

## **Factors Associated with Compliance With the SARS-CoV-2 Vaccination Schedule in Users of Health Networks, Puno Region, Peru – 2022**

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### **Abstract**

*The objective of this research was to determine the factors associated with compliance with the SARS-CoV-2 vaccination schedule in users of health networks in the Puno Region, Peru-2022. Type of Research: Quantitative because the results were reported by numerical scales. Conclusions: The personal, social, cultural factors, as well as, the economic factor of accessibility and information are associated with compliance with the vaccination schedule, however it is noteworthy that the quality-of-care factor has a high significance ( $0.0 < p < 0.05$ ) when associated with compliance with vaccines against SARS-CoV-2 in users of health networks of a Region Puno, Peru-2022.*

**Keywords:** *Associated factors; Schedule; vaccine; vaccination; Covid-19; Sars-CoV-2; Users; Health Networks.*

### **1. INTRODUCTION**

During my professional activity as a nurse, I was able to perceive that in the different posts and health centers of the Puno Region Network during the time of pandemic, the attendance of users exceeded coverage and limited health availability, the patients attended presented non-specific respiratory symptoms of variable intensity and sometimes molecular tests (PCR-RT) had not been performed to confirm cases of COVID-19.

In view of this reality, the information regarding compliance with the vaccination schedule is relevant since on many occasions it is not complied with due to various factors specific to our region, the perceived public health problem arises when examining this problem, considering that the projection of people with suspected or positive diagnosis for COVID-19 is unexpected and it is necessary to focus on the vulnerable population in order to persuade compliance with the vaccine schedule to adopt measures of an economic, cultural, family nature and guarantee access to compliance with the vaccination schedule within the framework of the State of Health Emergency due to COVID-19.

The vaccine against the Coronavirus is a tool that guarantees and contributes to reducing the impact on health, it is necessary for health policies to provide a timely response to the

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population with adequate information, improvement of the personal protection service, that is, personal biosecurity and in the health institution at the three levels of containment of COVID-, The obligation to disseminate adequate information is the responsibility

The study presented represents a contribution of direct projection to the strengthening and organization of the vaccination schedule considering the idiosyncrasies of our peoples where there are many prejudices, taboos that make the population have inadequate attitudes towards compliance with the vaccine, being a shared responsibility of the different actors, such as the state, community and health personnel to encourage vaccination compliance. However, in places where there is difficulty in interconnection, such as the Puno region, there is no clear objective information, which determines in many cases the failure to comply with the vaccine schedule, which is the reason for the interest of this study. Within the problematizing context indicated, the main objective was to determine the factors associated with compliance with the vaccination schedule against SARS-CoV-2 in users of health networks in the Puno Region, Peru-2022.

## 2. MATERIAL AND METHODS

The deductive method was used in the study. It was a quantitative research because the results will be announced by numerical scales. It is also causally explanatory, because the nature of the independent variable, the factors that are associated with compliance with the vaccination schedule, and it is transversal because the two events occur at the same time and the data will be taken at a single instant. The population is finite because it is known exactly the users served and in the study it is composed of 130 users from the different networks of the Puno Region who were indicated as a reference for the adequate size of the "study sample". The type of sampling used is "probabilistic", non-stratified and consisted of 97 informants.

## 3. RESULTS

TABLA N° 1. FACTORES PERSONALES POR EDAD SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ – 2022

EDAD	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
12 a 39 AÑOS	18	18.56%	31	31.96%	49	50.52%
40 a 60 AÑOS	24	24.74%	8	8.25%	32	32.99%
61 a MÁS AÑOS	8	8.25%	8	8.25%	16	16.49%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to table No. 1, age according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. 31.96% of users who do not comply with vaccination are observed between the ages of 12 and 39 years. Of the users who comply with the vaccination, 24.74% are between 40 and 60 years old. 18.56% of the users of the health networks comply with the vaccination in which they are 12 to 30 years old, a minimum percentage of 8.25% can also be observed

in which the users who do not comply with the vaccinations presented ages of 40 to 60 years as well as users of 61 years and older. The ages of the users can be described as 50.52% between 12 and 39 years old, 32.99% between 40 and 60 years old, and 16.49% of the users of the health networks are 61 years or older. The chi-square statistical test was obtained  $\chi^2_c = 11.367$ , where age is associated with vaccination compliance.

**TABLA N° 2. FACTORES PERSONALES POR SEXO SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.**

SEXO	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
MASCULINO	33	34.02%	9	9.28%	42	43.30%
FEMENINOS	17	17.53%	38	39.18%	55	56.70%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to table No. 2, referring to sex according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It is observed that 56.70% of the users served are female and 43.30% of the users are male, it can also be observed that 51.55% of the users do comply with the vaccination and 48.45% of the users do not comply with the vaccination of the health networks of the Puno Region.

39.18% of female users do not comply with vaccination, however, 34.02% of users are male who comply with vaccination, it should be noted that in terms of sex, the users who have the highest incidence of not complying with vaccines are women, vaccines that are against SARS COV-2

The chi-square statistical test was obtained  $\chi^2_c = 21.660$ , where the personal factor such as sex is associated with vaccination compliance.

**TABLA N° 3. FACTORES PERSONALES POR PROCEDENCIA SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.**

PROCEDENCIA	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
PUNO	42	43.30%	9	9.28%	51	52.58%
JULIACA	8	8.25%	38	39.18%	46	47.42%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to table No. 3, referring to the origin according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It is observed that the users have as their origin the place of puno, which were 52.58%, of which 43.30% comply and 9.28% do not comply with the

vaccination. It is observed that 47.42% of the population comes from the city of Juliaca, distributed in 39.18% of users do not comply with vaccination compliance and 8.25% of users do comply with vaccination against SARS-COV-2 in the health networks of the Puno region. That is, the highest percentage of 39.18% of users who come from Juliaca do not comply with the vaccination schedule and 43.30% of users who come from the city of Puno do not comply with the vaccination schedule. The chi-square statistical test was obtained  $X^2c = 40.864$ , where the personal factor such as origin is associated with vaccination compliance.

**TABLA N° 4. FACTORES SOCIALES POR DINÁMICA FAMILIAR SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.**

DINÁMICA FAMILIAR	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
FUNCIONAL	33	34.02%	21	21.65%	54	55.67%
DISFUNCIONAL	17	17.53%	26	26.80%	43	44.33%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to table No. 4, referring to family dynamics according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It is observed in the users, 55.67% presented a functional family and 44.43% of users presented dysfunctional families, of which the highest percentage of 34.02% of users complied with the vaccination schedule presented a functional family, however, 26.80% of users who did not comply with the vaccination schedule.

That is, of the 55.67% of users who have a dysfunctional family, 34.02% comply with vaccination and 21.65% do not comply with vaccination, in turn in users who have dysfunctional families are represented by 44.33% where 26.80% do not comply with the vaccination schedule and 17.53% of users do comply with the vaccination schedule in the health network of the Puno region. The chi-square statistical test was obtained  $\chi^2c = 4.4618$ , where the social factor such as family dynamics is associated with vaccination compliance.

**TABLA N° 5. FACTORES CULTURALES POR GRADO DE INSTRUCCIÓN SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.**

GRADO DE INSTRUCCIÓN	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
SECUNDARIA	25	25.77%	39	40.21%	64	65.98%
UNIVERSIDAD	25	25.77%	8	8.25%	33	34.02%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to table No. 5, referring to the degree of education according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the

Puno Region, Peru - 2022. It can be observed that 65.98% of the users have a degree of education at the secondary level, of which 40.21% do not comply with the vaccination schedule and 25.77% of users comply with the vaccination.

Users who have a university education degree are represented by 34.02%, of which 25.77% comply with the vaccination schedule and 8.25% of users do not comply with vaccination in the health network of the Puno Region. It can be stated that the highest percentage of 40.21% of users who have a high school education degree do not comply with the vaccination schedule.

The chi-square statistical test was obtained  $\chi^2_c = 11.738$ , where the cultural factor such as the degree of education is associated with vaccination compliance.

TABLA N° 6. FACTORES CULTURALES POR OCUPACIÓN SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.

OCUPACIÓN	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
DEPENDIENTE	34	35.05%	22	22.68%	56	57.73%
INDEPENDIENTE	16	16.49%	25	25.77%	41	42.27%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to graph table No. 6, referring to occupancy according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It can be observed in the users indicated with 57.73% having as a dependent occupation type of which 35.05% of users comply with the vaccination schedule and 22.68% of independent users do not comply with the schedule. Of the users with independent occupation type, it is represented by 42.27% of the population, where 25.77% do not comply with the vaccination schedule and 16.49% of the users who have independent occupation do not comply with the vaccination schedule. In other words, the highest percentage in the observed table of 35.05% of users with dependent occupation comply with the vaccination schedule. The chi-square statistical test was obtained  $\chi^2_c = 4.45$ , where the cultural factor such as education is associated with vaccination compliance.

TABLA N° 7. FACTORES ECONÓMICO POR INGRESO MENSUAL SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.

INGRESO MENSUAL	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
MAS DEL MÍNIMO	8	8.25%	22	22.68%	30	30.93%
IGUAL AL MÍNIMO	26	26.80%	16	16.49%	42	43.30%
MENOS AL MÍNIMO	16	16.49%	9	9.28%	25	25.77%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to graph table No. 7, referring to the monthly income according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It can be observed in the users who comply with the vaccination schedule, where 26.80% have economic income equal to the minimum, followed by 16.49% of users presented income below the minimum.

In the users who do not comply with the vaccination schedule, 22.68% have more than minimum economic income, followed by 16.49% of users, where they have an economic income equal to the minimum and finally 9.28% of users served in the health network of the Puno Region have a monthly income less than minimum. The chi-square statistical test was obtained  $X^2_c = 10.791$ , where the economic factor as monthly income is associated with vaccination compliance.

**TABLA N° 8. FACTOR ACCESIBILIDAD POR TIPO DE VIVIENDA SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.**

TIPO DE VIVIENDA	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
ADOBE	21	21.65%	30	30.93%	51	52.58%
NOBLE	29	29.90%	17	17.53%	46	47.42%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to table and graph No. 8, referring to the type of housing according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It can be observed in the users with adobe housing type is represented by 52.58% of the population, of which 30.93% of users do not comply with the vaccination schedule and 21.65% of users comply with their vaccination schedule.

In the users who have their homes made of concrete, which is 47.42% of the population, it can be observed that 29.90% comply with the vaccines against SARS COV-2 and 17.53% of users with homes made of noble material do not comply with the vaccination protocol. In other words, 30.93% of the users who have their adobe housing do not comply with the vaccination schedule, unlike the users who comply with 29.30% have concrete housing. The chi-square statistical test was obtained  $\chi^2_c = 4.6303$ , where the factor of accessibility as a type of housing is associated with vaccination compliance.

**TABLA N° 9. FACTOR ACCESIBILIDAD POR SERVICIOS BÁSICOS SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.**

SERVICIOS BÁSICOS	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
NO ADECUADA	20	20.62%	30	30.93%	50	51.55%
ADECUADA	30	30.93%	17	17.53%	47	48.45%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to Table and Graph No. 9, referring to basic services according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It can be observed that 51.55% of users do not have adequate basic services, of which 30.93% of users do not comply with the vaccination schedule and 20.62% do comply with the vaccines against SARS-COV-2. Users, with 48.45% who have adequate basic services, presented 30.93% of users who comply with the vaccination schedule and 17.53% of users who do not comply with the SARS-COV-2 vaccine. In other words, the highest percentage of 30.93% of users who do not have basic services do not comply with the vaccination schedule. The chi-square statistical test was obtained  $\chi^2_c = 5.5082$ , where the factor of accessibility such as basic services is associated with vaccination compliance.

**TABLA N° 10. INFORMACIÓN SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.**

INFORMACIÓN	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
BUENA	25	25.77%	8	8.25%	33	34.02%
REGULAR	17	17.53%	17	17.53%	34	35.05%
DEFICIENTE	8	8.25%	22	22.68%	30	30.93%
<b>TOTAL</b>	<b>50</b>	<b>51.55%</b>	<b>47</b>	<b>48.45%</b>	<b>97</b>	<b>100.00%</b>

According to table and graph No. 10, referring to the information according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It can be observed that in the users who have good information, the highest percentage of 25.77% comply with the vaccination schedule and 8.25% do not comply with the vaccination against SARS-COV-2, as for the users who presented a regular level of information, 17.53% comply with the vaccination schedule.

As for the users who have deficient information on issues related to the prevention of SARS-COV-2, the highest percentage of these users (22.68%) do not comply with the vaccination schedule and the minimum percentage of 8.25% of users do comply with the vaccination. In other words, the highest percentage of 25.77% of users have good information complying with vaccination, unlike users who have deficient information with 22.68% do not comply with the SARS-COV-2 vaccination schedule.

The chi-square statistical test was obtained  $\chi^2_c = 15.212$ , where the information is associated with vaccination compliance.

TABLA N° 11. CALIDAD DE ATENCIÓN SEGÚN CUMPLIMIENTO DEL CRONOGRAMA DE VACUNACIÓN CONTRA SARS-COV-2 EN USUARIOS DE REDES DE SALUD DE LA REGIÓN PUNO, PERÚ - 2022.

CALIDAD DE ATENCIÓN	CUMPLIMIENTO DE VACUNACIÓN					
	CUMPLE		NO CUMPLE		TOTAL	
	fi	%	fi	%	fi	%
REGULAR	42	43.30%	13	13.40%	55	56.70%
DEFICIENTE	8	8.25%	34	35.05%	42	43.30%
TOTAL	50	51.55%	47	48.45%	97	100.00%

According to Table and Graph No. 11, referring to the information according to compliance with the vaccination schedule against SARS-COV-2 in users of health networks in the Puno Region, Peru - 2022. It can be observed that 56.70% of the users reported having a regular quality of care and 43.30% of users stated that they had a poor quality of care.

43.30% of users who have a regular quality of care comply with the SARS-COV-2 vaccination schedule, as opposed to 35.05% of users who perceive a poor quality of care do not comply with the SARSCOV-2 vaccination schedule.

In other words, the users who have an impact on the deficiency of quality of care are the users who do not comply with their vaccination schedule against SARS-COV-2 in the health network of the Puno region.

The chi-square statistical test was obtained  $\chi^2_c = 31.323$ , where quality of care is associated with vaccination compliance.

#### 4. CONCLUSIONS

The personal, social, cultural, as well as the economic factors of accessibility and information are associated with compliance with the vaccination schedule, however, it should be noted that the quality of care factor has a high significance ( $0.0 < p < 0.05$ ) when associated with compliance with vaccines against SARS-CoV-2 in users of health networks in the Puno Region. Peru-2022.

In age, users from 12 to 39 years old with 31.96% do not comply with vaccination, being also female with 39.18% of users who do not comply with the vaccination schedule, on the origin of users from Puno 43.30% comply with vaccination against SARS-CoV-2

Users who have a dysfunctional family with 26.80% do not comply with vaccination, as well as those who have an independent occupation, 25.77% do not comply with vaccination in the same way, it should be noted that users who have a weekly income lower than the minimum, 16.49% comply with the vaccines against SARS-CoV2.

29.90% of users who have homes made of noble material comply with vaccination, as well as those who have adequate basic services (30.93%) comply with vaccination against SARS-CoV-2, as well as users who indicate a level of quality of regular care of 43.30%.

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