

Joy H Mhlongo¹, Edith Phalane¹, Refilwe N Phaswana-Mafuya¹

¹South African Medical Research Council/University of Johannesburg (SAMRC/UJ) Pan African Centre for Epidemics Research (PACER) Extramural Unit, Faculty of Health Sciences, South Africa

This study showed Coronavirus disease 2019 (Covid-19) vaccine uptake was higher among forestry employees than expected. Factors such as age, satisfaction with the vaccination program, and the perception of perceived Covid-19 risk in the workplace all had a significant relationship to COVID-19 vaccine uptake. Booster vaccine uptake was influenced by race and religion

BACKGROUND

- The World Health Organization launched COVID-19 vaccination programs to curb the pandemic's impact (1).
- Factors such as hesitancy influenced vaccine coverage, and in South Africa, vaccine conspiracy theories on social media may have hindered vaccine uptake (2).
- Much research has been done on vaccine uptake; however, studies in the forestry industry are limited,
- Although the Forestry Sector was classified as an essential service.
- This study aimed to determine the factors associated with Covid-19 vaccine uptake among forestry employees in Mpumalanga Province, South Africa.

METHODS

- An analytical, cross-sectional study was conducted in Forestry of the selected Municipality in Mpumalanga Province, South Africa.
- The study included 294 Forestry Workers aged 20 - 60 years.
- Data was collected through an online survey questionnaire containing closed-ended questions and analysed using STATA, version 17.
- Descriptive analysis was used to determine frequencies and proportions of categorical variables.
- Bivariate and multivariate analyses were carried out, and associations were assessed using odds ratios (OR) and a p-value of less than 0.05.
- The adjusted ratios generated the adjusted mean prevalence margins and 95% confidence intervals.

RESULTS CONTINUED

Table 1: Multivariate analysis of socio-demographic variables

Characteristics	Categories	Multivariate analysis	
		aOR (95% CI)	p-value
Age	20-30 (Ref)		
	31-40	1.20(0.55-2.62)	0.644
	41-50	0.77(0.33-1.78)	0.538
	51-60	12.29(2.70-55.98)	0.001*
Marital Status	Single (Ref)		
	Married	1.13(0.53-2.41)	0.751
	Divorced	1	
	Separated	0.16(0.04-0.67)	0.013*
	Widowed	0.26(0.06-1.07)	0.062
	Other	1	
Religion	Christian (Ref)		
	Humanist	0.35(0.07-1.82)	0.213
	Mixed religion	1	
	Muslim	1	
	No religion	0.24(0.10-0.57)	0.001*
	Prefer not to say	0.19(0.02-1.62)	0.129

Table 2: Multivariate analysis of perceptions and attitudes variables

Question	Response	Multivariate analysis	
		aOR (95% CI)	P-value
How likely would you consider others to be at risk of getting Covid-19 infection at workplace?	Very Likely	Ref	
	Neutral	2.84(1.29-6.28)	0.010
Do you have trust in science and the approval of the Covid-19 vaccine?	Yes	Ref	
	I don't know	0.33(0.14-0.78)	0.011
Covid-19 is a very serious illness for people like me.	Strongly disagree	Ref	
	Disagree	2.81(1.39-5.67)	0.004
Do you think getting vaccinated for Covid-19 could save lives?	Yes	Ref	
	Maybe	0.32(0.15-0.69)	0.004
Do you think the Covid-19 vaccine is safe?	Yes	Ref	
	No	0.03(0.01-0.08)	<0.001

Table 3: Multivariate analysis of behavioural and other characteristics of Forestry employees

Question	Response	Multivariate analysis	
		aOR (95% CI)	P-value
Do you know someone who tested positive for Covid-19?	Yes		
	No	0.25(0.13-0.50)	<0.001*
How satisfied are you with the current Covid-19 vaccination program?	Very satisfied		
	Satisfied	2.85(1.36-5.98)	0.006*
	Dissatisfied	0.26(0.10-0.67)	0.005*
Are there any Department of Health pop-up vaccination sites available in your area?	Yes		
	No	0.31(0.15-0.65)	0.002*
	I don't know	0.24(0.12-0.50)	<0.001*

Table 4: Multivariate analysis of socio-demographic characteristics of vaccinated Forestry employees and willingness to take vaccine booster

Characteristics	Categories	Multivariate analysis	
		aOR (95% CI)	P-value
Ethnic Group	African (Ref)		
	White	8.87(1.73-45.49)	0.009
Religion	Christian (Ref)		
	Mixed religion	5.91(1.05-33.35)	0.044

RESULTS

- Vaccination Rates:** 71.8% of employees were vaccinated.
- Most vaccinated with Johnson & Johnson (J&J) vaccine.
- Associated Factors (Vaccination):** Age, vaccination program satisfaction and perceived Covid-19 Risk (workplace)
- Associated Factors (Booster Vaccine):** Age and Religion

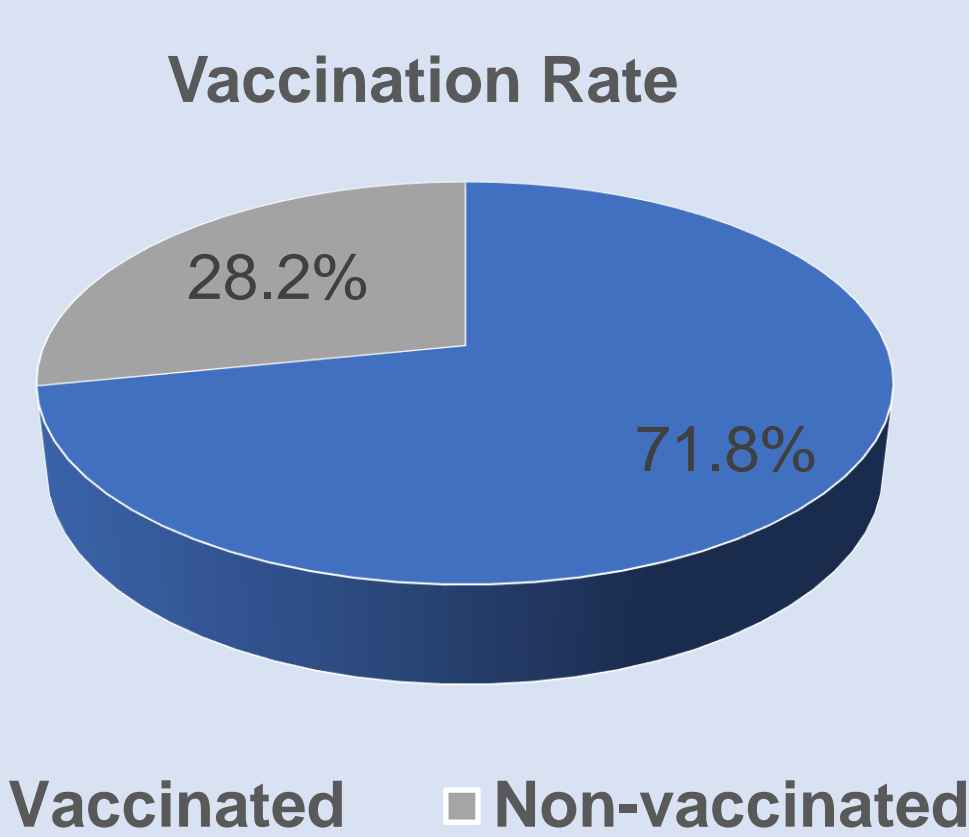


Figure 1: Vaccination rate of forestry workers

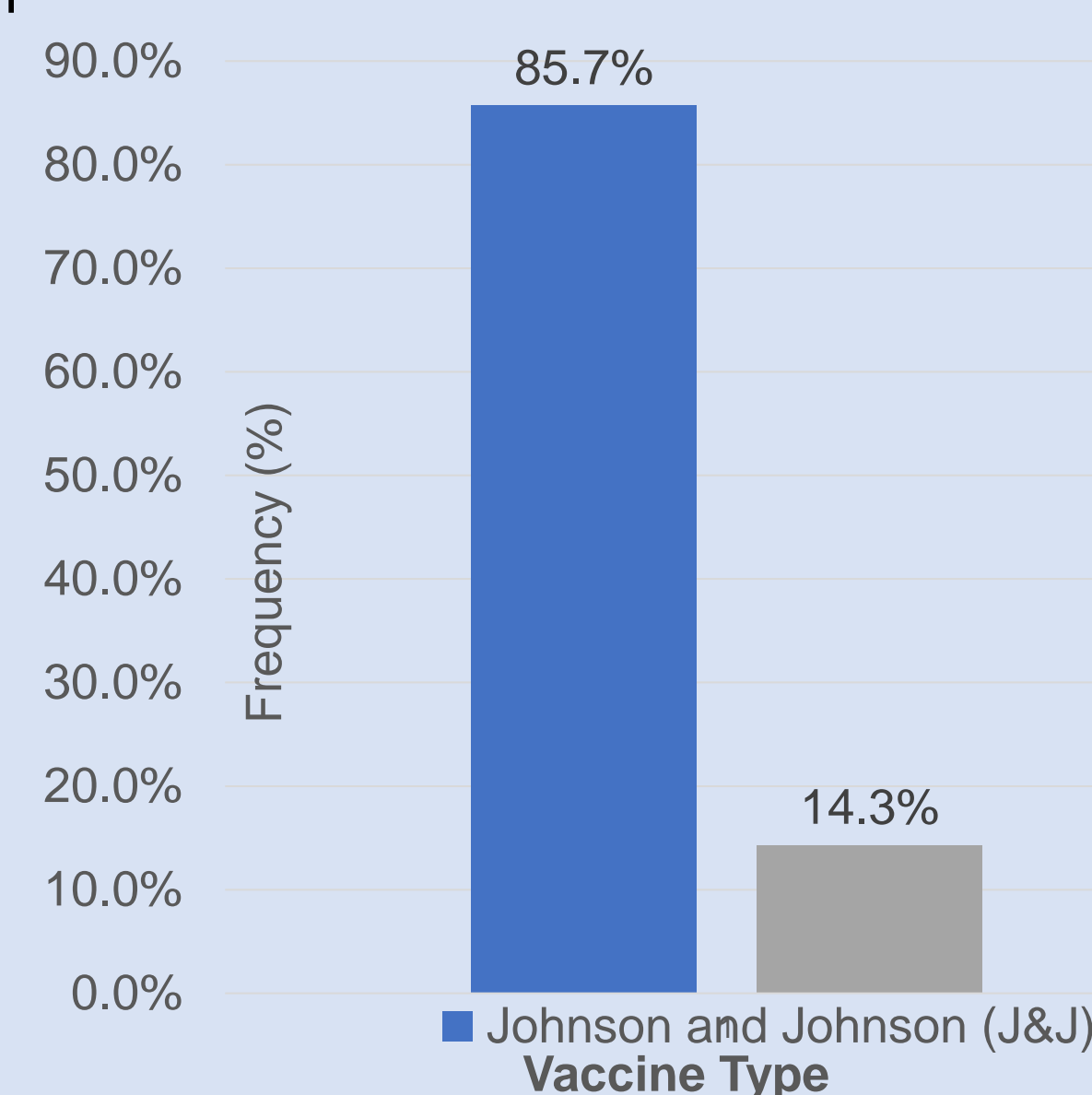


Figure 2: Vaccination types

Forestry Workers in a selected Municipality in Mpumalanga Province N= 294

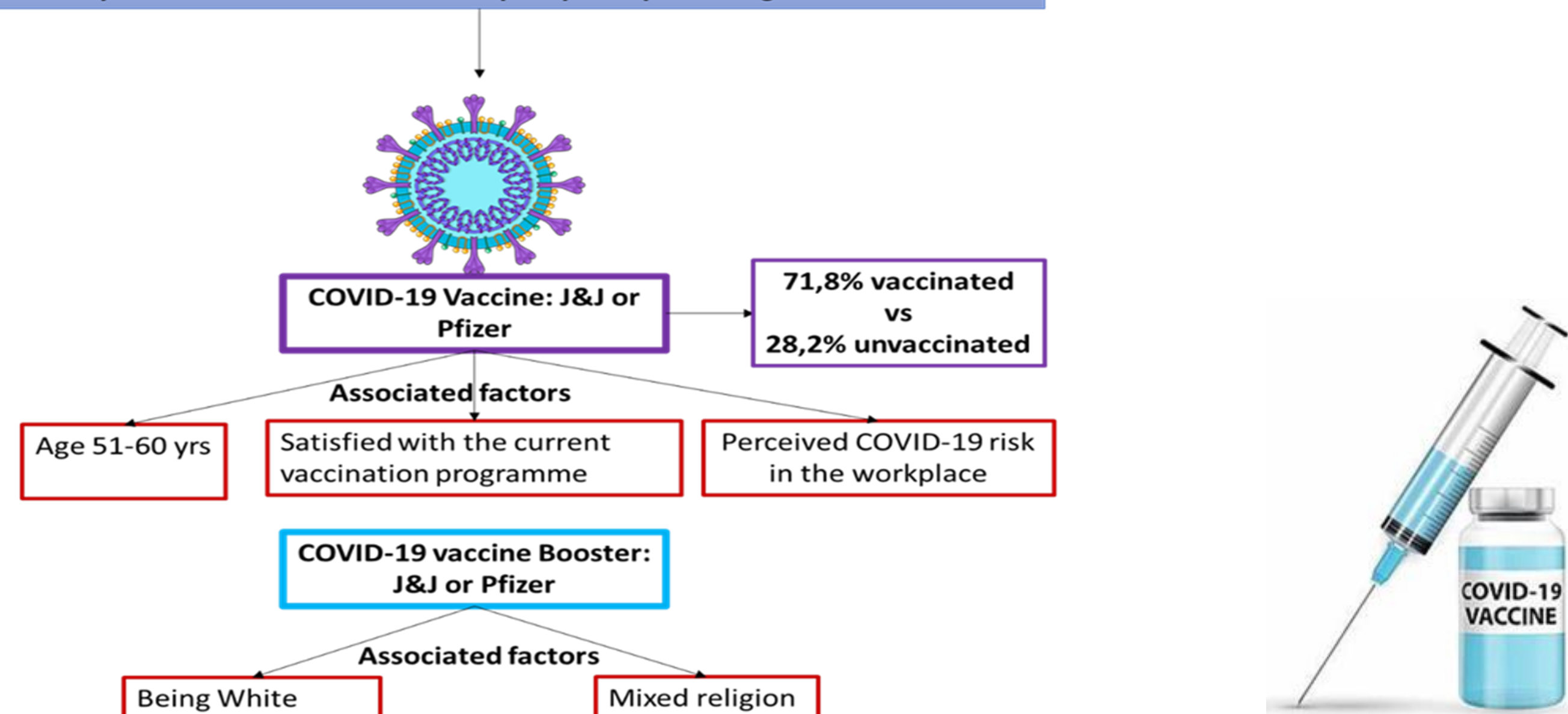


Figure 3: Summary of Results

Adapted from (3)

CONCLUSIONS

- Higher vaccine uptake among forestry employees is associated with age, perceived workplace risk, and satisfaction with the vaccination program.
- Furthermore, booster vaccine uptake was influenced by race and religion.
- There is a significant need to enhance public health communication about vaccine safety, efficacy, and educational interventions to build trust in science.
- These findings could contribute to the vaccination policies in terms of design and implementation strategies for current and future pandemics, especially for Forestry employees who are often faced with limited access to healthcare.

FUNDING AND ACKNOWLEDGEMENT

- Our gratitude goes to the participants who took part in the study.
- We would like to acknowledge the South African Medical Research Council (SAMRC)/University of Johannesburg Pan African Centre for Epidemics Research (PACER) Extramural Unit team for their financial support through its Division of Research Capacity Development under the Mid-Career Scientist Programme with funding received from the South African National Treasury and the Global Excellence Stature 4.0, University of Johannesburg.

SELECTED REFERENCES

- CDC (2022). CDC Global Health - South Africa. [online] Available at: <https://www.cdc.gov/globalhealth/countries/southafrica/default.htm> [Accessed 24 Jan. 2023].
- Department of Government and Information System (2021). Annual reports | Government Communication and Information System (GCIS). [online] www.gcis.gov.za. Available at: <https://www.gcis.gov.za/content/resource-centre/reports/annual-reports> [Accessed 31 Jul. 2022].
- NDoH (2023). National Department of Health – COVID-19 Information Center. [online] covid19.health.gov.za. Available at: <https://covid19.health.gov.za/> [Accessed 22