# **COVID-19 Preventive Measures Among Artisan Women Working** with Native Cotton in a Protected Natural Area

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#### **Abstract**

The COVID-19 pandemic has significantly affected the tourism sector globally. In recent years, tourism in Peru experienced sustained growth, and the natural protected areas (ANP Areas Naturales Protegidas) became consolidated into main tourist destinations. Nevertheless, vulnerable groups like artisan workers have suffered more acutely from this crisis. This study was conducted in the buffer zone of the Bosque de Pómac Historic Sanctuary, with the study population being the artisan women of the native cotton weaving line (of the scientific name of Gossypium barbadense L., a trade product native to the area, which is in the process of extinction and was used by ancestral cultures). The objective of this study is to describe the socio-demographic profile and the compliance with preventive measures against COVID-19 of artisan women for tourism recovery. The research has a quantitative, descriptive-crosssectional approach. A checklist was given to 30 artisan women specifically from the Jotoro-Jayanca, Pómac III-Pitipo, and Túcume population centers. To test the content validity of the instrument, Aiken's validity coefficient was chosen with 10 assessors who were experts in health and tourism; the items were fully approved and statistically significant (Aiken's V = 1, p = 0.0 01). The data was processed with IBM SPSS version 25, using descriptive statistical techniques. The results showed that 93.3 of the artisans had their vaccination doses and 70% are still not complying with preventive measures such as hand washing, the use of masks, and social distancing required by COVID-19 on behalf of the Peruvian state. It is concluded that interventions are needed to apply protocols when tourism has recovered for personal, family, and community care.

### **Keywords**

Preventive measures, COVID-19, artisan work, native cotton, tourism reactivation, protected natural area.

## 1. Introduction

The incipient tourist activity during this COVID-19 pandemic is a cause for alarm, as it affects the most vulnerable groups whose only means of subsistence is the use of the landscape resource or the sale of their products/services to visitors (Esparza et al. 2020). In Peru, the Ministry of Foreign Trade and Tourism (2021a), has been promoting measures to revive craftsmanship, one of the sectors hardest hit by the COVID-19 pandemic, throughout the country. Artisan work plays an important role in the

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con-text of the national economy, as it involves diverse indigenous peoples and important groups of women and is a highly inclusive activity.

Women artisans who work with native cotton are a vulnerable group because they live in the poor rural areas of the Department of Lambayeque, such as Jotoro –Jayanca, Pómac III-Pacora, and Túcume. The native cotton, whose scientific name is Gossypium barbadense L., is in a period of extinction. It was used by the ancestors of the Moche culture, and it has also been considered the Ethnic-Cultural Genetic Heritage of the Nation and the flagship product of Lambayeque due to its use as a raw material for the production of fabrics (Runcio & Espinoza, 2019). The economic activities of artisan women revolve around the manufacture of artisan work, domes-tic activities, and work in the field; all these tasks are complemented for the maintenance of the household. But they do not manage to surmount the minimum income, despite various government-funded projects and international cooperation which have sought to strengthen this activity. The production characteristics still show inefficiencies; the number of hours taken to produce an article is high and the price does not compensate for the time that the artisans dedicate to it. Whereas the commercialization of the products is weak, there are no busy points of sale and the volume of sales is not significant (Fustamante, 2013). Nevertheless, it is of high interest to them that these ancestral practices are not lost and that is why they have not yet abandoned them.

Amid the health crisis and epidemiological peaks of the COVID-19 pandemic, the artisan women are hoping to sell their products again as they have access to tourists. But to revive tourism in the area, they must get to know and apply the biosecurity protocols for COVID-19 that are imposed by the Peruvian government, to restore confidence among visitors. However, the practical knowledge of preventive measures such as proper use of masks, proper hand washing, and social distancing are lacking, which delays the revival of tourism since tourists are demanding compliance with COVID-19 protocols.

In a study in Nigeria, participating artisans demonstrated their knowledge of public health advice to control COVID-19, such as maintaining social distancing, wearing face masks in public spaces, and complying with personal hygiene measures. How-ever, it was revealed that they sought alternative 'perceived' public health measures that their financial situation could accommodate, and they violated strict lockdown regulations introduced by the government due to the inherent financial rewards of going to their workplaces (Lawal et al. 2022). The protocols highlight the measures aimed at maintaining social distancing; enhancing hand hygiene, cleanliness, and safety practices, and 'monitoring' the health of participants in tourism activities. The emphasis on health and the implementation of preventive measures can have a significant impact on the relationships and spatial-temporal dimensions of the tourism experience, which are important factors to take into consideration (Catalano & Tapia, 2020).

Therefore, more public information is needed to bridge the gap between policy and practice so that everyone linked to tourism activities is adequately informed about the necessary precautionary measures mandatory for them about the COVID-19 pandemic (Okueso, Buraimo, & Adekoya, 2020). Reflecting and taking into consideration the characteristics of the preventive measures against COVID-19, it is possible to distinguish the potentialities and limitations of the tourism experience whilst implementing them and these aspects are significant enough to be studied (Catalano & Tapia, 2020).

In this sense, a scenario of the gradual recovery of the tourism sector based on uncertainty is forecast, dependent on several factors such as the capacity to generate poli-cies for the practice of safety protocols to confront COVID-19, in addition to the new behaviors of the post-pandemic tourist, which will set the tone for the territories' recovery. For this reason, all sectors should generate changes and start afresh, tour-ism stakeholders should prepare for recovery based on the application and effective-ness of public health and economic measures (Velandia, 2020).

The purpose of this study is to describe the socio-demographic profile and compliance with COVID-19 preventive measures among artisan women of the native cot-ton weaving line for tourism recovery in the area surrounding the Bosque de Pómac Historic Sanctuary.

#### 2. Materials and Methods

The research has a quantitative, descriptive-cross-sectional approach. The population and sample consisted of 30 female artisans specifically from the towns of Jotoro-Jayanca, Pómac III-Pitipo, and Túcume, who met the inclusion criteria of legal age, artisan working in the native cotton line, and giving their informed consent to participate in the study.

To collect data, the observation technique was applied using a 'COVID-19 prevention' checklist. The instrument was prepared based on the instructions on COVID-19 health measures for artisan workshops and points of sale prepared by the Ministry of Foreign Trade and Tourism (2021b) and consists of two sections: the first collects overall information on the artisan women (questions on age, marital status, educational level, family income, number of members in the household and COVID-19 vaccination status); the second refers to compliance with the 'COVID-19 prevention' checklist containing two-dimensional yes or no response items on general preventive measures, before and during the activity of the artisan production process and after the sale of artisan work in the workshop, stall or artisan store.

To test the content validity of the instrument, Aiken's validity coefficient was chosen, including 10 expert judges in health and tourism, seven doctorates and 3 had mas-ter's degree holders, 6 professional nurses, and 4 from the tourism sector; most of them were also university professors and carry out research related to the subject being studied. Each one made an evaluation of the items by scoring Yes = 1 point or No = 0 points, out of which seven items were completely approved and statistically significant (Aiken's V = 1, p = 0.0 01). Furthermore, items 1 and 5 were predominantly and statistically significant (Aiken's V = 0.9, p = 0.0 01). Therefore, all nine items were valid. The data are presented in tables and IBM SPSS version 25 was used to show compliance with the COVID-19 preventive measures in the artisan women.

#### 3. Results

The main findings of the fieldwork are defined below in a differentiated manner ac-cording to the blocks addressed. Firstly, the results of the descriptive analysis of the socio-demographic profile of the artisans of the native cotton weaving line living in the buffer zone of the Bosque de Pómac Historic Sanctuary are shown (see Table 1). Secondly, compliance with the preventive measures of COVID-19 in the artisans is identified and finally, compliance with the preventive measures of COVID-19 in the production and sale process of their artisan work is recognized.

About the descriptive results of the socio-demographic profile of the artisan wom-en shown in Table 1, it is observed that the predominant age group is women aged 51 years and older, which represents 50% of the population, followed by artisans aged 41 to 50 years (20%) and artisans aged between 20 to 30 years is the least representative (13.3%). Only 26.6% have completed their studies (primary and secondary), and the number of family members is 2 to 3 people, which represents 43.3%. Also, 90% of the artisan women indicate that their income from the sale of artisan work is less than the minimum living wage (SMV: Salario Mínimo Vital), which in Peru is 1025.00 soles.

**Table 1**Socio-demographic profile of residents

	SOCIODEMOGRAPHIC VARIABLES	N°	%
	20–30 years	4	13.3
Age	31–40 years old	5	16.7
	41–50 years	6	20.0

	51 and over	15	50.0
	Single	8	26.7
Marital Status  Grade of Education	Married	9	30.0
Marital Status	Cohabiting	9	30.0
	Divorced	3	10.0
	Widowed	1	3.3
	No education	2	6.7
Grade of Education	Completed elementary school	4	13.3
	Incomplete Elementary	8	26.7
Grade of Education	High school completed	8	26.7
	Incomplete High school	4	13.3
	Superior - Technical	4	13.3
	2–3 members	13	43.3
Number of family members	4–5 members	11	36.7
	6 or more members	6	20.0
	< SMV	27	90.0
Income from Crafts	= SMV	2	6.7
	> SMV	1	3.3

It was evaluated whether the artisan women are complying with the general pre-ven-tive measures imposed by the Peruvian state, which are as follows: carrying out clean-ing and disinfecting process on surroundings, furniture, tools, and equipment among other inert surfaces to ensure they are free of COVID-19; ensuring the quanti-ty and lo-cation of hand washing points (water, liquid soap or gel) and alcohol for the artisan's use; implementing the correct use of double surgical masks or a KN 95 and respecting the social distance of at least 1 meter.

The results obtained show that 93.3% of artisan women have been vaccinated against COVID-19, which is the most effective prevention measure worldwide (see Table 2).

In terms of compliance with the general preventive measures, 70% of the artisan women do not comply or are at a beginner level with the health protocols and 30% of the artisan women are in the process, meaning that in some cases they use alcohol when in contact with another person, they clean and disinfect their work tools and use a surgical mask.

**Table 2**General preventive measures

HEALTH SI	N°	%	
COVID 10 Vassins	Yes	28	93.3
COVID 19 Vaccine	No	2	6.7
Level of Compliance with	Non-compliant/ Beginning	21	70.0
General Preventive	In Process	9	30.0
Measures	Total	30	100.0

Concerning compliance with COVID-19 preventive measures in the production pro-cess and the sale of artisan work, three stages have been identified: Before the activity—artisan work production process (stage 1); at the sale of artisan work in workshops, stalls, or artisan stores (stage 2) and after the artisan activity (stage 3), as shown in Table 3.

In compliance with stage 1, 70% of the artisan women do not comply or are in the pro-cess of beginning to comply with the preventive measures, with the lowest indicators being when more than two artisans meet to produce their work, they do not keep social distance and do not use double surgical masks or a KN 95 with 80% and 83.3%, respectively.

Concerning compliance with stage 2—regarding the sale of artisan work in the work-shop, stall, or store—100% of the artisan women do not comply with the prevention measures, for tourism revival and are not prepared to serve the public. Only 16.7% of the artisan women have installed or use a hand sanitizing point at the entrance of the workshop, stall, or store. A hand disinfection point has been installed or used at the entrance of the workshop, stall, or craft store by 7% of artisan women; only

3.3% use electronic payment methods or digital wallets as most of them are afraid of electronic transactions and 100% have not placed signs that promote care and measures to pre-vent COVID 19.

In compliance with stage 3, 76.7% of the artisan women do not comply or are in the process of beginning to comply with the preventive measures after carrying out their activities; only 23.3% store raw materials and consumables in the storage area, discard the containers (bags, paper, etc.) and disinfect the area; 83.3% of the artisan women wash and disinfect their hands at the end of the operation.

**Table 3**Preventive measures in the production and sales process.

PREV	EVENTIVE MEASURES IN THE PRODUCTION AND SALES PROCESS				COMPLIANCE					
	QUESTIONS	Freq uenc		uenc ntag	Non- Compliant		In Process		Compliance / Achieved	
			У	е	Beginning N° %		N°	%	N°	%
	Cleaning and disinfection of raw materials, supplies, tools, and equipment at the beginning of the workday.	Yes	10	33.3						
		No	20	66.7						
		Total	30	100						
	•	Yes	12	40						
	Washing and disinfection of hands when starting the	No	18	60						
٦.	production of their work.	Total	30	100						
Stage 1	When more than two	Yes	6	20	21	70	4	13.3	5	16.7
	craftswomen come together to produce their	No	24	80						
	work, they ensure social distancing (1 meter). When more than two craftswomen come together to produce their products, they use double surgical masks or a KN 95.	Total	30	100						
		Yes	5	16.7						
		No	25	83.3						
		Total	30	100						
	Install and use a hand sanitizing station at the entrance of the workshop, booth, or artisan store.	Yes	5	16.7						
		No	25	83.3						
Stage 2		Total	30	100						
	Places signage to promote social distancing at the point of sale	No	30	100	30	100	0	0	0	0
	Use electronic means of payment or a digital wallet for transactions.	Yes	1	3.3						
		No	29	96.7						
		Total	30	100						
	Store raw materials and	Yes	7	23.3						
Stage 3	supplies in the storage area, discard packaging (bags, paper, etc.), and disinfect.	No	23	76.7						
		Total	30	100	23 76	_	2	6.7	5	16.7
	At the end of the operation, hands are washed and disinfected.	Yes	5	16.7		76.7				
		No	25	83.3						
		Total	30	100						

#### 4. Discussion

In this paper, regarding the socio-demographic profile of the artisan women in the native cotton weaving line living in the area surrounding the Bosque de Pómac Historic Sanctuary, half of them were 51 years of age or older while the least representative age group was between 20 and 30 years of age. The number of women who have completed primary and secondary school is a little over a quarter. These results may be because, in the past, families gave priority to boys for basic education and since they lived in rural areas, educational centers were far away, and the art of artisan work was passed on to their daughters. However, nowadays it can be observed that the sons and daughters of the artisan women dedicate themselves to developing other activities to improve their economic status. Even though this is commendable, when analyzed from the point of view of cultural legacy, it puts the transference of this ancestral knowledge at risk.

In addition, almost all of the artisan women testify that their income from the sale of their work is less than the SMV, which in Peru is 1025.00 soles, equivalent to 262.82 US dollars. Along with the COVID-19 pandemic, this income was nil or very low for their family's subsistence. However, most of the artisans live with their spouses, either married or cohabiting. In these areas, they dedicate themselves to family agriculture; this economic activity supported them during the pandemic and these families subsisted on what they produced in the fields. The closure of tourist activities affected the artisan women because they stopped producing and selling their products, which did not allow them to have an income for their households. According to, Shafi, Liu & Wenju (2020), they point out that the situation is similar to most of the craftswomen in Pakistan, as they have been severely affected and face several problems such as financial disruption of the supply chain, decrease in demand, and the reduction of sales and profits, among others. Moreover, most of them were not prepared, nor did they have any plan to handle such a situation. This is corroborated by Gavilanez (2021), who concludes that the artisanal trade faced challenges in the delivery and the direct sale of their products, unemployment, a reduction in orders, and poor acquisition of raw materials and exports which limited their economic income im-measurably. Another im-pact related to tourism was the decrease in the production and sale of tourism prod-ucts such as artisan work. For the commercialization of products, there could be a rapprochement between the artisan and the client through social networks and the media (Santa-Cruz et al., 2021).

For this reason, the Ministry of Foreign Trade and Tourism (2021a) recognizes that artisan work plays an important role in Peru's economy as it involves various indigenous people and an important group of women. A series of measures are being considered to reactivate artisan work throughout the country, as it is one of the sectors most affected by the COVID-19 pandemic, such as capacity building, innovation, formalization, commercial articulation, and promotion. The 'Somos Artesanía' pro-gram aims to provide liquidity to artisan units and promote their economic recovery within the context of COVID-19 with a budget of S/. 2,500,000.00 by 2022, which would allow the co-financing of approximately 333 projects nationwide (1,660 arti-sans). Some of the artisan women who participated in the study have accessed this financial help with non-reimbursable competitive funds from the state to help reactivate their businesses and artisan activities during this health crisis.

Conversely, almost all the artisan women have been fully vaccinated. Most arti-sans have been vaccinated because it is a requirement by the Peruvian government for the reactivation or reopening of tourism activities, and the study was conducted in the context of the end of the third wave.

Contrary to the study by Wang, et al. (2021), reluctance to vaccinate is one of the main threats to the effectiveness of vaccination programs. The willingness to accept the COVID-19 vaccine among participants was lower in the third wave (34.8%) than in the first wave (44.2%). There were more

concerns about vaccine safety in the third wave. Service or sales workers were less likely to accept the vaccine. This decreasing trend could also be the result of a high level of concern about vaccine safety. Future promotion of vaccination should address these concerns, and an adequately and comprehensively tested vaccine would help gain public confidence.

However, in terms of compliance with general preventive measures, most of the arti-sans are not complying with those such as hand washing, use of masks, and social distancing, which are the preventive measures required by the Peruvian state. This may be because deaths from COVID-19 have decreased during the third wave and hence, there needs to be more awareness using health education from health workers.

The results contrasted with the study by Wang, et al. (2021), who reported in China a high level of compliance with facemask use and more people maintaining social distancing and using alcohol hand sanitizer in the third wave. In the United Kingdom, almost all respondents reported taking at least one preventive measure: 85.8% washed their hands with soap more frequently, 56.5% avoided crowded areas and 54.5% avoided social events (Atchison et al., 2021). Meanwhile, Fernandez-Guzman et al. (2021), indicate that less than half of the Peruvian participants performed prevention and control practices against COVID-19. However, the use of masks when leaving home, covering the nose and mouth when sneezing or coughing, keeping a distance from others in the street, washing hands with soap and water when returning home, and disinfecting surfaces of objects and personal places were the most frequently per-formed preventive measures.

Along with social distancing, hand cleaning, and other preventive measures, the use of facemasks is considered to be another scientific approach to the prevention of this coronavirus. Thus, the use of facemasks is mandatory worldwide as part of personal protection and public health measures to curb the rapid transmission of corona-virus disease (Rahman et al., 2022).

Another aspect addressed in this study is compliance with the protocols or preventive measures of COVID-19 in the production process and sale of artisan work. In terms of compliance with preventive measures during the artisan production process (stage 1), most of the artisan women do not comply with or are in the process of initiating the protocols; the lowest indicator is when more than two artisans meet to pro-duce their artisan work, they do not keep a social distance and do not use a double sur-gical mask or a KN 95.

These results are similar to the study by Okueso, Buraimo & Adekoya (2020), where they conclude that market workers in Ogun State had a low level of adherence to the COVID-19 protocol. Based on this, it is recommended that health professionals should be more involved in disseminating information on how to curb the further spread of COVID-19 in these vulnerable sectors. According to Lawal, Kareem & Adebayo (2022), artisans in Nigeria demonstrated knowledge of public health advice in the control of COVID-19 such as maintaining social distancing, wearing face masks in public spaces, and complying with personal hygiene measures.

Concerning compliance during the sale of artisan work in the workshop, stall, or store (stage 2), almost all the artisan women do not comply with the prevention measures. Less than a quarter of the artisans have installed or use a hand disinfection point at the entrance to the workshop, stall, or store. Moreover, very few artisan women use electronic means of payment, perhaps because they are afraid of electronic transactions. For Catalano & Tapia (2020), the use of technology appears as an advantageous tool that facilitates distancing. Such a tool allows, at the same time, to favor and anticipate access to information as well as the management of certain activities that had been implemented mostly in person until now; i.e. for example, obtaining reservations, requesting payment, or performing precheck-ins or pre-check-outs through digital applications or websites is proposed.

Guha, Mandal & Kujur (2021) showed that their artisan products had a very strong impact on creating awareness and a brand image in the social media environment on various platforms to promote their products in India and beyond, and will confer brand recognition among other industrial competitive brands which will consequently lead to an increased demand for these products. Peruvian

handicrafts are diverse; the main difficulties in the artisan sector are related to the scarce diffusion and lack of knowledge of the artisan lines and sub-lines. Thus, Peruvian artisan companies can expand in e-commerce, innovation, and ICT and this can make these companies more competitive. In addition, digital marketing is a great tool that allows products and services to be promoted on the network (Santa-Cruz et al. 2021).

The challenges faced by women artisans are many; it is known that, often, due to their precarious economy, they are not aware of digital media and cannot make their work known in places other than fairs and stores. This is a fact that worries them be-cause amid the COVID-19 pandemic, fairs are no longer held and stores cannot always remain open (Pinheiro, 2021).

This may be due to lack of knowledge, low income, and the fact that they are in the process of reactivating tourism, which suggests that the artisans are not prepared to serve the public and run the risk of acquiring or spreading COVID-19.

In addition, most of the artisans do not comply or are in the process of beginning to comply with the preventive measures after carrying out the artisanal activity (stage 3). Less than a quarter of the artisan women keep raw materials and consumables in the storage area, discard containers and disinfect the area. However, most women artisans wash and disinfect their hands at the end of the operation. It is also common to use medicinal alcohol to disinfect hands and materials used. In essence, there is a need to create more awareness of the COVID-19 pandemic among this group of people. This can be done through radio, television, or even organized talks within the community or at the local government level in an effort toward better information on this deadly virus (Okueso, Buraimo, &, Adekoya, 2020).

Among the limitations of the study, the sampling was non-probabilistic by convenience and the sample is small; it focused only on native cotton artisans, so the data cannot be standardized. Another limitation was at the time of collecting the data and observing there may have been an underestimation of the information.

#### 5. Conclusions

As most of the artisan women working with native cotton are over 50 years old and very few young people are involved, this cultural legacy could be lost. However, they have survived in the area where they live because, in addition to artisan work, they work in family farming. In addition, 93.3% of the artisan women have had their vaccination doses and 70% are still not complying with the preventive measures required by COVID-19 by the Peruvian government, such as hand washing, use of masks, and social distancing.

This is due to overconfidence that they are vaccinated because there were not so many deaths in the third wave, and in addition, the familiarity among the artisan women due to the proximity to where they live. Therefore, interventions to apply protocols for personal, family, and community care are recommended to revive tourist activity.

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