

## TraX Quarterly Report 01: Report period 10 October 2022 to 1 January 2023

This report summarises data collected during the first three months the TraX Study (10 October 2022 – 1 January 2023). Data are collected weekly on MPOX (formerly monkeypox) vaccine uptake, infection, and sexual behaviours among people considered at high risk of infection in Australia.

### Summary

- 2445 people across Australia participated in the TraX study during the reporting period. Most participants were from New South Wales (83.1%).
- At study entry, 24.7% of participants reported being unvaccinated against MPOX, 47.2% had received one MPOX vaccination, and 28.1% had received two MPOX vaccinations.
- As at 1 January 2023, the proportion of people who reported being unvaccinated against MPOX had reduced by half to 12.7%, leaving 310 participants unvaccinated. The proportion who reported having received one MPOX vaccination also fell to 18.2% and the proportion who received both MPOX vaccinations increasing to 69.1%.
- Compared to people who were vaccinated against MPOX, unvaccinated people were more likely to be older, less likely to have reported an STI at study entry, more likely to have not had a COVID-19 infection, reported fewer COVID-19 booster vaccinations, and less likely to have reported sex with men.
- At study entry, nine participants reported a prior incidence of MPOX infection.
- No new cases of MPOX were reported during the study period, precluding any calculations on vaccine effectiveness.
- Among the 310 people unvaccinated against MPOX, 92.6% agreed that vaccines are effective in preventing diseases and 91.9% agreed that vaccines are safe. One in five (20.0%) indicated they were unlikely to receive an MPOX vaccination.

## Recruitment source

The largest proportion of participants were recruited through the NSW Ministry of Health expression of interest (NSW MoH EOI) list (40.2%). Approximately one in three (27.0%) were recruited through consent given in previous Kirby Institute/Centre for Social Research in Health studies to participate in future research. Crown Street Vaccination Clinic has recruited most of the clinic-based sample and were the first clinic to commence recruitment. Victorian clinics began clinic-based recruitment in mid-November 2022.

Table 1. Recruitment source by study month

N (%)	Month 01 10-Oct-22 to 6-Nov-22 N=1582	Month 02 7-Nov-22 to 4-Dec-22 N=619	Month 03 5-Dec-22 to 1-Jan-22 N=244	Total N=2445
NSW MoH EOI	948 (59.9)	28 (4.5)	8 (3.3)	984 (40.2)
Consent from other study	360 (22.8)	282 (45.6)	17 (7.0)	659 (27.0)
New South Wales MPOX clinic	183 (11.6)	194 (31.3)	154 (63.1)	531 (21.7)
Unpaid advertising	65 (4.1)	24 (3.9)	34 (13.9)	123 (5.0)
Hook-up apps	4 (0.3)	42 (6.8)	10 (4.1)	56 (2.3)
Victoria MPOX clinic	0 (0.0)	34 (5.5)	20 (8.2)	54 (2.2)
Social media	11 (0.7)	14 (2.3)	1 (0.4)	26 (1.1)
a[TEST] (Oxford St/Surry Hills)	11 (0.7)	1 (0.2)	0 (0.0)	12 (0.5)

## Sample characteristics at study entry

The median age was 40 years, and ages ranged from 19 years to 80 years. About two-thirds (64.0%) of participants were born in Australia. The great majority of participants identified as cis (94.7%) or trans men (0.6%), and most (86.3%) identified as gay. Most (83.3%) reported an HIV negative status and 8.8% were living with HIV. Most (83.1%) participants resided in New South Wales, which was expected given most participants were recruited through the NSW MoH EOI list.

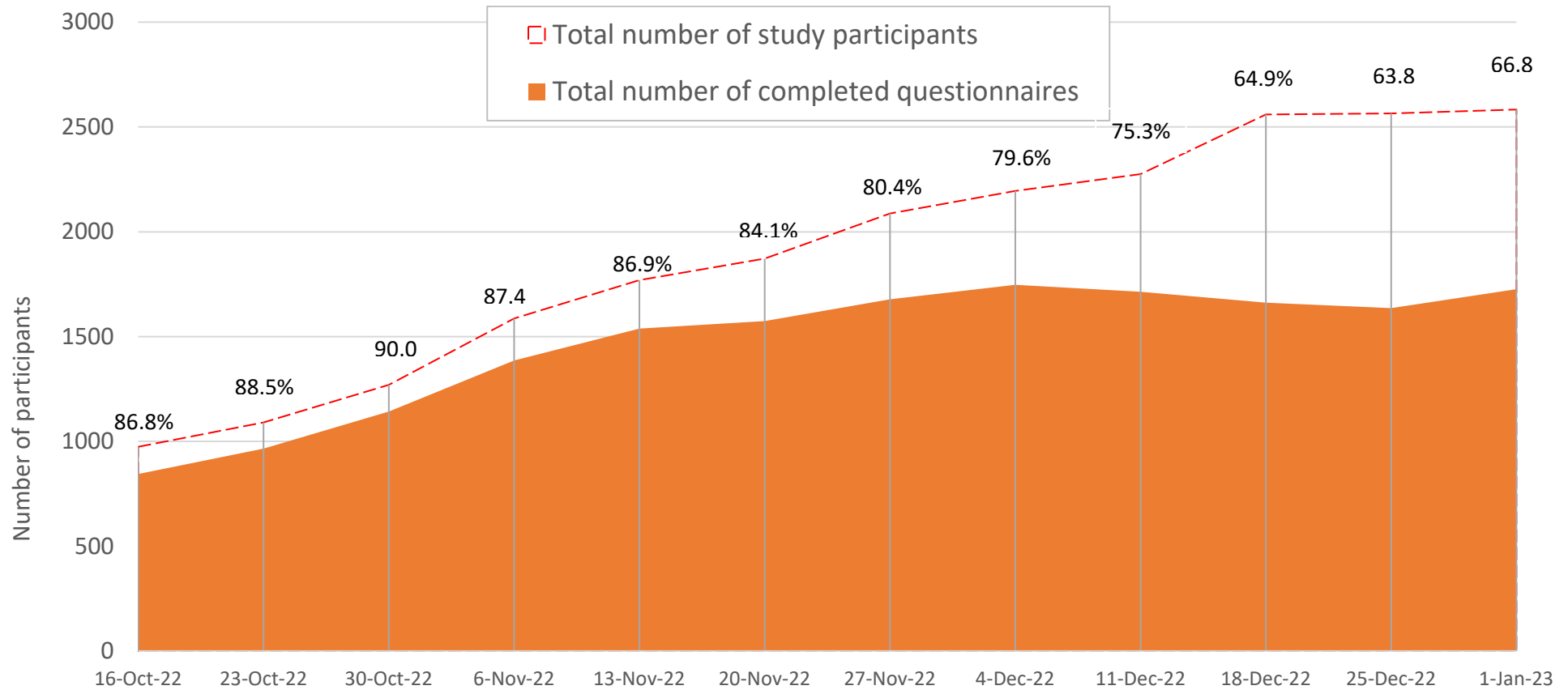
Table 2. Sample characteristics at study entry by recruitment month

N (%)	Total N=2445	N (%)	Total N=2445
<b>Age</b>		<b>Gender</b>	
19-29	361 (14.8)	Cis men	2315 (94.7)
30-39	806 (33.0)	Trans men	15 (0.6)
40-49	581 (23.8)	Cis women	27 (1.1)
50-59	438 (17.9)	Trans women	15 (0.6)
60+	254 (10.4)	Non-binary people	56 (2.3)
Did not answer	5 (0.2)	Other	17 (0.7)
<b>Country of birth</b>		<b>Sexuality</b>	
Australia	1565 (64.0)	Gay	2110 (86.3)
Elsewhere	880 (36.0)	Lesbian	8 (0.3)
<b>State of residence</b>		Bisexual/pansexual	192 (7.9)
New South Wales	2033 (83.1)	Heterosexual	22 (0.9)
Victoria	209 (8.5)	Queer/other term	113 (4.6)
Queensland	87 (3.6)	<b>HIV status</b>	
Northern Territory	12 (0.5)	Positive	215 (8.8)
Western Australia	23 (0.9)	Negative	2037 (83.3)
South Australia	27 (1.1)	Untested/unknown	193 (7.9)
Australian Capital Territory	44 (1.8)	<b>STI diagnosis in past six months</b>	
Tasmania	10 (0.4)	Gonorrhoea	343 (14.0)
<b>Aboriginal or Torres Strait Islander</b>		Chlamydia	399 (16.3)
Yes	60 (2.5)	Syphilis	124 (5.1)
No	2385 (97.5)	Unsure	10 (0.4)
		Other	42 (1.7)

### Follow-up and participation over time

Rates of completion of a study questionnaire ranged from the lowest at 63.8% on the 25th of December 2022 to the highest at 90.0% on the 30th of October 2022. Low retention during the end of year is expected in online cohorts.

Figure 1. Follow-up and participation over time

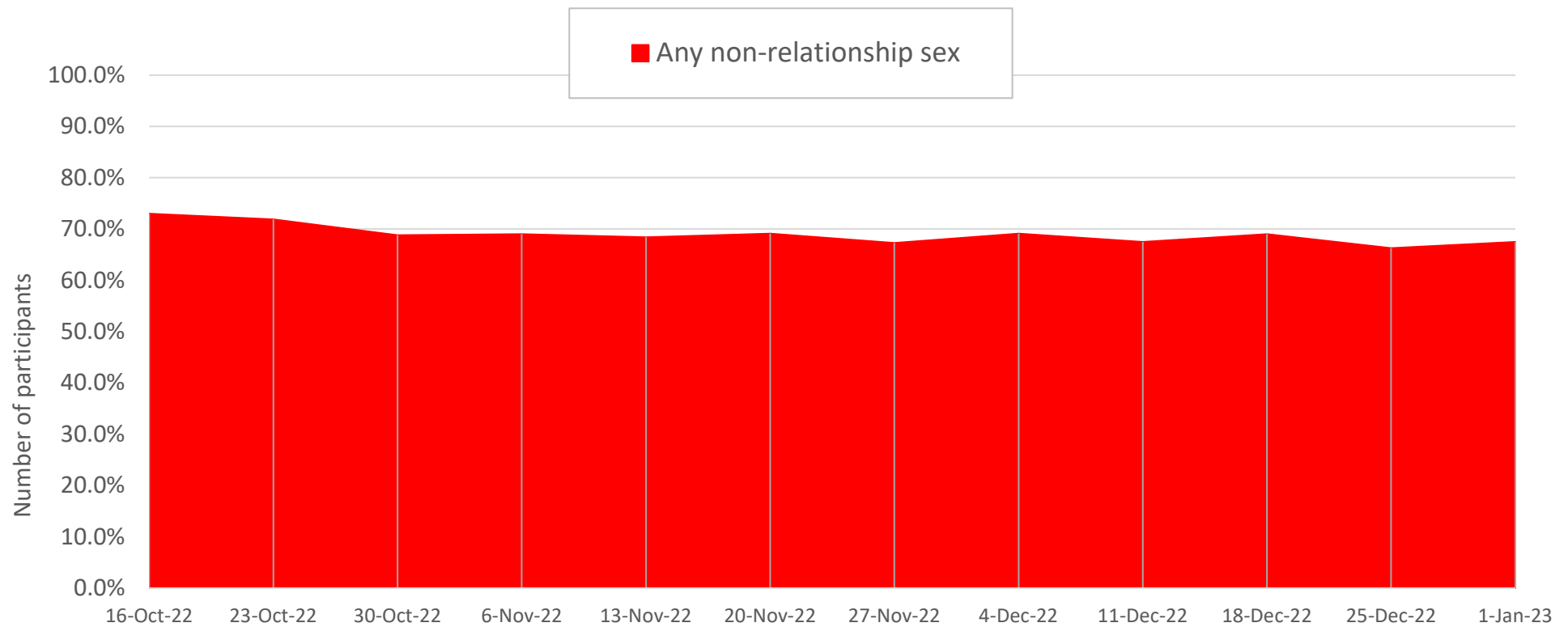


% indicates retention rate.

## MPOX sexual risk behaviours

MPOX sexual risk behaviours has remained consistent during the reporting period.

Figure 2. Non-relationship sexual behaviours with cis or trans men over time



Sexual behaviours with cis and trans men are reported separately. The proportions above combine sexual behaviours reported with both cis and trans men.

## MPOX testing

MPOX testing remains low at 4.5%. There was an increase in the proportion of participants who tested for MPOX in December 2023. However, this may be due a smaller number of participants recruited in Month 3.

Table 3. MPOX testing by study month

N (%)	Month 01 10-Oct-22 to 6-Nov-22 N=1582	Month 02 7-Nov-22 to 4-Dec-22 N=619	Month 03 5-Dec-22 to 1-Jan-22 N=244	Total N=2445
Never tested for MPOX	1525 (96.4)	599 (96.8)	210 (86.1)	2334 (95.5)
Tested for MPOX	57 (3.6)	20 (3.2)	34 (13.9)	111 (4.5)

## MPOX vaccination

At study entry, 24.7% who reported being unvaccinated against MPOX. Almost half (47.2%) reported having received one MPOX vaccination and 28.1% had received both MPOX vaccinations.

Table 4. MPOX vaccination at study entry

Recruitment source	None N=605	First dose N=1153	Second dose N=687	Total
NSW MoH EOI	214 (21.7)	569 (57.8)	201 (20.4)	984
MPOX clinics	14 (2.4)	280 (47.9)	291 (49.7)	585
Other	377 (43.0)	304 (34.7)	195 (22.3)	876

By the 1<sup>st</sup> January 2023, the proportion of people who reported being unvaccinated against MPOX was reduced by half to 12.7%, leaving 310 participants unvaccinated. The proportion who reported having received one MPOX vaccination also fell to 18.2% with the proportion who received both MPOX vaccinations increasing to 69.1%.

Table 5. MPOX vaccination at 1 January 2023

Recruitment source	None N=310	First dose N=445	Second dose N=1690	Total
NSW MoH EOI	42 (4.3)	128 (13.0)	814 (82.7)	984
MPOX clinics	2 (0.3)	154 (26.3)	429 (73.3)	585
Other	266 (30.4)	163 (18.6)	447 (51.0)	876

## Covariates of being unvaccinated against MPOX

The following analysis is restricted to participants recruited through community-based advertising (e.g., Facebook, Grindr, etc.). Univariable and multivariable logistic regression analysis was used to compare people who reported having received at least one MPOX vaccination to those who reported being unvaccinated. Univariable associations with a p-value of 0.10 were included in the multivariable logistic regression. Results are presented as adjusted odds ratios (aOR) and 95% confidence intervals (CI).

Compared to people who were vaccinated against MPOX, unvaccinated people were more likely to be older, less likely to have reported an STI at study entry, more likely to have not had a COVID-19 infection, more likely to have reported fewer boosters against COVID-19, and less likely to have reported sex with cis or trans men.

Table 7. Associations with no MPOX vaccination during the study period

Factor	Factors associated with being unvaccinated against MPOX by 1 January 2023 among community-recruited participants (N=876)								
	Proportion unvaccinated N (%)	OR	95% CI	p	aOR	95% CI	p		
<b>Age</b>									
19 – 29	38/108 (35.2)	Ref.			Ref.				
30 – 39	70/291 (24.1)	0.583	0.362	0.941	0.027	0.888	0.524	1.504	0.659
40 – 49	59/193 (30.6)	0.811	0.492	1.337	0.412	1.312	0.748	2.304	0.344
50 – 59	52/169 (30.8)	0.819	0.490	1.367	0.444	1.404	0.783	2.519	0.255
60+	46/113 (40.7)	1.265	0.733	2.181	0.398	2.342	1.224	4.481	0.010
Did not answer	1/2 (50.0)	-	-	-	-	-	-	-	-
<b>COB</b>									
Australia	186/606 (30.7)	Ref.							
Elsewhere	80/270 (29.6)	0.951	0.695	1.300	0.752				
<b>Gender</b>									
Cis men	248/822 (30.2)	Ref.							
Trans men	4/8 (50.0)	2.315	0.574	9.329	0.238				
Cis women	3/14 (21.4)	0.631	0.175	2.282	0.483				
Trans women	2/4 (50.0)	2.315	0.324	16.524	0.403				
Non-binary people	5/20 (25.0)	0.772	0.277	2.146	0.619				
Other	4/8 (50.0)	2.315	0.574	9.329	0.238				
<b>Sexuality</b>									
Gay	214/743 (28.8)	Ref.				Ref.			
Lesbian	1/6 (16.7)	0.494	0.057	4.257	0.521	0.167	0.018	1.551	0.116
Bisexual/pansexual	29/69 (42.0)	1.792	1.083	2.966	0.023	1.585	0.912	2.754	0.102
Heterosexual	8/14 (57.1)	3.296	1.130	9.612	0.029	1.198	0.368	3.894	0.764
Queer/other term	14/44 (31.8)	1.154	0.600	2.218	0.669	1.267	0.621	2.586	0.515
<b>HIV Status</b>									
Living with HIV	17/54 (31.5)	Ref.							
HIV negative	230/775 (29.7)	0.919	0.507	1.665	0.779				
Unknown/untested	19/47 (40.4)	1.477	0.652	3.347	0.350				
<b>Any STI in the previous six month reported at study entry</b>									
No	227/661 (34.3)	Ref.				Ref.			
Yes	39/215 (18.1)	0.424	0.289	0.621	<0.001	0.566	0.375	0.852	0.006

<b>Number of COVID-19 infections reported at study entry</b>									
More than 1	17/92 (18.5)	Ref.					Ref.		
1	134/472 (28.4)	1.749	0.996	3.072	0.052		1.696	0.928	3.101 0.086
0	115/312 (36.9)	2.575	1.450	4.575	0.001		2.155	1.162	3.995 0.015
<b>Number of COVID-19 vaccination reported at study entry</b>									
4+	105/413 (25.4)	Ref.					Ref.		
3	125/381 (32.8)	1.432	1.053	1.949	0.022		1.906	1.324	2.745 0.001
2 or less	36/82 (43.9)	2.296	1.408	3.744	0.001		2.918	1.655	5.144 <0.001
<b>Any non-relationship sex with cis or trans men</b>									
No	117/228 (51.3)	Ref.					Ref.		
Yes	149/648 (23.0)	0.283	0.206	0.389	<0.001		0.296	0.211	0.417 <0.001
<b>Any non-relationship sex with cis or trans women</b>									
No	259/844 (30.7)	Ref.							
Yes	7/32 (21.9)	0.632	0.270	1.481	0.291				
<b>Any non-relationship sex with non-binary people</b>									
No	261/852 (30.6)	Ref.							
Yes	5/24 (20.8)	0.596	0.220	1.613	0.308				
<b>In general, vaccines are safe</b>									
Disagree	13/38 (34.2)	Ref.							
Unsure	9/16 (56.3)	2.473	0.749	8.157	0.137				
Agree	244/822 (29.7)	0.812	0.409	1.613	0.552				
<b>In general, vaccines are effective in preventing diseases</b>									
Disagree	14/35 (40.0)	Ref.							
Unsure	6/14 (42.9)	1.125	0.320	3.951	0.854				
Agree	246/827 (29.7)	0.635	0.318	1.269	0.199				

Ref. Reference category.

– Insufficient cases for analysis

## Vaccine effectiveness

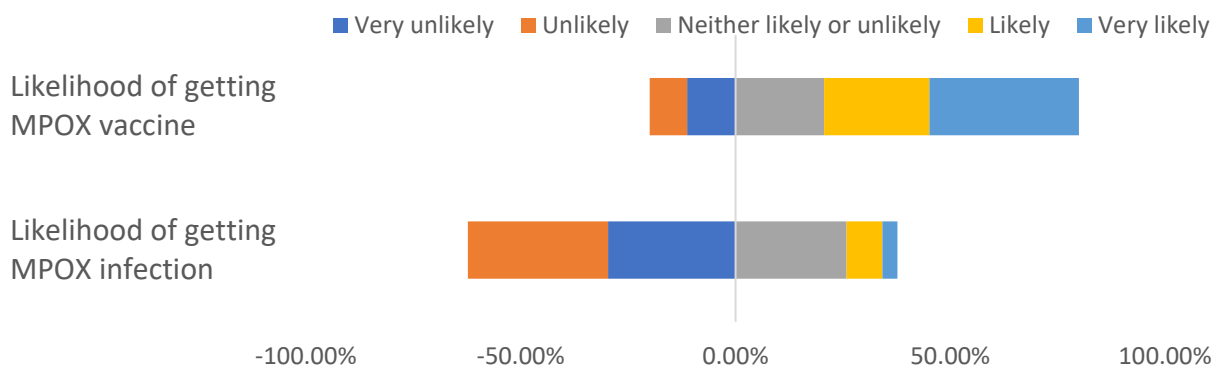
All 9 cases of MPOX reporting in this cohort were reported at baseline; therefore, we cannot calculate vaccine effectiveness.



### Attitudes towards vaccines among unvaccinated participants

As of the 1<sup>st</sup> of January 2023, 310 participants were unvaccinated against MPOX. Most unvaccinated participants (59.3%) reported being likely to receive an MPOX vaccination, with 20.6% indicating they were unsure. One in five (20.0%) indicated they were unlikely to receive an MPOX vaccination. More than half (62.3%) thought it was unlikely they would contract MPOX, 25.8% saying they were unsure, and 11.9% thought they were likely to contract MPOX.

Figure 3. Attitudes towards MPOX an MPOX diagnosis and likelihood of vaccination



Among the 310 people unvaccinated against MPOX, 92.6% agreed that vaccines are effective in preventing diseases and 91.9% agreed that vaccines are safe. There was a small proportion who indicated that vaccines do not prevent diseases (4.1%) and were unsafe (4.2%), with 1.9% and 2.9% indicating they were unsure. Further investigation into the characteristics among these men is warranted.

Figure 4. Attitudes towards vaccines, in general

