

## Challenges faced by bamboo furniture makers during the COVID-19 pandemic: An examination of problems and profile attributes



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### ABSTRACT

The global furniture business faced a grim outlook during the COVID-19 pandemic, particularly affecting the livelihoods of bamboo furniture makers (BFMs) in Barangay Arante, Sara, Iloilo, Philippines. This study aimed to identify the problems and profile attributes experienced by BFMs during the pandemic, with the objective of addressing and ameliorating their predicaments. Employing Maslow's Theory of Needs and employing a descriptive survey research design, the study carefully examined the challenges faced by BFMs. Twenty purposively chosen respondents participated in completing questionnaires, and the data were analyzed using frequency count, percentage, and rank for variable characterization. The findings highlighted two major problems faced by BFMs during the pandemic: An inconsistent and low supply of bamboo and a lack of sufficient business capital. Socio-demographic and livelihood data revealed that most BFMs were married males with over a decade of experience in the industry, and they initiated their businesses with a capital of less than 25,000.00 Philippine pesos (PhP). These revelations underscore the pressing need for financial and technical assistance to support BFMs during these challenging times. Consequently, positive and immediate action from national and local government units/agencies, NGOs, and academic institutions is crucial to safeguard the welfare of BFMs. Notably, this study diverged from previous works that primarily focused on furniture business operators' perspectives, instead centering on the viewpoints of the BFMs themselves. The study contributes to the existing body of knowledge on bamboo, specifically regarding the unique challenges confronted by rural BFMs during a pandemic. By recognizing and addressing these issues, the study aims to pave the way for meaningful extension work to assist and uplift the bamboo furniture industry in this difficult period.

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### 1. Introduction

The demand for furniture has experienced significant growth globally, encompassing both commercial and residential sectors (Ratnasingam et al., 2020). Furniture products are sought after in tourism-based establishments like hotels, restaurants, museums, and leisure service providers, as they seek to upgrade their accommodation offerings. Furthermore, there is a rising demand for smart furniture in office spaces, aiming to enhance

productivity while maintaining modern aesthetics and ambiance (Dwivedi et al., 2022).

Furniture is a crucial aspect of interior design, serving more than just decorative purposes. Among the favored materials for furniture and home decor is bamboo, which has long been admired for its simplicity, durability, and versatility (Zheng and Zhu, 2021). Bamboo furniture has emerged as an eco-friendly and advantageous choice among consumers. It represents a traditional form of furniture, characterized by a low degree of industrialization. Bamboo's inherent strength, insect-resistance, and easy maintenance make it a robust and practical choice for household furniture.

Bamboo is widely utilized in the Philippines, both as furniture and in kitchen utensils for cooking (Rahim and Idrus, 2019). It is considered one of the most economically significant non-timber forest products in the country. Bamboo's fast growth rate and exceptional properties make it an ideal

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substitute for wood in furniture, handicrafts, construction materials, and various chemical products.

Bamboo is often referred to as a "pro-poor crop" due to its versatility and rapid growth. It is also known as the "cradle to coffin" plant, given its diverse range of uses and benefits to humans throughout their lives. Bamboo is easy to cultivate, even in the wild, requiring minimal irrigation, and can be harvested in a relatively short span of three to five years. As such, it serves as a viable alternative to coconut trees (Rathour et al., 2022; Binfield et al., 2022).

Bamboo products are typically categorized as primary (poles, shoots, and stumps), secondary or semi-processed (bamboo mats, splits, sticks, boards), and finished products (handicrafts, furniture, and ready-to-cook/eat shoots). Primary and secondary bamboo products serve as inputs for various industries, including housing, fishing, agriculture, and manufacturing. Finished products are directly supplied to end-users, catering to both domestic and export markets (Yadav and Mathur, 2021).

Undoubtedly, bamboo has become an excellent aesthetic alternative to traditional wood usage. The bamboo industry has a long history of growth, producing remarkable bamboo handicrafts, artifacts, and furniture. Despite its numerous advantages, the bamboo industry has faced challenges, especially during the pandemic, which has impacted its smooth operation.

## 2. The Philippine bamboo furniture-making industry

### 2.1. Pre-COVID-19 pandemic scenario

Bamboo is one source of livelihood among the people in the countryside (Phimmachanh et al., 2015). With its growth as one potential industry besides farming, it has helped bamboo craft makers generate sustainable income, whether as individual entrepreneurs or under a bamboo craft business firm foundation for micro, small, and medium enterprise clusters. The return on investment in bamboo is a lot faster since it can be frequently harvested, making it an attractive and sustainable livelihood in the community.

Before the coming of the pandemic, the bamboo industry was flourishing industry, locally and globally. In fact, in 2021 the global bamboo market size was valued at USD 59.30 billion and is expected to grow at a Compound Annual Growth Rate (CAGR) of 4.5.0% from 2022 to 2030. In the Asia Pacific, bamboo markets accounted for over 78.8% of revenue share in 2021 and are expected to grow at a CAGR of over 4.0% during the forecast period.

In the Philippines, the bamboo-based furniture industry has a growth rate of 15 percent per year, with export revenues amounting to USD 3.2 million per year. The Philippines is the fifth largest bamboo exporter in the world among China, the EU, Indonesia, and Vietnam. The furniture and handicraft

sector occupies the majority or 40 percent of the country's bamboo production. To sustain and enhance the growth of the bamboo industry in the country, the Philippine government has allocated at least P22 billion for its development from 2021 to 2022. With this amount, the government expects to plant 23,671 hectares of bamboo nationwide in 2021 and 40,000 hectares in 2022. By planting more bamboo trees to increase the supply of bamboo, the people will be provided a source of livelihood, especially in communities in the countryside near the areas where bamboo is planted.

As the demand for bamboo-based products, globally and locally, increased before the pandemic, the country's bamboo furniture makers with the support of the government and other allied agencies were taking efforts in accomplishing higher-value bamboo products, thus earning them sustainable livelihood.

### 2.2. Amidst the COVID-19 pandemic

Amidst the COVID-19 pandemic, the bamboo furniture-making sector in the Philippines confronts a challenging outlook, as the imposition of government-mandated travel restrictions and public health protocols has led to stagnation in business operations. Measures such as social distancing, lockdowns, restrictions on mass gatherings, and closed borders have hindered the flourishing of the home-based bamboo furniture industry. The health constraints have significantly curtailed the production of bamboo-based products, from sourcing raw materials to marketing and displaying the finished goods, particularly bamboo furniture, which has not been classified as essential.

This undesirable scenario has had a profound impact on businesses, notably the bamboo furniture-making industry, with a specific focus on the furniture makers in Barangay Arante, Sara, Iloilo, Philippines. This particular barangay is recognized as the primary source of bamboo furniture in the town of Sara, with a considerable portion of the displayed products for sale at the town's public market originating from this rural village. Traditionally, people would procure or place orders for bamboo furniture directly from the crafters, who would then offer their creations for sale in the market every Saturday.

In light of the pandemic's adverse impact, the bamboo furniture makers in Barangay Arante face potential income loss due to reduced foot traffic in the public market. The constraints imposed by the pandemic may lead to financial hardships for these artisans and their families.

Given the significance of the bamboo furniture market in the town of Sara, Iloilo, it is imperative to closely examine the repercussions of the COVID-19 pandemic on this sector. A failure to recover from the current challenges could impede the future growth and expansion of the bamboo furniture market. The primary objective of this study is to identify the specific challenges encountered by the

bamboo furniture makers in Barangay Arante during the COVID-19 pandemic. This research aims to provide baseline data to facilitate effective strategies and interventions by government and non-government organizations. The goal is to mitigate the hardships faced by the respondents and safeguard the overall bamboo furniture industry.

As home industries generally possess limited resources, exhibit conservative practices, are averse to risk-taking, and often lack long-term planning, external support becomes crucial (Xi et al., 2015). Supporting these bamboo crafters is essential not only to sustain their income during the pandemic but also to preserve the integrity of the bamboo furniture-making industry. The study also delves into the socio-demographic and livelihood profiles of these individuals to gain a comprehensive understanding of their characteristics.

### 3. Theoretical framework

This study banked primarily on Maslow's Theory of Needs. This theory postulates that a person has needs to satisfy starting from the basic to higher needs as he lives (Mcleod, 2022). Generally, man as an insatiable being will exert effort to satisfy primarily his needs of food, clothing, and shelter, then the safety and security of himself and whatever he owns (family, properties, and honor), and later on, the needs of self-expression and esteem.

As the respondents in the study are experiencing difficulty in their source of livelihood due to pandemic causes, their basic needs for food, shelter, and security may be jeopardized in the process. With this, he has to confront his problem and needs and find remedies for it. In this junction, he would find means from other people or groups to survive the situation. His present predicament needs to be understood and assisted for him to be able to alleviate his condition. His problems should be known to affect any outside assistance for his cause.

### 4. Related literature

Prior to the pandemic's impact on the market, the bamboo furniture-making business encountered numerous challenges and operational issues. Notably, the bamboo craft industry in Ilocos Sur, Philippines, faced the following problems:

1. Escalating costs of raw materials used in craft production, which exhibited periodic increases.
2. Insufficient knowledge among operators concerning export procedures, hindering their ability to engage in international trade.
3. The perceived necessity for operators to be affiliated with a producers' association to enhance their prospects and capabilities.

These issues have posed significant hurdles for the bamboo furniture-making business in the region, warranting attention and strategic interventions to

address these concerns effectively. Octaviano's (2004) study disclosed that although all of the respondents believed that bamboo furniture manufacturing is a profitable business, they are beset by many problems including financial constraints, poor workmanship, marketing channel, and product pricing. With these problems, the majority claimed that they want to avail themselves of government assistance in the form of financing, skills training, management training, and marketing and extension services in order to boost the potential of our bamboo craft industry (Octaviano, 2004).

The interior town of Antequera, Bohol, Philippines, has garnered tourist attention owing to its finely crafted bamboo furniture. However, concerns have arisen among the town's bamboo furniture makers and producers due to the dwindling supply of raw materials. This decline can be attributed to various factors, including the absence of concerted efforts in plantation development, lack of defined areas for such development, inadequate technology mechanisms, premature harvesting driven by increasing demand, insufficient support services, absence of standardized grading and classification for raw materials, and ineffective government policies pertaining to cutting, transporting, and monitoring of bamboo. The primary obstacle hindering the development of a thriving bamboo-based sector is the irregular and meager supply of bamboo suitable for entrepreneurial use (Jamatia, 2012). Additionally, the limited production of bamboo furniture is attributed to the low quality of bamboo poles used as raw materials. These challenges collectively impede the growth and sustainability of the bamboo furniture industry in Antequera and necessitate strategic interventions to address the issues related to raw material supply and quality.

In the midst of the COVID-19 pandemic, furniture companies, irrespective of their size and location, both domestic and global, encountered significant challenges. The pandemic disrupted supply chains, rendering previously effective logistics strategies obsolete, as highlighted in a report commissioned by the Specialized Furniture Carriers division of the American Home Furnishings Alliance. The global market came to a standstill, with disruptions observed in the supply, cultivation patterns, and peak harvesting seasons throughout an entire production cycle. Consequently, cultivators, suppliers, manufacturers, and intermediaries involved in the industry faced the consequences, and numerous small-scale businesses associated with the furniture sector suffered severe losses during the pandemic. Shortages of various raw materials, complexities in transporting raw materials, components, and finished products, as well as labor shortages emerged as critical issues affecting furniture supply chains. Additionally, a shortage of delivery drivers further exacerbated the challenges. Craftsmen, for whom bamboo furniture-making serves as a primary source of livelihood, bore a

heavy economic impact due to the pandemic (Utomo et al., 2022).

In the study of Utomo et al. (2022) in Indonesia, it was reported that the COVID-19 pandemic has affected the household bamboo handicraft industry in rural areas. The COVID-19 pandemic led the government to impose regulations regarding movement and transportation restrictions, thus, decreasing the demand for bamboo handicraft products. The impact of the COVID-19 pandemic was severe with almost all bamboo craftsmen experiencing a decrease in profit and nearly half receiving no order for an extended period. Various adaptations were made by craftsmen to cope with COVID-19, including minimizing capital expenses, creating innovative marketing options, and focusing on alternative income sources. Some bamboo craftsmen were forced to borrow or sell livestock and assets to meet their daily needs (Utomo et al., 2022).

## 5. Methods

A descriptive-survey research design was selected to investigate the issues faced by bamboo furniture makers in Brgy. Arante, Sara, Iloilo. Descriptive survey design is a research approach that portrays the existing state of affairs, wherein the researcher has no control over the variables and can only report on observed occurrences or conditions, seeking to identify causes when variables cannot be manipulated (Kabir, 2016). This method involves the systematic collection and analysis of data to address questions concerning the current status of a program, project, or activity (Kothari, 2004). Its purpose is to acquire data useful for evaluating present practices and providing a basis for decision-making (Mugenda and Mugenda, 2003).

The study included all twenty (20) bamboo furniture makers in Brgy. Arante, Sara, Iloilo, were categorized based on their socio-demographic and livelihood profiles. Socio-demographic aspects comprised sex, civil status, age, number of children, and educational background, while livelihood profiles encompassed the number of years engaged in bamboo furniture making, types of bamboo furniture produced, frequency of bamboo craft production, quantity produced in sets, and estimated capital for business startup.

Data were collected through a researcher-made questionnaire that underwent content validity and reliability assessments to determine the issues and respondents' socio-demographic and livelihood profiles. To ascertain reliability, the test-retest method was employed, yielding a Cronbach's Alpha of 0.807, indicating good (low Skates testing) internal reliability and demonstrating the instrument's dependability.

The researchers obtained informed consent from the respondents and secured approval from the officials of the concerned barangay and the municipal government through a formal request letter. The Brgy. Captain provided assistance in

identifying and locating all bamboo furniture makers in the area. The researchers held a meeting with the respondents at the barangay hall to clarify the research's purpose and the rationale for their selection as participants. The title and objectives of the study were explained to the respondents to determine their problems. The researchers also discussed the benefits and risks of participation, and after obtaining consent, the respondents agreed to take part in the research. During the interaction, both the English language and the local dialect were used to ensure clear comprehension of their involvement and the overall study. The questionnaire content and the required information were thoroughly explained to the respondents.

The gathered data were processed using SPSS statistical software and analyzed utilizing tools such as frequency count, percentage, and rank. Frequency count was employed to ascertain the total number of respondents and their distribution based on age, sex, number of children, educational background, and livelihood information. Percentage was used to determine the proportion of respondents within specific profile categories. Rank analysis was employed to identify the relative impacts of various problems and needs on bamboo furniture makers, arranging them from the most significant to the least significant.

## 6. Results and discussions

### 6.1. The socio-demographic profile of bamboo furniture makers

As presented in Table 1, the study encompassed a total of sixteen (16) male respondents, constituting 80% of the bamboo furniture makers, and four (4) female respondents, accounting for 20%. This outcome indicated that the majority of individuals engaged in this livelihood were males, aligning with the findings of Alao and Kuje (2012). This gender distribution might be attributed to the physical demands of the job, which involve tasks such as lifting, hauling, cleaning, and cutting bamboo, activities that generally require more masculine effort and strength. However, females were not absent from this occupation; they tended to be involved in lighter tasks like varnishing, dyeing, painting the furniture, and handling aspects of management and marketing.

Regarding marital status, eighteen (18) respondents, comprising 90%, were married, while two (2) respondents, making up 10%, were single. This finding suggests that a substantial portion of bamboo furniture makers were individuals with families, for whom this livelihood served as a significant source of income. Those who were single might be either younger workers just starting with the business and not yet prepared for family life, or older individuals who remained single for reasons beyond the scope of this research.

In terms of age, six (6) respondents, representing 30%, were below 40 years old; three (3)

respondents (15%) fell within the age bracket of 40-50 years old, and eleven (11) respondents (55%) were aged 51 years old and above. These results indicated that a considerable number of bamboo furniture makers were relatively older, potentially implying reduced physical stamina for strenuous tasks. Nevertheless, the presence of a noteworthy proportion of young workers signified the potential for continued vitality and sustainability in this livelihood within the barangay.

Concerning the number of children, 11 respondents (55%) had 4-6 children, six respondents (30%) had 1-3 children, and 3 respondents (15%) had no children. Notably, no respondent had 7-10 children. This data indicated that a substantial number of bamboo furniture makers supported relatively larger families, needing a stable income from their livelihood to provide for their dependents.

Regarding educational background, Table 1 exhibited that five respondents (25%) had attained an elementary level of education, four respondents (20%) were elementary graduates, three respondents (15%) had reached high school levels, seven respondents (35%) were high school graduates, and one respondent (5%) had achieved a college level of education. Notably, no respondent was a college graduate. The findings revealed that most bamboo furniture makers had completed their secondary education, though a significant number had not pursued higher education, with some not even finishing their elementary studies. Poverty, which is prevalent among rural communities, likely contributed to this situation, hindering their ability to pursue a college education, although one respondent had attempted to do so. Table 1 provides a comprehensive socio-demographic profile of bamboo furniture makers in Brgy. Arante, Sara, Iloilo.

**Table 1:** The socio-demographic profile of bamboo furniture makers

Category	N	%
Entire group	100	100
<b>Sex</b>		
Male	16	80
Female	4	20
<b>Civil status</b>		
Married	18	90
Single	2	10
<b>Age</b>		
Below 40 years old	6	30
40 – 50 years old	3	15
51 years old and above	11	55
<b>Number of children</b>		
0 (zero)	3	15
1-3	6	30
4-6	11	55
7-10	0	0
<b>Educational background</b>		
Elementary level	5	25
Elementary graduate	4	20
High school level	3	15
High school graduate	7	35
College level	1	5
College graduate	0	0

## 6.2. The livelihood profile of bamboo furniture makers

As evident in Table 2, the respondents were given clear instructions to select a single category in each variable, except for the variable "B. Types of bamboo furniture produced," where they were free to choose all applicable categories.

Regarding the years of experience in the bamboo furniture-making business, fifteen respondents (75%) reported having ten (10) years and above experience, while five respondents had less than ten years in the business. This finding highlights that the majority of respondents have acquired a significant number of years in the bamboo furniture-making industry. Their longevity in this livelihood suggests that it has been a reliable source of income, supporting both their own livelihoods and those of their families. Additionally, their extensive experience signifies their level of proficiency in crafting bamboo products and their ability to sustain the business over an extended period.

Concerning the types of bamboo furniture produced by the respondents, the results demonstrated that a substantial proportion engaged in various products. Specifically, seventeen respondents (85%) were involved in crafting single beds, 16 respondents (80%) in double deck beds, 15 respondents (75%) in double beds, 14 respondents (70%) in family-sized beds, 14 respondents (70%) in benches/chairs, 14 respondents (70%) in cabinets, and 4 respondents (20%) in nipa huts/bahay-kubo. No other types of furniture were specified. These findings underscore the diversity of bamboo products being created by the respondents, with the majority manufacturing a wide array of furniture, except for the nipa huts/bahay-kubo, which had a lower number of practitioners. This observation suggests that there is a notable demand for these bamboo crafts in the market.

In terms of the frequency of bamboo production, 2 respondents (10%) reported producing furniture daily, 15 respondents (75%) on a weekly basis, and 3 respondents (15%) on a monthly basis. This outcome indicates that most bamboo furniture is crafted on a weekly basis, likely to coincide with the town's Market Day, which takes place every Saturday.

Concerning the quantity produced in sets, all twenty respondents (100%) indicated that they produced 1-10 pieces of furniture. This finding reveals that all bamboo furniture makers have the capacity and capability to craft a maximum of 10 furniture sets, demonstrating their efficiency in producing these crafts.

Lastly, in terms of the estimated capital required to start the business, all twenty bamboo furniture makers reported initiating their business ventures with an initial capital of less than twenty-five thousand Philippine pesos (PhP 25,000.00). This finding implies that aspiring entrepreneurs can venture into the bamboo furniture industry with a

relatively modest capital investment of less than PhP 25,000.00.

**Table 2:** The livelihood profile of bamboo furniture makers

Category	N	%
<b>Number of years in bamboo furniture-making business:</b>		
Below 10 years	5	25
10 years and above	15	75
<b>Types of bamboo furniture produced</b>		
Living room set	10	50
Single bed	17	85
Double deck bed	16	80
Double bed	15	75
Family-sized bed	14	70
Bench/chair	14	70
Nipa hut/Bahay-Kubo	4	20
Cabinet	14	70
Others	0	0
<b>Frequency of the bamboo craft production</b>		
Daily	2	10
Weekly	15	75
Monthly	3	15
<b>Quantity produced (in sets)</b>		
1-10	20	100
11-20	0	0
21-30	0	0
31-40	0	0
41-50	0	0
>50	0	0
<b>Estimated capital for the business to start</b>		
Less than Php 25,000.00	20	100
Php 25,000.00 and above	0	0

### 6.3. The problems of bamboo furniture makers

Table 3 presents the identified problems faced by bamboo furniture makers, ranked in terms of total rank points and final rank, representing the magnitude of their impacts on the respondents' livelihoods. The respondents assigned a rank from 1 to 13 to each problem, with 1 denoting the most significant impact and 13 indicating the least impact.

The results reveal that the problem of "Inconsistent supply of bamboo materials" holds the top rank among the listed issues faced by the respondents. Following closely, the problems of "Low supply of bamboo," "Lack of sufficient capital," "Increasing cost of bamboo material," "Increasing cost of transportation," and "Lack of proper vehicles to transport the product" obtained Ranks 2, 3, 4, 5, and 6, respectively. These findings underscore the paramount concern of bamboo furniture makers regarding the availability of raw materials. They recognize that despite having capital, the absence of raw materials impedes production, sales, and income generation. Interestingly, the respondents did not prioritize the issue of capital, possibly due to many of them already having access to earned revolving funds that cater to their financial needs in the business. These findings align with earlier research that highlighted similar problems faced by the bamboo industry, such as insufficient financing (Octaviano, 2004), dwindling or inadequate supply of raw bamboo materials (Jamatia, 2012), and periodic increases in the cost of bamboo materials.

Conversely, lesser concerns were assigned to "Poor access road from the shop to the market"

(Rank 7), "Increasing cost of other furniture enhancing/jointing substances" (Rank 8), "Lack of craft-making tools" (Rank 9), "Limited market to sell the product" (Rank 10), "Travel restrictions due to COVID-19 public health protocols" (Rank 11), "Lack of technical training on trend of craft design and making" (Rank 12), and lastly, "Lack of local government programs that will support bamboo furniture makers" (Rank 13). These findings suggest that while these problems exist, they are considered to have comparatively lower impacts on the livelihoods of the bamboo furniture makers according to their rankings.

**Table 3:** The problems of bamboo furniture makers

Problems	Total rank points	Final rank
Lack of sufficient capital	81	3
Inconsistent supply of bamboo materials	67	1
Low supply of bamboo	69	2
Increasing cost of bamboo material	99	4
Increasing cost of other furniture enhancing/jointing substances	149	8
Increasing cost of transportation	127	5
Lack of proper vehicles to transport the product	138	6
Poor access road from the shop to the market	145	7
Lack of technical training on trend of craft design and making	205	12
Limited market to sell the product	166	10
Lack of craft-making tools	157	9
Travel restrictions due to COVID-19 public health protocols	200	11
Lack of local government programs that will support bamboo furniture makers	207	13

### 7. Conclusion

Based on the study's findings, it is evident that bamboo furniture makers in Brgy. Arante, Sara, Iloilo, Philippines require both financial and technical assistance to improve their businesses and support their families, aligning with the outcomes derived from their socio-demographic and livelihood profiles.

Addressing the challenges faced by bamboo furniture makers is crucial in fostering a thriving and progressive livelihood that can contribute significantly to the development of the barangay and the municipality of Sara. This contribution can be particularly beneficial in advancing tourism activities by meeting the demand for bamboo furniture in offices, schools, hotels, resorts, and various business establishments.

In order to elevate the quality and competitiveness of bamboo furniture products, the makers should enhance their technical knowledge in crafting new designs and production methods. Moreover, local government officials should actively support the bamboo furniture makers and actively engage in promoting bamboo furniture products. Collaborative efforts with relevant agencies, such as the Department of Tourism (DOT), Department of Science and Technology (DOST), Department of Trade and Industry (DTI), and the Department of Agriculture (DA), are essential in formulating

comprehensive programs that bolster the supply, production, marketing, and promotion of bamboo furniture.

Furthermore, academic institutions can play a vital role by conducting extension projects or seminar workshops that specifically address the needs and challenges encountered by bamboo furniture makers. Through such initiatives, an environment of growth and progress can be fostered, providing substantial benefits to both the bamboo furniture industry and the wider community.

## Compliance with ethical standards

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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