contrary, the profit margin from the milling activities in the distribution has been very small. The cost of milling a kilogram of grain into rice only ranges from IDR 100.00 to IDR 400.00. As a result, if the price for a kilogram of rice is IDR 10,000.00, then the profit margin that can be earned by the milling owners only ranges from one to four percent. As a result, many middlemen have been playing in the middle path of the distribution as they distribute the grain harvest to the milling house. Consequently, the price of the grain has become much more expensive as it reaches the milling house, and the situation worsens with the increasing number of middlemen and other rent-seeking individuals.

Nowadays, rice production has still been concentrated in two islands (Java and Sumatra), whereas rice consumers have spread throughout Indonesia. Consequently, rice distribution should encounter several obstacles. The limited transportation and other facilities have also caused difficulties in the distribution, especially for the remote areas from the production center. Not to mention, recently, the rice distribution center has also been concentrated in the regions that have a warehouse with a sufficient logistic system. On top of it, the dynamic climate changes in Indonesia have complicated these problems. Then, in terms of the marketing system, the main problem that often comes to the surface is that the price of the grain that the farmers have has always been low whenever it comes to the harvest period.

On the contrary, the consumers in the city have complained about the high price of price. Such a condition has reflected that the rice market has been asymmetric and less integrated. The statement implies that if the price of rice on the part of the consumers has increased, the increase has not been transmitted to the farmers. On the other hand, if the rice price in the cities has decreased, then the decreasing price will immediately lower the price of the grain on the part of the farmers. In other words, the farmers have always been disadvantaged by the market mechanism. In sum, the problems with rice distribution in Indonesia consist of infrastructure, institutions, safety links of distribution, and variations in the production capacity between the region and the season.

Looking at the problems outlined, the researchers deem that it is necessary to analyze the problem of the national rice distribution by using the concept of Governance Networks to attain a complete illustration of the good and strong rice distribution in Indonesia. This distribution system will be a highly significant element in the rice problems throughout Indonesia. A strong distribution system will create a good market structure, including rice price stability.

Recalling that the rice distribution system is a dynamic one, a model that can be used for detecting and anticipating sudden changes in several determining variables should be designed. The designing of such a model is deemed necessary because date a model that has the capacity to predict distributional behaviors has not been developed yet. Therefore, there should be a strict and strong rice distribution system to gain external shock so that the rice distribution can be returned to its stable condition. Throughout the study, the researchers would like to review the factors and the association of these factors with one another about the influence of these factors on the systemic problems of rice distribution throughout Indonesia. By doing so, the main problems can be grasped through the mapping of systemic factors in the governance networks within the national rice distribution and the alternative solutions for developing governance networks for the rice distribution in Indonesia.

Eventually, the researchers can map the rice problems throughout Indonesia and the rice distribution specifically. Furthermore, it is also expected through the study, the researchers can develop a construction model for the optimum national rice distribution management network. The design of the construction model is expected to provide some recommendations for the Government to create a distribution system so that rice distribution will not be vulnerable to certain conditions such as climate, food insufficiency, and alike.

# Materials and Methods

## **Governance Networks**

The complex problems over the rice distribution have been reviewed using the dynamics system in the concept of Governance Networks through the study by Klijn and Koppenjan. In the study, the governance networks group the problems into three types of complexity, namely substantive complexity, strategic complexity, and institutional complexity. Mapping the problems into the three types of complexities can simplify the problems over the rice distribution that has been very complex in Indonesia.<sup>3</sup>

In governance networks, substantive complexity has not been much caused by the complexity of the problems and the lack of information and knowledge. On the contrary, substantive complexity has been caused by uncertainty and the lack of consensus over the cause of the problems and the solution to these problems. The solution, the policymaking, and the service delivery in the public sector have involved many actors. These actors share different perspectives about the situations, and they also interpret the available information in different manners.

The strategic complexity in governance networks comes from the strategic alternatives made by the actors about the problems, policies, and services. In a complex society characterized by horizontalization and network establishment, actors have the flexibility to make their own choices since they have put their strategy into a unique perception that sometimes has not been admitted or aware of by other actors. As a result, numerous strategies will appear on the surface. Then, the institutional complexity in governance networks does not only deal with the problems, the policies, and the services but also the more complex services that demand the involvement of numerous actors. At the same time, the institutional complexity is also associated with the different institutional backgrounds of the actors.<sup>4</sup>

<sup>&</sup>lt;sup>3</sup> Klijn, E. H., & Koppenjan, J. Governance Networks in the Public Sector. (New York: Routledge), 11-15; 25-40

<sup>&</sup>lt;sup>4</sup> Burns, T., & Flam, H. The Shaping of Social Organization: Social rule system theory with application. (London: SAGE Publication), 20-26.

Several assumptions have been used in the concept of Governance Networks. These assumptions are viewed from numerous aspects, namely content, game, network, and management. From the aspect of content, several assumptions can serve as the limits for the concept of governance networks. One of these assumptions is that a problem is not always objective since it depends on the perception of each actor (framing). A complex problem occurs not because of its difficulty, but because of the different perceptions from one actor to another. As a result, the decision- or the policy-making (public service delivery) in governance depends on the perception of the actors who have been involved.<sup>5</sup>

Then, from the aspect of the game, the actors who have been involved in a problem mutually depend on the same resources to achieve their objectives. Consequently, the problem becomes more complex since the actors have mentally designed their own model through institutional regulations. When a problem demands inter-actor cooperation, the problem will be difficult to be solved because there are institutional factors that have been formed and continuous.





Departing from the framework in Figure 1, numerous factors can be seen separately. These factors influence one another in a positive direction. For example, the factors of substantive complexity can be strengthened by the strategy that the actors have used, such as the content of the policy discussions that can influence the position that an actor has adopted. The factors of institutional complexity do not directly influence the actors. Instead, these factors influence the strategies and the perceptions of these actors directly about the risk and the opportunity related to the stand-alone strategy or cooperation. In addition, network management influences the content of the actors' process and strategy.

<sup>&</sup>lt;sup>5</sup> Andrew, S. A., & Feiock, R. C. Methods of Network Analysis in K. Yang, & G. J. Miller, Handbook of Research Methods in Public Administration. (London: Taylor & Francis), 765-786.

<sup>&</sup>lt;sup>6</sup> Klijn, E. H., & Koppenjan, J. Governance Networks in the Public Sector. (New York: Routledge), 308-309.

The influence of management on the indirect results is apparent through the actor strategy and the game interaction. On the contrary, the management is subject to the influence of the actors, thereby being influenced by the occurring interaction process. Furthermore, the management efforts are influenced by the existing institutions. The external development operates through the perception and the action of the actors at the institutional level through the substantive and strategic factors in network management. The lower part of Figure 1 describes the relationship between research activity and the problem-solving process. Thus, the research activity that consists of problem analysis, objective setting, forecasting, options analysis, monitoring, and evaluation does not follow chronological order. New problems can appear at each point of research activity and perhaps are not compatible with the chronological order. The figure thus describes the loose relationship between the research activity and the problem-solving process.

# Dynamic System in the Rice Distribution Complexity

The dynamic system has been adopted in social science research. The output of the dynamic system is a model that represents the decision-making structure, the information in use, and the resulting results. The output of the model is generally used for delivering an understanding of how the problem interrelatedness has taken place to perform decision experimentation. In this regard, the dynamic system has a close association with the participatory paradigm or pragmatism in which the dynamic system has encouraged the actor's involvement in looking for the scientific truth, starting from the mental model imaging (theory in use) by using the dynamic system model namely Causal Loop Diagram (CLD) (Atmoko, 2011).<sup>7</sup>

Departing from the Governance Networks model, the researchers develop and establish a dynamic system for the three types of complexity, namely substantive complexity, strategic complexity, and institutional complexity. Then, the three types of complexity are inputted into the conceptual model of the CLD. The stages in the modeling include introducing the main variable, drawing the behavioral graphic of the main variable, establishing CLDs (diagram of influence) for illustrating the intervariable relationship, discussing the behaviors of the dynamic that has been indirectly stated by the CLD, recognizing the key leverage power and establishing the intervention strategy (Maani & Cavana, 2000).

From the CLD, it is apparent that the rice distribution has been dynamic and tends to show positive feedback characteristics. For example, since the population number keeps increasing, the domestic demand for rice will increase. The increasing demand will trigger efforts to expand the harvest coverage. In turn, the expanding harvest coverage will increase domestic rice production, and the increasing domestic rice production will increase the need for rice. In addition to identifying the causal relationship, the variables or the parameters that will be used in the designing of the dynamic system model will also be identified.

# Data Collection

The study tackles the analysis of the complex problems within the rice distribution system in Indonesia. The complex problems within the rice distribution have been caused by several factors, such as the abundant number of associated stakeholders, the rice as the staple food commodity, and the less optimum distribution line. The stakeholders involved in the rice distribution activities are government, farmers, business actors (milling owners, warehouse owners, wholesalers, and retailers), and the Indonesian Bureau of Logistics or Bulog. This study uses primary and secondary data. Primary data were obtained from interviews with informants

<sup>7</sup> Atmoko, A. W. Dinamika Knowing Organization: Model Organisasi Adaptif Untuk Lingkungan Dinamis. (Jakarta: RABI), 140-148.

(in-depth interviews), particularly with several parties involved in the production, storage, and distribution of national rice, namely farmer groups, Bulog, and related ministries. While secondary data is obtained from documentation or other recognized sources of information, including data from the Central Statistics Agency (BPS), Ministry of Trade, Ministry of Agriculture, Coordinating Ministry for Economic Affairs, Indonesia Logistics Bureau, and United State Department of Agriculture (USDA). This secondary data is based on time series data in the period 2010-2021.

# **Results and Discussion**

### Results

### Governance Networks on Rice Distribution in Indonesia

Departing from the substantive, strategic, and institutional factors, several subfactors can serve as the parameters for analyzing the problem's complexity. After these subfactors have been broken down, several associations can describe the problems within the distribution. These subfactors should be viewed more comprehensively. The researchers have found eight subfactors from the substantive, strategic, and institutional factors. The eight subfactors are divergent perceptions, variety of content, arenas-games, strategy-game types, asymmetrical debates, joint analysis, interactions patterns, dan integrative solutions.

Based on the above mapping, the inter-subfactor relationship within the governance networks of the rice distribution in Indonesia can be identified. Regarding the rice distribution chain supply, several stakeholders have been involved, namely farmers, the Government through the Bulog, and private business actors. Numerous systemic problems in rice distribution have been reviewed in terms of substantive, strategic, and institutional factors, there should be further described to identify the design of the governance networks for rice distribution in Indonesia.

The unsynchronised strategy has resulted from the different perceptions and objectives among the actors. The limited coordination has been caused by the fact that the actors have been less aware of their mutual interdependency or the fact that they have failed to make mutual decisions. Most of the time, the limited coordination has also been caused by uncertainty on how to approach the problem, who will play what role in the problem-solving process, and how the cost allocation will be. If the risk of shared action is quite significant, then the actors will decide not to achieve any agreement on it. Consequently, the actors will be unwilling to invest their resources.<sup>8</sup>

The governance networks model is a model that has been designed to solve complex and complicated problems, namely the unique and persistent problems whose root has not been identified yet.<sup>9</sup> The model is a method that strives to find the definition of the problem and the joint solution for the problem. In addition, Sorensen & Torfing also state that there are several conditions in which the governance networks model cannot be implemented optimally and effectively. These conditions are apathetic political attitude, irreconcilable conflict, and unproductive group thinking. Specifically, Sorensen & Torfing state, "Governance networks failure is an inability to provide effective governance through negotiated interaction between a plurality of public and private actors whereas being optimum and effective means the ability to transform substantial values and majoritarian decisions into standardized policy outputs and problem-solving policy outcomes."

<sup>&</sup>lt;sup>8</sup> Koppenjan, J., & Klijn, E. H. Managing Uncertainties in Networks: A Networks Approach to Problem Solving and Decision Making. (New York: Routledge), 47-48.

<sup>9</sup> Sorense, E., & Torfing, J. Theories of Democratic Network Governance. (London: Palgrave Macmillan), 95-98.

Therefore, there should be proactive and flexible governance networks, and these networks can be established through negotiations among the actors who have been competing for power. The negotiation should be afforded to recall that these actors need each other because of the dependency upon common resources, the presence of institutional regulations, the norms and incentives, and the public assumption about the social and political actors. The latter has been held responsible in the common governance. Then, the proactive and flexible governance networks can be implemented under the following conditions: (1) the relevant and impacted actors have the capacity to establish and maintain the governance networks that relatively function well based on active involvement and exchange of trust; (2) the actors within the networks should be able to identify and define the relevant problems and determine the cause and the association within these problems; and (3) the actors within the networks should be able to create a regulative, normative, and cognitive framework to facilitate the negotiation. Afterward, the complexity of the problems within the network should be viewed from the aspect of governance networks alone, namely the aspects of substantive complexity, strategic complexity, and institutional complexity.



Figure 2. Factors in Substantive Complexity, Strategic Complexity, and Institutional Complexity (Klijn & Koppenjan, 2016).

The association among the subfactors in the substantive complexity describes the relationship among the subfactors. First of all, the actors who have been involved in the rice distribution hold different perceptions of dealing with a problem. The different perception triggers the variation over the substance and the content, which leads to the reinforcement of asymmetrical debate (substantive crossover). The debate and the discussion will lead to further analysis, be it advocate or joint analysis. The characteristics and the shapes of the analysis will re-influence the perception of the actors who have been involved. In the process, multiple perceptions can directly influence the model of the debate and the discussion. The more various the perception is, the stronger the asymmetrical information in the discussion. In the process, the characters and the form of the analysis (advocate and joint analysis) will be more influential toward the variation over the content and the substance. The various content will once again trigger asymmetric information and debate.

Meanwhile, for the strategic complexity factors, there is an interactor association with the problem of rice distribution. These actors alone can be individuals, groups of individuals, or organizations. Each actor has certain arenas and games in their respective organizations, resulting in the appearance of interconnection and interrelationship among them. The interactor association has triggered the occurrence of numerous strategies (strategy and game

type) such as the go-alone, coalition, and facilitating. It is this type of strategy that will influence the solution that will be achieved even though each type of strategy has the same objective, namely achieving the solution for the problem. Then, from the resulting integrative solutions, an interaction among the actors will occur within the implementation of the solution or the policy. In the process, the strategy that has been implemented will influence the pattern of interaction among the actors who have been involved and, in turn, will also influence the number of actors who will be involved. The more various the involved actors are, the more the arenas and games will be, and the more solutions and policies will be made.

Finally, in institutional complexity, the inter-factors relationship has been found. The high sense of the rules and level of trust results in fewer variations in the interaction pattern. At the same time, the high sense of the rules and level of trust will also increase the shared perceptions and vice versa.

### Complex Rice Distribution System in Indonesia

From the substantive factors, the strategic factors, and the institutional factors, several subfactors can serve as a parameter for analyzing the complexity of the problem. Departing from the three factors, several subfactors are derived to identify the association within the description of the problem in the rice distribution. Thus, the researchers have found eight subfactors in this regard, namely divergent perceptions, variety of content, arenas-games, strategy-game types, asymmetrical debates, joint analysis, interactions patterns, dan integrative solutions.



Figure 3. The Complexity over the Systemic Problem of Governance Networks in Rice Distribution.

From the picture above, the complexity of the problem can be broken down into several factors. In a divergent perception, the inter-subfactor relationship within the governance networks of rice distribution in Indonesia can be identified. In the rice distribution chain supply, several institutions have been involved, namely farmers, the Government through the Bulog, and private business actors. Each party holds their own perception of the problems at hand. During the rice harvest, the perception that the farmers have will be different from that of the Bulog and the other business actors. With the result in variety of content, the different

perceptions will lead to a variety of content, namely price disparity in both the domestic and the foreign market, oligopsony market structure in the upstream and oligopoly market structure at the downstream, as well as the lengthy rice distribution line that leads to the more complicated and inefficient chain supply.

Therefore, arenas, strategies, and game types are needed. The more actors and institutions at the rice distribution, the more areas, games, and subsystems will be. The farmers, the Government, and the Bulog, and the private business actors have developed subsystems to perform their duty and authority. Departing from the existing problems, the types that have been selected tend to center around coalition-building and facilitating.

Various perceptions from the involved actors have been caused by asymmetric information and knowledge. This situation leads to asymmetric discussions and debates as well, like, for example, the policy on the price of rice and the diversity of government institutions. Hereafter, the characteristics and the shape of the analysis will be more influential on the variation in the content and the substance. This variation in the content will trigger asymmetric information and further debate. Thus, the joint analysis should be performed by the actors to achieve an integrative solution.

The inter-actor and the inter-institution relationship or association pattern can be formal or informal. This kind of relationship pattern is influenced by the institutional system that has been developed, be it in the hierarchy, the market, or the network. The more the number of interactions, the wider the problem's complexity will be. The solution that has resulted from the debate and the strategy should be performed to solve the problems at hand. This solution is expected to be the inter institution's consensus.

Based on the numerous systemic problems in rice distribution that have been reviewed from the substantive, strategic, and institutional factors, there should be further description to identify the governance networks designed for rice distribution in Indonesia. The limited coordination has been caused by the fact that the actors have been less aware of their mutual interdependency or that the actors have failed to achieve mutual agreements. Most of the time, the limited coordination has also been caused by uncertainty on how to approach the problem, which role the actors should play, and how to allocate the cost. If the risk of shared action is quite significant, the actors will decide not to achieve any agreement. Consequently, the actors become unwilling to invest their resources.<sup>10</sup>

# Discussions

Sorensen & Torfing (2007) state that the governance networks model is a model that has been designed to solve complex and complicated problems, namely the ones that have been unique and persistent without any clear root or ground. This model is a method of finding the problem definition as the model strives to find the joint solution for the problem. In addition, Sorensen & Torfing also argue that there are several conditions in which the governance networks model will not work optimally and effectively. These conditions are apathetic political attitude, irreconcilable conflict, and unproductive group thinking. Specifically, Sorensen & Torfing states that governance networks failure is an inability to provide effective governance through negotiated interaction between a plurality of public and private actors; in line with the

<sup>&</sup>lt;sup>10</sup> Koppenjan, J., & Klijn, E. H. Managing Uncertainties in Networks: A Networks Approach to Problem Solving and Decision Making. (New York: Routledge), 40-42.

statement, being optimum and effective is defined as the ability to transform substantial values and majoritarian decisions into standardized policy outputs and problem-solving policy outcomes. Therefore, there should be proactive and flexible governance that can be established through numerous negotiations among the actors struggling for power. Thus, the proactive and flexible governance network can be well implemented under the following conditions: (a) the relevant and impacted actors have the capacity to establish and maintain the governance networks that relatively function well based on the active involvement and the exchange of trust; (b) the actors within the governance networks should be able to identify and define the relevant policy problems along with the association and the cause; and (c) the actors within the governance networks should be able to create regulative, normative, and cognitive norms that facilitate the negotiations.



Figure 4. The Political Factors in the Governance Networks of Rice Distribution.

Sorensen & Torfing mention that the governance networks model is a model that aims at solving complex and complicated problems, namely the ones that have been unique and persistent without any clear root or ground. This model has been the method for identifying the definition of the problem and striving toward a joint solution for the given problem. In addition, Sorensen & Torfing also states that there are several conditions in which the governance networks model cannot be optimally and effectively implemented. These conditions are apathetic political attitude, irreconcilable conflict, and unproductive group thinking. Specifically, Sorensen & Torfing states that governance networks failure is an inability to provide effective governance through negotiated interaction between a plurality of public and private actors; in this regard, being optimum and effective refers to the ability to transform substantial values and majoritarian decisions into standardized policy outputs and problem-solving policy outcomes.<sup>11</sup>

Eventually, the political system is a factor that strengthens the deceleration of the process. Inter-actor political conflict will impede the development of performance and capacity over the rice distribution activity. If the political conflict grows stronger, then the negative impact of the rice distribution problem will be more complex. For instance, the complex problems can be unstable prices, depleting rice availability at the national scale, and more complicated distribution lines.

<sup>&</sup>lt;sup>11</sup> Sorensen, E., & Torfing, J. Network politics, political capital and democracy. (International Journal of Public Administration), 609-634. www.KurdishStudies.net

## Conclusions

Based on the mapping of the complexity of the rice distribution problem by using Governance Networks Factors, it can be concluded that there should proactive and flexible governance that can be established through numerous negotiations among the actors who have been struggling for power. The latter has been considered responsible within the shared governance. Then, further conclusions that can be drawn from the Governance Networks Analysis within the rice distribution system in Indonesia are as follows:

a. The inter-subfactors association can be described through the causal loop diagram as the analytical tool and the base pattern. Based on this description, it is apparent that the subfactors from the substantive factors, the strategic factors, and the institutional factors have a causal relationship. There have been reinforcing loops and balancing loops. The balancing loop that has been shaped is a process that departs from the asymmetrical debates to the joint analyses. Later, this process results in the integrative solution and the shared perception.

b. Political system is the factor that strengthens the deceleration of the process. Interactor political conflict will impede the growth of the performance and the capacity of the rice distribution activity. If the political conflict becomes stronger, then the negative impact of the rice distribution problem will be more complex. For instance, the problem can be unstable prices, depleting rice supply at the national level, and more complicated distribution lines.

c. The aspect that should be given attention is institutional complexity. It is necessary to increase the capacity of various existing institutions related to the distribution of rice from the upstream to the downstream, considering the enormous authority they carry. Looking at the factors of institutional complexity, namely rules and level of trust, variety of interaction patterns, and shared perceptions, what relevant institutions must do is increase capacity and strengthen institutions by considering these three factors. In addition, the coordinating ministry can carry out an inventory of policies and regulations from various ministries and institutions and review regulations that are overlapping and counterproductive.

## **Conflict of Interest**

The authors confirm that there is no conflict of interest to declare this publication.

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