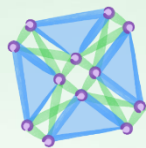


COVID-19 Vaccine Experience and Hesitancy Within African, Caribbean, and Black (ACB) Communities In Scotland

August 2022



ETHNIC MINORITY
NATIONAL RESILIENCE NETWORK



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Foreword

Background to the research and note from co-chairs of the African, Caribbean and Black Inclusive Vaccination Group, Dr Charmaine Blaize and Margaret Lance

This research into COVID-19 vaccine experience and hesitancy within African, Caribbean, and Black (ACB) communities in Scotland was commissioned by BEMIS Scotland via the African, Caribbean and Black Inclusive Vaccinations Group of the Ethnic Minority National Resilience Network.¹

The resilience network was initiated by ethnic-minority-led, national membership organisation BEMIS Scotland in March 2020 to respond to pandemic challenges within minority ethnic communities across the country. The network and its 106 national members have responded diligently to emerging pandemic related challenges and we would like to thank them for their ongoing commitment and work across Scotland.

In August 2021 members of the ACB Inclusive Vaccinations Group were introduced to Dr Adekola's expertise and research.² It was unanimously agreed by members that the secretariat represented by BEMIS Scotland should seek to identify opportunities to extend Dr Adekola's existing research.

Furthermore, in light of the emerging challenges identified by BEMIS Scotland via the implementation of Vaccine Information Fund³ that specific focus would be required to assess the vaccine experience and hesitancy of African, Caribbean and Black citizens of Scotland.

¹ The Ethnic Minority National Resilience Network (Scotland) set up by BEMIS Scotland is a collaboration of organisations working to respond to COVID19 social and health issues in our communities. Racial discrimination is prohibited in Scotland on the grounds of colour, nationality, ethnic or national origin. This definition has been incorporated into Scots law from the International Convention on the Elimination of All Forms of Racial Discrimination (ICERD) Article 1 In addition, the Equality Act 2010 extends the recognition of these provisions into the development of public policy and delivery of public services. Thus, the EMNRN acknowledges the rights of minority ethnic communities on the basis of their colour, nationality, ethnic or national origin. In Scotland this represents 8% of the national population based upon the Scottish Census 2011 who identified their colour, nationality, ethnic or national origin as something other than White Scottish / British. As such our network includes organisations, trade unions and communities from multigenerational minority ethnic communities (Pakistani, Black, Caribbean, Chinese, East and Southeast Asian¹, Jewish, Irish, Indian, Polish and others) what are termed newer 'migrants' (Polish, Romanian, Roma, African [various], Arab(various) and others and what are termed as asylum seekers and refugees due to their immigration status. Our evidence indicates that all of these communities are facing challenges as a result of the social and medical impact of this public health crisis.

² Meeting note of the ACB Subgroup of the EMNRN August 2021. Available here <https://bemis.org.uk/wp/wp-content/uploads/2022/05/acb-vaccinations-group-2021-08-10.pdf>

³ Vaccine Information Fund Report to the Scottish Parliament Health, Social Care and Sport Committee, 31 May 2022- <https://bemis.org.uk/wp/wp-content/uploads/2022/08/Vaccine-Information-Fund-Report-May-2022.pdf>

As ACB Co-chairs Dr Charmaine Blaize (UNISON Black Workers Committee) and Margaret Lance (Women in Action) we were delighted to commission Dr Josephine Adekola of Glasgow University to conduct a further interrogation of vaccine experience and hesitancy in December 2021.

The funding for this research has been provided by BEMIS Scotland via the Vaccine Information Fund with support from the Scottish Government's Race Equality Unit.

We would like to thank the members of the ACB Inclusive Vaccinations Group, the broader resilience network and BEMIS Scotland for their commitment and support to providing African, Caribbean and Black citizens the opportunity to speak on our own behalf and instigate research that responds to our needs directly. African, Caribbean and Black citizens are not a homogenous block of people, and our diverse experience, voices and expertise must be part of policy and decision making about things that affect us directly moving forward.

Finally, we would like to pay our compliments and significant thanks to Dr Josephine Adekola and her team of researchers at Glasgow University who shared our commitment and passion for the wellbeing of our communities and Scotland.

We trust this launch will be the beginning of further integration into the shaping systems and service provision to reflect African, Caribbean and Black needs too.

Dr Charmaine Blaize and Margaret Lance

African, Caribbean and Black Inclusive Vaccination Group Co-Chairs

August 2022

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We would like to thank the funders and the entire research team, for commissioning and working incredibly hard on the piece of work:

Research Team

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- Aliyu Abubakar – Student intern researcher

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- Adam Smith Business School: funded the student intern time. The student intern researcher supported the data collection and analysis in the study.

Executive summary

1. In Scotland, COVID-19 vaccine uptake as of 3 May 2022 for those aged 12+ stands at 73.4% (first dose) and 64.4% (second dose) in African populations and 70% (first dose) and 62.1% (second) for the Caribbean and Black populations. For the third, uptake is at 45.8% in the Caribbean and Black populations and 41.7% in African communities. These compared to 88.6%, 84.5%, and 75.4% for the White ethnic group (Public Health Scotland, 2022). The statistical variations between ethnic demographics also suggest trends of vaccine hesitancy across the different doses. Some people who have taken the first dose of the COVID-19 vaccine are not taking a second, third, or booster dose within the expected time frame (specifically, after nine weeks or more). Vaccine hesitancy, which refers to the delay or refusal to take up vaccination despite availability (Macdonald, 2015), can pose a direct or indirect threat to human health and life. It can also deter or undermine vaccine policy implementation in tackling vaccine-preventable diseases to such an extent that it has become a top global health risk (World Health Organization, 2019). With the ongoing concerted effort to improve the uptake of COVID-19 and other vaccines, such as the flu vaccine, it is essential to understand why people delay or refuse to take up vaccination at the expected stages, and that is the aim of this study.
2. This research aims to understand vaccine hesitancy and vaccination experience at two critical staging posts in the vaccination programme, between the first and second doses of COVID-19 vaccination and between the second and the booster. It studies COVID-19 vaccine uptake, specifically focusing on Scotland's African, Caribbean, and Black communities. This research seeks to
 - Enhance understanding of vaccine hesitancy in Scotland's African and African Caribbean communities.
 - Increase duty bearer (Public Health Scotland, NHS, and Scottish Government) understanding of vaccine experience between the various doses of the vaccination for people from African, Caribbean, and Black Communities.
 - Enhance knowledge of African, Caribbean, and Black communities' general experience of the vaccination journey from appointment booking to 1st, 2nd and 3rd doses.
3. Findings from this study will increase understanding of African, Caribbean, and Black vaccination experiences throughout the vaccine journey, focusing on vaccine hesitancy and the variables contributing to that outcome.

Lessons can be learned from the vaccination experiences of Scotland's African, Caribbean, and Black communities. This should inform the ongoing public health response to the pandemic, influence future public health interventions for these communities and act as a pandemic response legacy for future generations.

4. We used multiple data collection methods, including a survey, one-to-one and focus group interviews, targeting members of Scotland's African, Caribbean, and Black communities. This involved an online survey, one-to-one interviews, and focus group interviews between the 1st and 30th of April 2022. For the online survey, we received 408 responses. Twenty-six (26) respondents participated in the one-to-one interviews, and thirty (30) respondents participated in 5 focus group discussions within the same period. Most participants in the one-to-one interviews also completed the online survey.

Key findings

Perception and attitude to vaccines and COVID-19 vaccines

5. The majority (86.3%) of respondents agree that it was essential to support the fight against COVID-19, highlighting the need to follow the Government guidelines, stay up-to-date and share correct information. However, in a small group, socio-economic reasoning affected the extent to which they abide by the pandemic regulations, especially by groups (e.g., those on zero-hours contracts) who cannot afford to stay home without working.
6. Around 74% of the public feels vaccines are safe for public health. However, approximately 26% are either neutral or disagree with that view. When explicitly asked about COVID-19 vaccines, 66% of the public agree that COVID-19 vaccines are safe. Around 34% of respondents are either neutral or disagree, a difference of 8% between confidence regarding general vaccine safety and COVID-19 vaccine safety.
7. Regarding the necessity of vaccines, the respondents feel that vaccines are necessary to fight against COVID-19. Again, around 30% of the participants were neutral or disagreed. Finally, regarding participation, approximately 74% agree that it is crucial to participate in a vaccine trial for representation, but 26% of the respondents were neutral or disagreed with this.

Vaccination status and reasons for vaccine hesitancy

8. The study analysis suggests that around 47.7% of the population were fully vaccinated at the time of data collection. The number of those who self-reported not receiving any vaccine was 18.2%. However, 14% of

respondents indicated that they had received their first dose, and 20.1% reported having had a second dose of the COVID-19 vaccine. 'Fully vaccinated' in this study means that an individual has taken the first, second, and third (booster) doses of a COVID-19 vaccine, which reflects the number of vaccines provided to all adults at the time of data collection.

9. There are multiple dimensional reasons for vaccine hesitancy within Scotland's African, Caribbean, and Black communities. Many individuals who had not taken any dose of a COVID-19 vaccine attribute this to vaccine scepticism or contracting the virus at the time of the vaccine appointment and perceived increased immunity post-infection.
10. In the qualitative study, vaccine scepticism, negative lived experience/testimonies post-vaccination from others, too many vaccine doses, and unanswered questions about side effects and COVID-19 infection post-vaccination were mentioned. In a small number of cases, falling ill in the immediate aftermath of taking a vaccine was identified as a factor for vaccine hesitancy, especially for those with caring responsibilities (e.g., single parents) or who cannot afford to be ill (e.g., those on zero-hour contract).
11. Regression analysis reveals that vaccine uptake was influenced by age, religion, and visa status. Younger groups, those who identify their religion as Islam, and those on work permit visas are more likely not to have taken any dose of a COVID-19 vaccine and less likely to be fully vaccinated.

Vaccine user journey of Scotland's African, Caribbean, and Black communities

12. Most respondents (62%) found securing a COVID-19 appointment easy, 18.1% suggested it was neither easy nor difficult, and 19.4% said it did not apply to them. Only 1% (4 participants) highlighted that the process was complex.
13. Across all the doses, appointments via letter and online booking were the most common methods of accessing an appointment. Walk-ins at vaccination centres were also common in the first phase of vaccination but less common in the second and third stages. Telephone and other methods of appointment (e.g., through GP surgeries or employers) were the least commonly used method of booking appointments.
14. Around 71% of respondents felt that the method of booking the appointment was non-influential on whether they took the vaccine or not, as they had already made up their minds to take it. However, 21.5% thought that the booking method (specifically letter) was influential in providing

useful pre-vaccination information and acted as a reminder to go and take the vaccine.

15. Many of the respondents highlighted the professionalism and friendliness of the staff and expressed the view that vaccine accessibility was good in terms of the location of the vaccination centre. There are a few exceptions, including the call-in appointment due to the long wait time, and for some, the original appointment time is not suitable.

Key influential factors on vaccine decision in Scotland's African, Caribbean, and Black communities

16. In the quantitative study, the most influential factor on vaccine uptake was confidence in the vaccine, access to vaccine information, work-related reasons, personal assessment of risk, and risk perception.
17. In the qualitative study, other factors influencing vaccine uptake are the desire to keep oneself safe, travel protocols, underlying conditions, and civic duty.

Experiences of COVID-19 vaccines

18. Around 40% of the respondents reported no side effects post-vaccination. Those who experienced side effects pointed to aches in the head and arm (22.4%), feeling unwell and fever (both around 13%), and tiredness (8.4%). These are consistent with the vaccines' stated/expected side effects. Approximately 3% reported other side effects such as delayed periods and breathing issues, and it was highlighted that those with side effects did not receive the attention they would have wished for.
19. In the qualitative study, the main self-reported symptoms include headache, fever, body pains, dizziness, numbness in body parts, swollen arms, and mild pain in the vaccinated arm. Side effects also varied across doses.

Conclusion

20. The 3C model of vaccine hesitancy (Macdonald 2015) – Confidence, Complacency, and Convenience – highlights barriers and enablers to vaccine uptake. Our analysis identifies barriers and solutions to accessing COVID-19 vaccines within Scotland's African and Caribbean/Black communities.
 - Confidence: Scotland's African, Caribbean, and Black communities are hesitant due to low vaccine confidence and their effectiveness in reducing the likelihood of infection and the impact of the virus long-term post-vaccination. Negative experiences or testimonials and unanswered

questions about some uncommon side effects of the vaccine have also contributed to low vaccine confidence.

- **Complacency:** Some members of Scotland's African, Caribbean, and Black communities perceive the risk of COVID-19 to be low, especially as the pandemic stages have progressed, and do not see vaccines as necessary for overcoming the virus. This group of people instead emphasises the benefit of non-pharmaceutical interventions.
- **Convenience:** Some members of Scotland's African, Caribbean, and Black communities are hesitant due to logistical or economic barriers, such as their caring responsibilities or reluctance to run the risk of side effects that might require unpaid time off work.

Recommendations

21. Work to improve access to COVID-19 vaccines in the future should focus on three areas: a., address vaccine hesitancy concerns raised in this and other related studies. b. build on influential (enabling) factors on vaccine uptake, and c. take a multi-stakeholder approach to enhance vaccine uptake.
22. This improvement work should target the informational and response mechanisms of behavioural response to risk. The effort to meet the informational needs should strengthen knowledge and understanding of the risks associated with COVID-19 and the COVID-19 vaccine by paying attention to information exchange and understanding acquired through experience and multiple information sources (e.g., social media). An effort to strengthen the response mechanism should focus on enhancing attitude (motivation, preference, and willingness), skills (cognitive flexibility training and access to needed expertise), and providing the required resources (e.g., financial support) to encourage people to take up COVID-19 vaccines.
23. Taking a nuanced approach will require that all stakeholders understand their responsibilities and how they contribute to communities' overall health and wellbeing. Making progress requires willingness and commitment from all stakeholders to resolve this serious problem. Chief amongst these, the need for high-level political commitment from the Scottish Government, Public Health Scotland, Local Authorities, and Scotland's 14 Health Boards, and social unity at the community levels are critical to expanding COVID-19 vaccination coverage within Scotland's African and Caribbean/Black communities.
24. Duty bearers must stop perceiving African, Caribbean, or Black communities as a homogenous ethnic or geographical block. Aggregating data into racial

classifications such as “Black” that encompasses African, Caribbean, and Black citizens obscures the reality of the variations of experience for ethnic groups within these classifications.

25. African, Caribbean, and Black community organisations, academic experts, individual rights holders, and citizens must have the opportunity to adopt a human rights-based approach to policy development to influence policy that directly affects us. This means actively engaging the community in developing and planning the Scottish Governments, Race Equality Framework, and Race Equality Action Plans.
26. There is also the need to invest in science, research, and grass root community groups to better understand lived community experiences, needs, and priorities of African, Caribbean, and Black communities in Scotland. A good example can be observed in the BEMIS Scotland vaccine information fund⁴ administered from March 2021 to March 2022 which supported 26 African, Caribbean, and Black community organisations. These events enabled African, Caribbean and Black groups to host informed, community focused vaccination information events reflective of their needs.
27. Other critical steps include trying to include providing accurate information and addressing misinformation and conspiracies; and expanding micro-targeted vaccination campaigns. In addition, there is the need to address inequity in access to health and care service provision in Scotland, building trust with the community through investing in partnership with various community assets, and addressing poverty and lack of opportunities within the African, Caribbean and Black communities.
28. Furthermore, more can be done to learn lessons from African countries with high vaccine uptake successes (e.g., Mozambique, where around 94% of the population is fully vaccinated).

⁴ <https://bemis.org.uk/wp/wp-content/uploads/2022/08/Vaccine-Information-Fund-Report-May-2022.pdf>

Research problem

In Scotland, COVID-19 vaccine uptake as of 3 May 2022 for those aged 12+ stands at 73.4% (first dose) and 64.4% (second dose) in African populations and 70% (first dose) and 62.1% (second) for the Caribbean and Black populations. For the third, uptake is at 45.8% in the Caribbean and Black populations, and 41.7% in African communities. These compared to 88.6%, 84.5%, and 75.4% for the White ethnic group (Public Health Scotland, 2022). The statistical variations between ethnic demographics also suggest trends of vaccine hesitancy across the different doses. Some people who have taken the first dose of the COVID-19 vaccine are not taking a second, third, or booster dose within the expected time frame (specifically, after nine weeks or more). Vaccine hesitancy, which refers to the delay or refusal to take up vaccination despite availability (Macdonald, 2015), can pose a direct or indirect threat to human health and life. It can also deter or undermine vaccine policy implementation in tackling vaccine-preventable diseases to such an extent that it has become a top global health risk (World Health Organization, 2019). With the ongoing concerted effort to improve uptake of the COVID-19 vaccine and others, such as the flu vaccine, it is essential to understand why people delay or refuse to take up vaccination at the expected stages, and that is the aim of this study.

The proposed research aims to understand vaccine hesitancy and vaccination experience at two critical staging posts in the vaccination programme: between the first and second doses of COVID-19 vaccination and between the second and the booster. It studies COVID-19 vaccine uptake, explicitly focusing on Scotland's African, Caribbean, and Black communities.

Research Questions

The following questions were formulated to understand the variations in vaccine hesitancy:

1. What is the extent of vaccine uptake amongst Scotland's African, Caribbean, and Black communities?
2. What factors are responsible for vaccine hesitancy amongst those who have refused to take up the COVID-19 vaccine?
3. What factors are responsible for hesitancy post-first and post-second COVID-19 doses?
4. Was the vaccine experience at access (i.e., appointment booking) of first, second and third doses able to respond to individuals' needs?

Study methodology

This research used multiple data collection methods, including surveys and one-to-one and focus group interviews, to collect qualitative and quantitative data on vaccine engagement, targeting members of Scotland's African, Caribbean, and Black communities. These involved using an online survey, one-to-one interviews, and focus group interviews between the 1st and 30th April 2022. We received 408 responses to the online survey. Twenty-six (26) respondents participated in one-to-one interviews, and thirty (30) respondents participated in 5 focus group discussions within the same period. Most participants in the one-to-one interviews also completed the online survey.

Method

We used an online survey, one-to-one interviews, and focus group interviews on generating data from Scotland's African and Caribbean/Black communities. The online survey was open between the 1st and 30th of April 2022, with four hundred and eight (408) participants (see Table 1). 26 individuals participated in one-to-one interviews and 30 in five focus group discussions. Some of the participants in the interviews also participated in the online survey. Individuals were invited to participate in the focus group discussions and the one-to-one interviews. This allowed us to understand better the responses obtained via the survey. It must also be noted that Scotland's African and Caribbean communities are highly educated, with around 74% of their population having at least a graduate degree.

Table 1: Respondent socio-demographics (Survey)

Sample	Group	Frequency	Percentage
Gender	Male	186	45.6%
	Female	160	39.2%
	No indication	62	15.2%
Age	18-30	36	8.8%
	31-40	183	44.9%
	41-50	123	30.2%
	51-60	52	12.7%
	61-70	7	1.7%
	70+	3	0.74%
	No indication	4	0.98%
Background	Caribbean	19	4.7%
	African	324	79.4%
	Black	22	5.4%
	Mixed	16	3.9%

	Others	15	3.7%
	No indication	12	2.9%
Income	No income	37	9.1%
	Under £10,000	26	6.4%
	11,000 – 20,000	32	7.8%
	21,000 – 30,000	59	14.5%
	31,000 - £40,000	42	10.3%
	Above £40,000	31	7.6%
	No indication	181	44.3%
	Disability	Disability	48
No disability		360	88.2%
No indication		0	0%
Education	No formal education	0	0%
	Primary School Certificate	4	1%
	Secondary School Certificate	38	9.3%
	College-Educated	65	15.9%
	Graduate Degree	137	33.6%
	Postgraduate Degree (MSc)	138	33.8%
	Postgraduate Degree (PhD)	29	7.1%
	Others	14	3.4%
	No indication	0	0%
Residence status	British citizen	108	26.7%
	Indefinite leave to remain	58	1.2%
	Work permit	115	26.5%
	Student	48	11.8%
	Refugee	19	4.7%
	Asylum seeker	12	2.9%
	Others (e.g., discretionary leave)	46	11.3%
	No indication	2	0.5%

Data and findings

The findings presented reflect key themes around vaccine perception, vaccine status, and influential factors on decision making, vaccine user journey, and experiences across the different doses of the COVID-19 vaccine.

Vaccine Perception and Attitude

1. On a scale of one to five, to what extent do you agree with the following statement — “I want to support the fight against COVID-19”.

We asked participants to select on a scale of one to five to what extent they agreed with the following statement — “I want to support the fight against COVID-19”. Four hundred and two (402) responses were received for this question, with 86.3% of the respondents agreeing or strongly agreeing that they wanted to support the fight against COVID-19, as shown in *Figure 1*. This suggests widespread support from individuals within the community to participate in the battle against COVID-19.

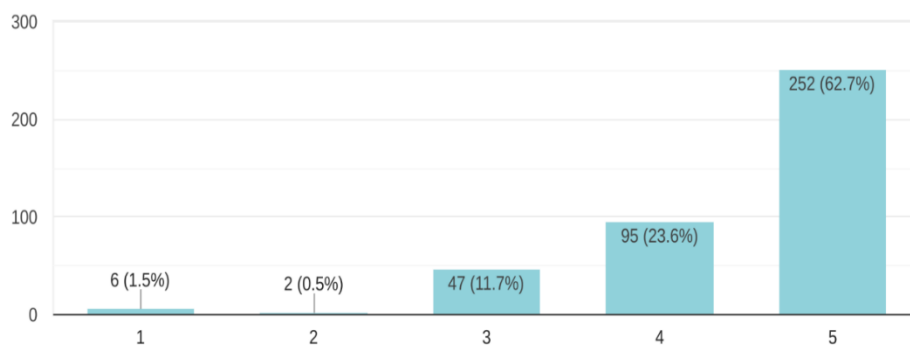


Figure 1: Desire to support the fight against COVID-19 vaccines

In the qualitative data, participants highlighted the importance of following government COVID-19 regulations, sharing the correct information, and staying up to date. Community groups were expected to provide face masks and support for affected families.

“I feel that covid is everybody's responsibility, so as an individual person I need to do my part, I need to make sure that I wear the mask. I need to follow the NHS guidelines, which are forever changing but to be on speed with it... So, it is playing your part, not expecting other people, or not just listening to what other people are saying, but actually doing it.” P15

“In terms of individuals, I think people should stick to social distancing, the recommended measures that have been put in place to avoid the spread, hand hygiene... raising awareness, educating our communities, and keeping up-to-date with any new recommendations that are coming out. We could have events where we start from the basics like what is Covid? How is it transferred? What can you do about it? Something around that and making sure that everyone is aware...” P5

However, the ability of some to fully comply with regulations (including taking up a dose of a COVID-19 vaccine), was suggested by some respondents to be sometimes curtailed by socio-economic reasoning or caring responsibilities, especially by groups who could not afford to be sick. According to one of the respondents:

“For individuals working on zero contract hours, they do not even want to test; they are feeling unwell but would rather not do the test... others have tested positive but have no symptoms so still go to work so they do not lose money. We should all just be honest and keep ourselves safe.” P1.

“... as a single mum, if I have all these [negative] symptoms, who is going to take care of my kids? I test myself every two weeks since they introduced the home test, and my daughters and I have [tested] negative since [the pandemic]. So, I am thinking you can do the things to keep yourself safe and you will not have to take the vaccine” P4

This suggests the need for some intervention for a small group of people who require additional support, as they fall under the category of ‘I cannot afford to be sick, to help people better comply with government regulations. However, vaccination continues to be seen by many of the respondents as a safe option for protecting oneself:

“I have been vaccinated because I feel it’s the safer way to build my antibodies to be able to prevent it” Focus group - FG2.

“It is very much important that we all get vaccinated. Taking a good look at everybody around me, those who actually got vaccinated... everyone can move out freely without being scared of contracting COVID-19.” FG2

2. To what extent do you agree with the following statements about the Health & Safety (H&S) of vaccines and their necessity?

We asked participants multiple-choice questions on the extent to which they agreed with a range of vaccine-related questions subcategorised as vaccine health and safety, COVID-19 vaccine health and safety, the necessity of the COVID-19 vaccine, and participation in vaccine trials. As shown in *Figure 2*, around 74% of the public feel vaccines are safe for public health. However, approximately 26% are either neutral or disagree with that view. When explicitly asked about COVID-19 vaccines, 66% of the public agree they are safe. Around 34% of respondents are either neutral or disagree, a difference of 8% between confidence around general vaccine safety and COVID-19 vaccine safety.

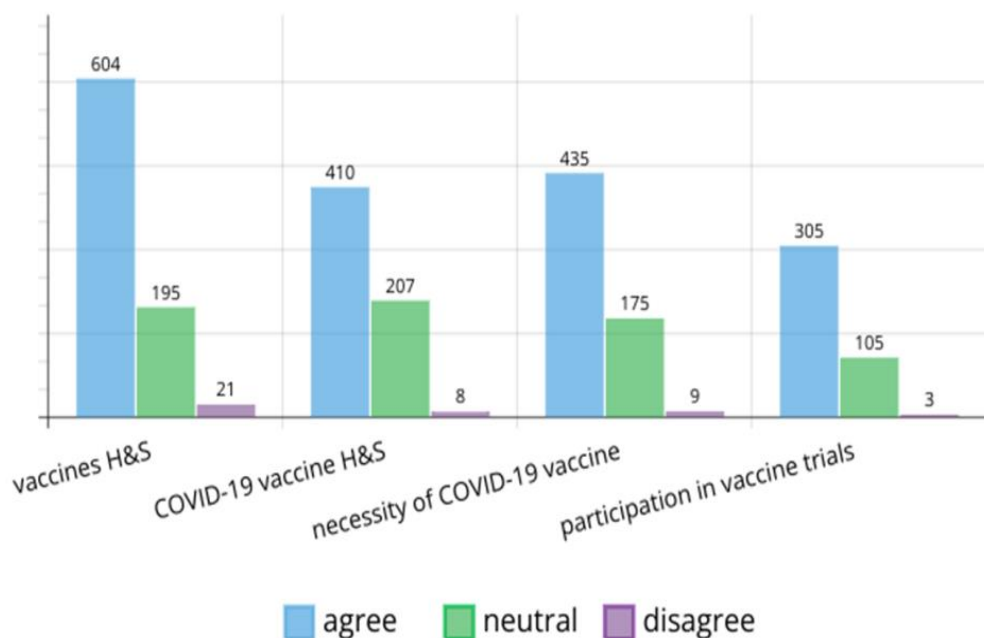


Figure 2: Vaccine and COVID-19 vaccine H&S and necessity

Regarding the necessity of COVID-19 vaccines, respondents feel they are necessary to keep everyone safe from the disease. Again, around 30% of participants were neutral or disagreed. Finally, in terms of participation, approximately 74% agree that it is crucial to participate in the vaccine campaign. However, 26% of respondents were neutral or disagreed.

The qualitative data provided more perspective on the perception of COVID-19 vaccines. Some participants highlighted that COVID-19 vaccines are essential to reducing the spread of the virus, boosting immunity, reducing the effect of infection, including the fatality rate, and protecting vulnerable groups.

“It could help to reduce the impact of COVID-19. I think I have had COVID twice, so the first time I had the infection, I was not

vaccinated, and I almost died, I was very, very sick. And the second time I contracted the virus again, though, then I already had my booster, so I already had the 3 shots, but I still contracted the virus, but I wasn't as sick as the first time.” P11.

However, there are some who do not see the benefit of vaccines:

“I took the first dose. The second dose. Then I still had COVID. Then they are sending me the third dose, the booster. For what? Because I do not see any change. I even probably became worse with the vaccination.” P26

“Vaccine do not have any role to play. I am not a scientist but in school I was taught vaccination is to prevent disease and they introduce the virus into your body. I wondering why they are vaccinating people that are already infected? I still caught C-19 after the first and second vaccination. They sent me to come for the booster, what is the point. What is the importance of the vaccine if I still get COVID-19”? P3.

This suggests that there are misconceptions in some communities about COVID-19 vaccines stopping infection, which can be corrected with future messaging. There is also the issue of social pressure, compounded by the misconceptions described earlier, as suggested by one of the respondents:

“I made up my mind, I will go for the vaccination. Even people around me they were laughing at me that you don't know what you are doing. I said, do not mind this, it is my own business.” P26

“People were laughing at me when I went to take the vaccine. They say it was too early. They didn't trust the vaccine. It's less than a year it was produced. However, the world has advanced, everything goes fast that is why I took the vaccine in the early stages.” P4

Another respondent discouraged his wife from taking the vaccination after she could not care for the family due to the side effects of the first dose. He explains that:

“My wife got the letter, and she went to take the first dose. She went and took the first dose and came back here and could not cook all through the whole day because of vaccine, one injection and was feeling dizzy all day long... a family friend who has been encouraging us that he has taken first dose, he has taken the second dose and booster informed us that he couldn't stand up again because of COVID, he's dying; I was like, if people, me that have not taken, I am not getting it and people who have taken it are

dying of it, my dear wife, I don't think if the second letter for the second dose should come, you will go for it and as if they heard us after a few days they sent a letter. I said no, the last time you took it you couldn't cook for this house for 24 hours, so no need of you going there again, that's how she didn't take and she's fine all since then” P9

Testimonies from close and trusted sources of information and social pressure have a powerful influence on people's decisions about risk.

Vaccination status and reasons for vaccine hesitancy

1. What is your vaccination status?

We asked participants to confirm their vaccination status based on the number of vaccine doses they had received at the time of completing the survey.

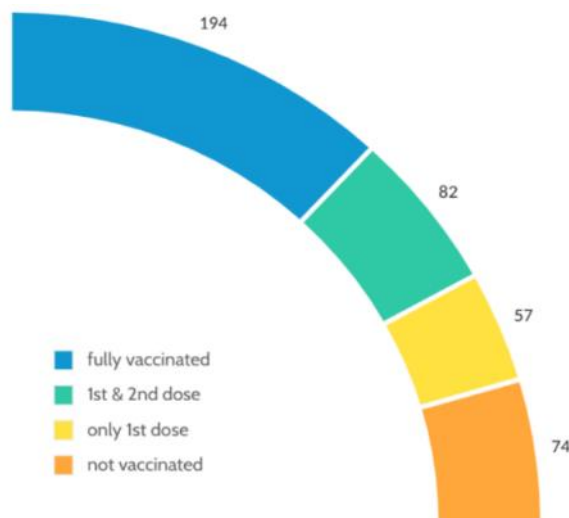


Figure 3: Participants' COVID-19 status

Around 18.2% of the population reported that they had not taken any of the COVID-19 vaccines at all. About 14% had received a first dose and 20.1% a second. However, around 47.7% of the population were fully vaccinated at the time of data collection (see *Figure 3*). ‘Fully vaccinated’ in this study means that they received first, second, and third (booster) doses of COVID-19. This suggests that less than 50% of the population aged 18 years and above are fully vaccinated.

2. If you are not fully vaccinated, please explain your reasons.

We asked participants to explain the reasons why they were not fully vaccinated. One hundred and thirty-seven (137) responses were received for this question.

Many individuals who are not vaccinated attribute this to vaccine scepticism, that is, doubts about the safety and efficacy of the vaccines and the motivation behind them. Other reasons include contracting the virus either at the time of the vaccine appointment or the sense that contracting the virus would have boosted the immune system, leading them to feel they no longer need to take a further dose.

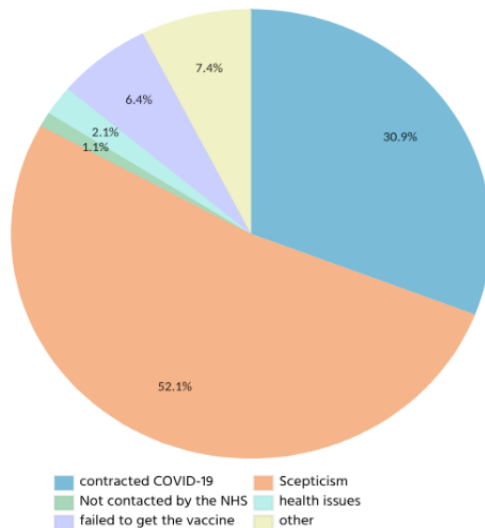


Figure 4: Reasons for vaccine hesitancy within the African, Caribbean, and Black communities in Scotland

Other reasons include health issues or not being contacted by the NHS, often associated with undocumented groups or individuals who move house.

“I changed countries from England to Scotland after my first. It took some time to get on the Scottish system, I was not reminded because of this.” Survey SP57.

3. Was there a delay in taking up the first, second, or third dose of your vaccine on your appointed day and time?

We asked participants if they experienced any delay in taking up COVID-19 vaccines. Around 63.6% of the participants did not experience any delay, mainly because they had already decided to take the vaccine. According to one of the respondents:

“Okay, the number one reason is the nature of my job because it was essential for us as frontliners. Number two, I also had COVID, I was hospitalised, and I can say I'm one of the lucky ones I survived, so that was before the vaccinations were rolled out. So, the moment the vaccinations came, I went for it to protect myself. I lost a lot of colleagues. Then number three, because everybody was just dying

and I felt that whether it is going to kill me or not, people are dying anyway... I just trusted the process and trusted the medicals.” P14.

About nine percent (9%) of participants experienced a delay. Evidence from the qualitative and quantitative data suggests that this relates to missed appointments, indecision about whether to take the vaccine or not and being infected with COVID-19 at the time of the appointment. Again, some participants believed that contracting COVID-19 meant they had developed immunity.

Table 2 below shows some quotations highlighting reasons for hesitancy across doses. Hesitation to take the first dose of the COVID-19 vaccine relates primarily to vaccine confidence and an emphasis on natural immunity or the effectiveness of non-pharmaceutical interventions. Hesitancy to take a second dose relates to seeing the first dose as a civic duty and perceived forced vaccination through work. Therefore, they are unwilling to take a second dose as pressure has eased, and they perceive that COVID-19 infection has boosted their natural immunity. Hesitancy to take the third dose mainly relates to the sense that there are too many COVID-19 vaccine doses and that two is enough. Those who have taken three doses have confidence in the vaccine and trust official safety advice.

Table 2: COVID-19 vaccine hesitancy across doses

Unvaccinated (no dose taken)	One dose	Two doses	Three doses
<ul style="list-style-type: none"> • Lack of vaccine confidence • Relying on natural immunity 	<ul style="list-style-type: none"> • Took the first dose as a civic duty • Perceived forced vaccination related work • Negative experience post-vaccination. 	<ul style="list-style-type: none"> • Worry about too many doses • Immunity from COVID-19 infection. • Emerging variants • People not getting questions about side effects answered. 	<ul style="list-style-type: none"> • Vaccine confidence • Trust in official advice and authorities.
<p>“I have not taken the vaccine and I would not allow my kids to get the vaccine because there is no proven fact of the effect of vaccination, we got people who died even after vaccination. And now the booster yet people are still dying – there is no proven fact. But I still take precautionary measures, I stay away from crowds, always on my mask, I wash my hands and do the same for my children.” P4.</p>	<p>“Taking the first one was just like national service. You just had to do it for the community because once you do it for yourself, you are helping to break the spread, so I saw it as a civic responsibility that I must do. After that and what we started hearing, I was no longer moved to go take the remaining doses”. P8</p>	<p>“I will not take the booster because there are going to end up with 100 boosters. What is the point.” P3.</p>	<p>“I don’t know the impact of this virus, and I want to be responsible for myself, the Government I think thinks they know what they are doing, so why not follow them? I mean, I believe they know what they are doing.” P6.</p>
<p>“I had the virus about the same time when the stronger variants were spreading, and my body responded well</p>	<p>“I was quite reluctant to take the first one in the first place, I took it because they said if we don’t take it we cannot</p>	<p>“I got COVID after my second dose and believe the infection boosted my</p>	<p>“To protect myself because I’ve got underlying issues with myself but mainly to avoid getting sick.</p>

<p>to it and from my understanding my immune system has built antibodies. And knowing that I have built antibodies I don't think I need to take the vaccine. Besides, I have a young child and wife, and taking the vaccine would imply exposing them to the virus, so I really don't think I need to take the vaccine." P18</p>	<p>work, but I've got some people at work that have not taken it. I don't have any regrets that's the truth because I can't see any side effect yet, but I hope there is no side effect to it. But I'm indifferent." P1</p>	<p>immunity. Also, I experienced side effects from the first two doses." P27 "I don't think I need booster as I have contracted COVID-19 twice. I believe my body has built strong immunity against." P351</p>	<p>I've had people that were sick but because they've taken the vaccine, they were not lying down ill." P2</p>
<p>"People who have taken boosters are dying, people who have not taken the first dose are dying, it's not encouraging, so it's better we just live our lives." p10</p>	<p>"I get all my information from social media - WhatsApp, Facebook, and even mainstream media. So based on what I read on Facebook or social media, I decided that the second and booster doses were not for me. And a lot of the information was based on the effects, not knowing the side effects as different people said it will affect reproduction, some people might go blind in the next five years not knowing what to expect- Death also." P9</p>	<p>"I have not taken the booster due to different variants which will all require boosters" P347</p>	<p>"Because one, I live with older people, and two, based on my internship, I was advised to get vaccinated because they kept asking me, "When are you going to have it? When are you going to have it" P7</p>

Vaccine user journey of Scotland’s African, Caribbean, and Black communities

1. How did you get your appointment for each dose of your COVID-19 vaccine?

We asked participants how they received their vaccination appointment. Across all the doses, appointments via letter and online booking were the most common methods of accessing an appointment (see *Figure 5*). Walk-in at vaccination centres was also common in the first phase of vaccination but less so in the second and third stages. Telephone and other methods of appointment (e.g., through GP surgeries or employers) were the least commonly used methods of booking appointments.

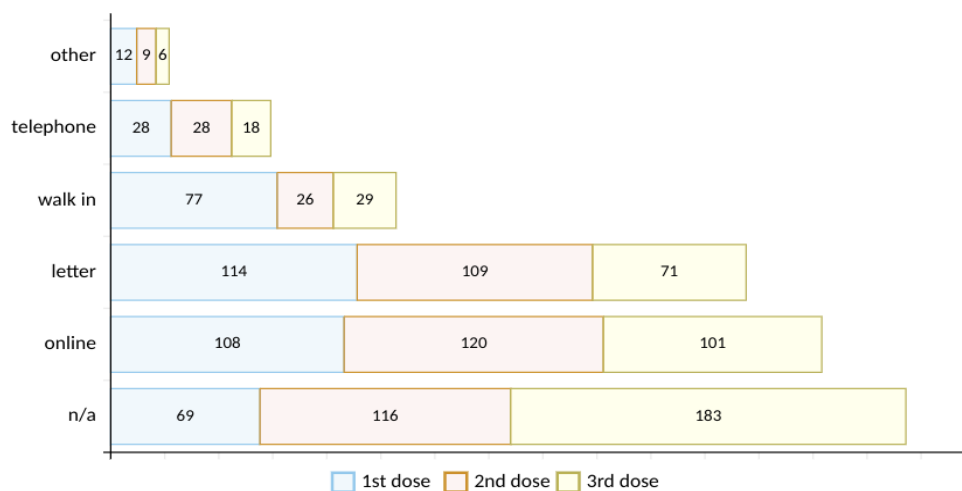


Figure 5: Commonly used COVID-19 methods of vaccine booking appointment

2. How can you best describe the process of securing a COVID-19 vaccination appointment?

We asked participants to describe their experience with the process of securing a COVID-19 vaccination appointment. 62% of our respondents suggested that booking a COVID-19 appointment was easy, 18.1% indicated it was neither easy nor difficult, and 19.4% said it did not apply to them, as shown in *Figure 6*.

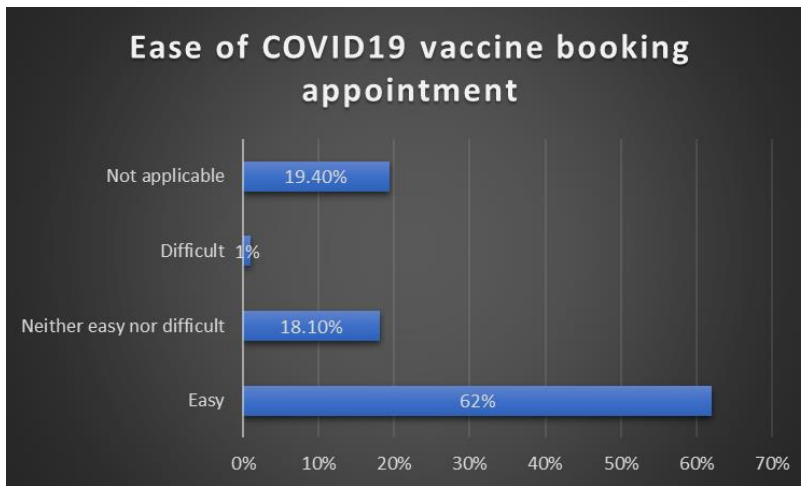


Figure 6: Ease of booking COVID-19 vaccine appointment

Only 1% (4 participants) highlighted that the process was difficult. This result supports findings from our qualitative study, where most respondents agreed that the booking process was easy and the whole process was efficient, run by helpful and professional staff. According to one of the respondents:

“It was straightforward because you receive a letter from the NHS telling you how to do it, but if you cannot do it, there is also a helpline that you can call to book it for you, but by reading the instructions, it was quite straightforward, so I just booked it online.” P6.

“It was very short, convenient, and seamless. For all my appointments, including the ones I got letter and the last dose that I booked personally.” P20

“The vaccination centre was not far from my home. The process was very smooth with friendly staff on the ground providing detailed information on the vaccine and expected side effects. I was asked to stay back for five minutes after the vaccine before leaving.” P26

In a few cases, difficulty booking vaccine appointments are linked to issues such as change of address, inability to secure an appointment, or timing an appointment. Some of the responses are reflected below:

“I changed countries from England to Scotland after my first. It took some time to get on the Scottish system, I was not reminded because of this. Being hesitant it wasn't a top priority” P57

“I'm a frontline health professional, I tried to book my appointments and was told to wait to be contacted by the health service, but they never contacted me, and I tried to call the service, but they wouldn't answer the phone, or it went straight to voicemail, also they never

responded to emails. So, I went to walk-in appointments instead, or else I wouldn't have gotten the vaccine.” P49

“My appointment was 2:00 pm, and then I didn't know how long I was going to spend there and still come back and pick up my daughter from school. If the centre were close by, it could have been good because so many people couldn't attend and ended up cancelling their appointments because it was far away.” P14”

The interviews also indicated that most respondents found the appointment and user journey smooth and efficient.

“For the booster, the call was easy. Oh, it was easy! The lady that picked up the phone was so happy to help because I had to change everything – my address... On the appointed day, when you got to the centre, there were people, but it was going fast; but for the booster, I was in the queue, and there were hundreds of people walking at a slow pace, but eventually, I had to tell them I cannot stand for long – I have fractured ankle. So, they asked me to go sit where the people with disabilities were sitting, and after a while, they would come to take one from where we were sitting. After the booster, I had to sit for a good 5 to 10 minutes; they want you to sit for a while, then I was good to go home.” P1

3. To what extent did the method of COVID-19 vaccine booking appointments influence your vaccine uptake?

We asked participants the extent to which the method for booking appointments for COVID-19 vaccines influenced their uptake, and we received 385 responses. 71% of respondents felt that the method of booking the appointment had no influence; 21.5% thought that it was influential, while 6.8% were neutral in their view (see Figure 7).

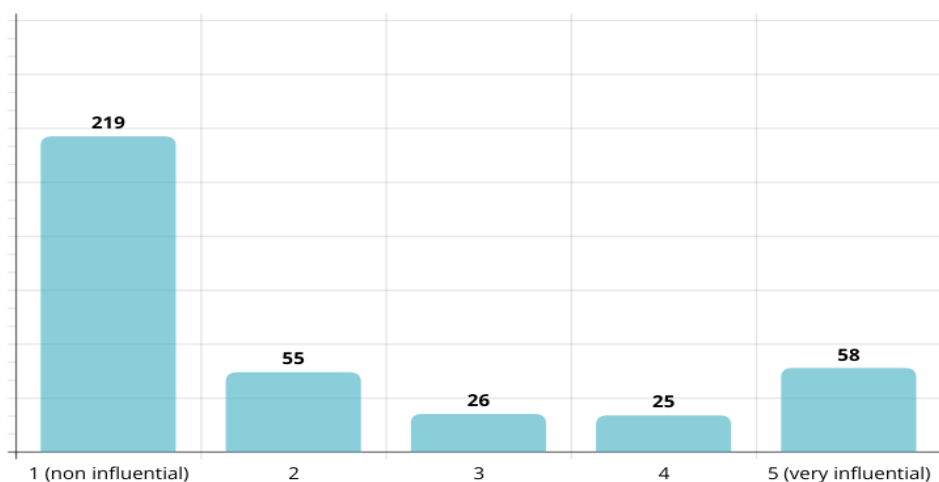


Figure 7: Influence of method of booking an appointment on the decision to take COVID-19 vaccines

4. What are the reasons for your previous answer?

We probed further the reasons behind the responses. The method of booking the COVID-19 vaccine appointment was non-influential for some respondents. This is because they had already decided to take the vaccine, regardless of the booking method, or had COVID-19 on the day of the appointment. Those for whom the appointment method was influential expressed that the (Letter) method provided useful vaccine information about COVID-19 vaccines, appointment date and time, and what to expect during the entire user journey. It also made it easy for them to get an appointment and acted as a constant reminder (e.g., the blue colour of the envelope).

“Each time I see the blue envelope, it reminds me of the day for my vaccine, so yes, it was a motivator and reminder for me.” P4

Key influential factors on vaccine decision in Scotland’s African, Caribbean, and Black communities

1. Which of the following factors influenced your decision to take the first and second dose of the COVID-19 vaccine?

We asked participants the factors that influenced their decision to take the first and second doses of the COVID-19 vaccine. The most influential factor on uptake was confidence in the vaccine and access to vaccine information. Work-related factors, personal (informal) risk assessment, and risk perception were equally influential, as shown in *Figure 8*.

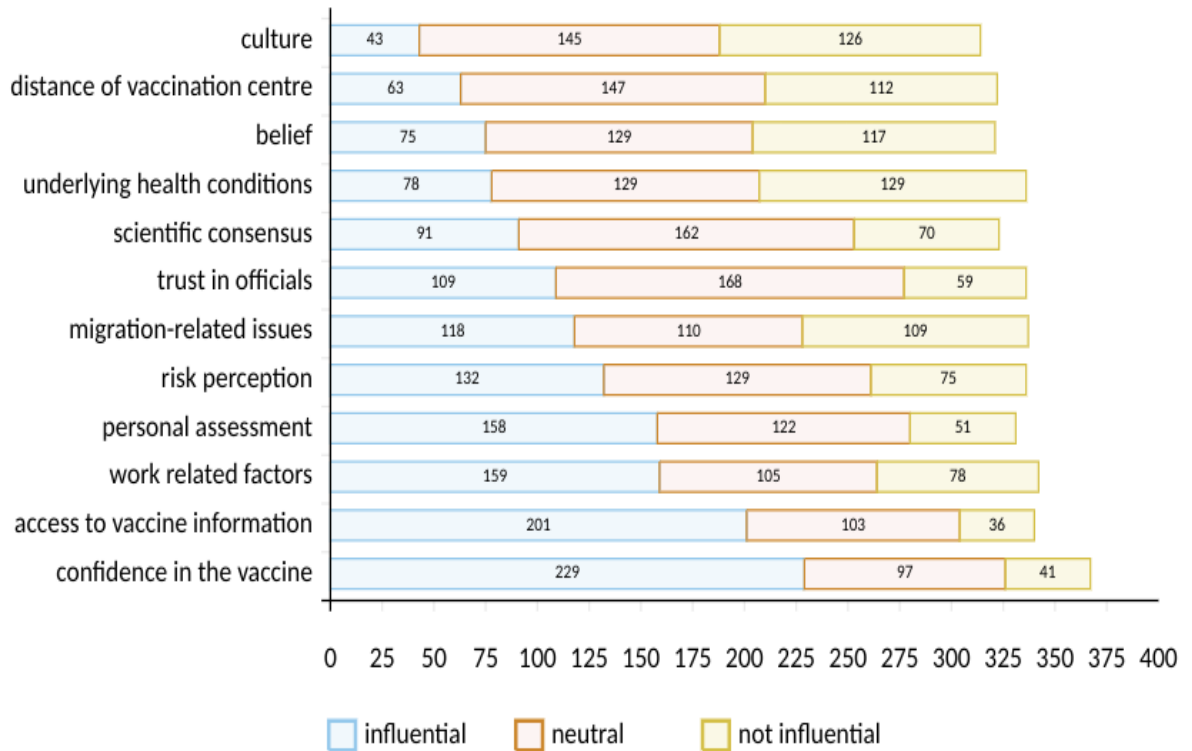


Figure 8: Influential factors on vaccine uptake

In the qualitative data, vaccine confidence and access to vaccine information were also crucial in influencing vaccine uptake. For example:

“Mostly personal convictions and to protect people around us. We acknowledge that there are conspiracy theories going around, but the desire to protect myself is more than the fear mongering being spread by the fake news.” p27

“Actually, I had advice from NHS themselves, they gave a booklet, so when I went for the vaccine, I was a bit hesitant, and I asked questions and they assured me that it was going to be fine, and that basically nothing was going to happen to me. So, I went on to take it.” p7

Experiences of COVID-19 vaccines

1. Please describe your experience of taking the COVID-19 vaccine after your first, second, and/or booster doses. Was this a smooth experience, or did you experience any side effects, etc.?

We asked participants to describe their experience taking the COVID-19 vaccine after the first, second, and booster doses. Around 40% of respondents reported no side effects post-vaccination. Side effects also varied across doses. Those

who experienced side effects pointed to aches in the head and arm (22.4%), feeling unwell and fever (both around 13%), and tiredness (8.4%), as shown in *Figure 9*. These are consistent with the vaccines' stated/expected side effects.

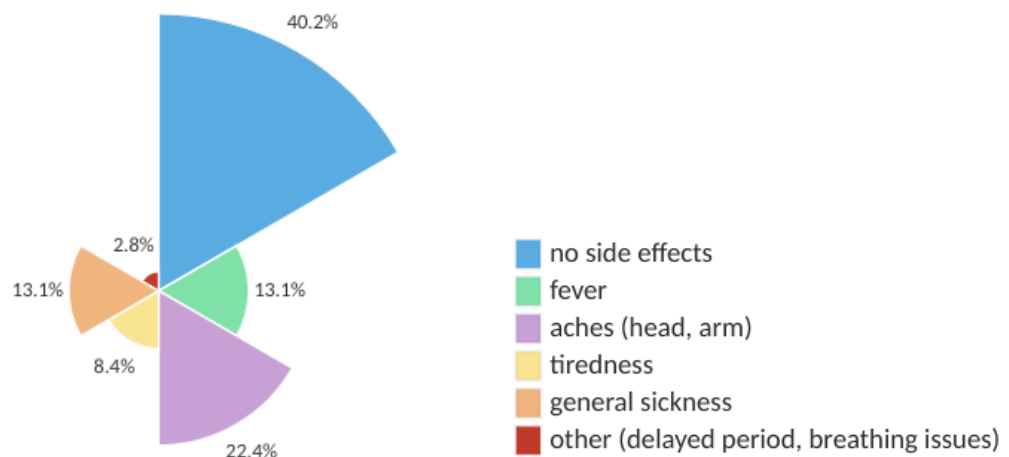


Figure 9: Side effects post-vaccination

According to some of the respondents:

“I think for the first and second doses, there was just a pain in the arm. For the third one, there was absolutely nothing. I was a bit surprised because I was hoping I was going to have some side effects, but there was absolutely nothing. Nothing happened after I had the booster. There was just a pain in the arm where I took the vaccine and then felt a bit weak, but for the booster, nothing happened. I was just living normally.” p7

“The first one, there was nothing. They just told me to go take paracetamol if I had a headache; I took it even if I didn’t have a headache, just in case. The second one I was having mild headache – but the booster I felt like I had the disease. It was like Malaria; I was hot and cold- my head is pounding, and I need to take the paracetamol. That is why people say they’ve given you the disease so you can fight but after two three days I was okay. So, I called the GP, they said it was normal, if you’ve just taken, wait 2-3 days and keep taking water. But after 2-3 days, it went back to normal.” P1

However, around 3% reported other effects such as delayed periods and breathing issues, and it was highlighted that those with side effects did not feel they had received the attention they would have wanted.

“Got so ill and couldn’t breathe. I actually got tested positive for COVID-19” P116

“I experienced side effects. Delayed periods for up to 3 months. A call to GP did not feel helpful/reassuring” P402

In the qualitative study, there is consistency in the variation of information:

“The first one, there was nothing. They just told me to go take paracetamol if I had a headache; I took it even if I didn’t have a headache, just in case. The second one I was having mild headache – but the booster I felt like I had the disease. It was like Malaria; I was hot and cold - my head is pounding, and I need to take the paracetamol. That is why people say they’ve given you the disease so you can fight but after two three days I was okay. So I called the GP, they said it was normal, if you’ve just taken, wait 2-3 days and keep taking water. But after 2-3 days, it went back to normal.” P1

2. Are you experiencing any challenges with any of the variables below which may impact how you access or understand knowledge, information, and the science of COVID-19?

We asked participants if they were experiencing any challenges impacting how they access and understand knowledge, information, and the scientific knowledge available on COVID-19. Most participants have access to the internet and TV/radio sources. However, a greater problem was highlighted regarding computer and information search skills to help them discern between good and incorrect information sources (see Figure 10).

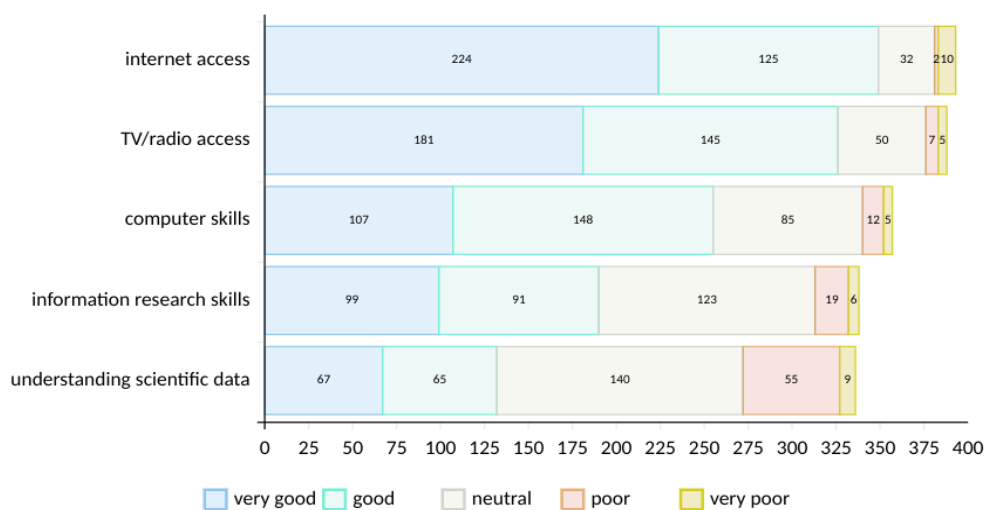


Figure 10: Message search and decoding

Understanding scientific information was an area where participants self-reported low skills, suggesting the need for intervention to develop information search and data analytics skills through training programmes.

3. What type of information do you seek or consider important when deciding to take or not take a COVID-19 vaccine?

Finally, we asked participants the type of information they seek or consider essential when deciding to take a COVID-19 vaccine or not.

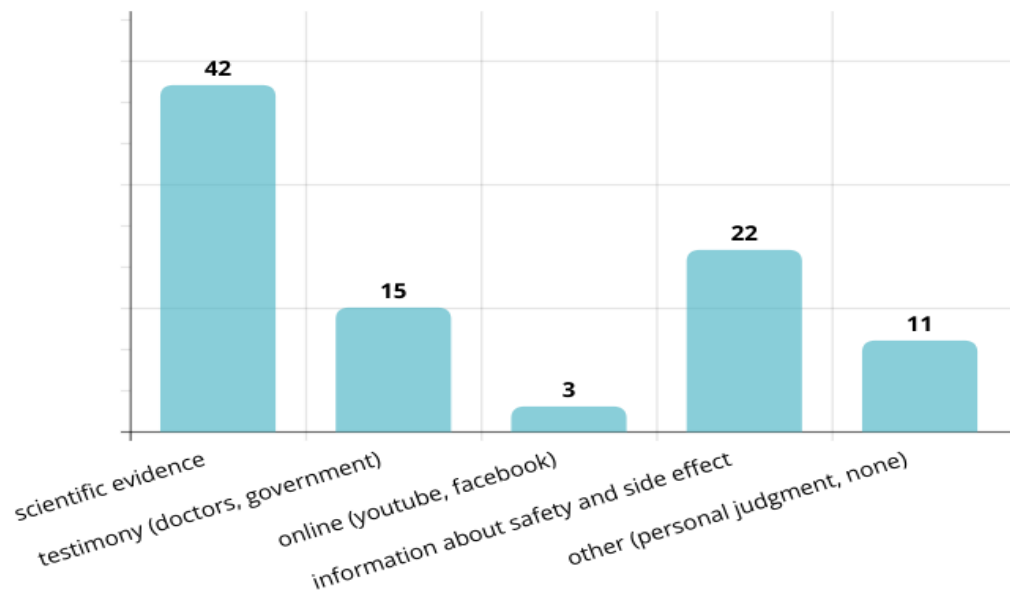


Figure 11: Important information relied upon to make the COVID-19 vaccine decision

Around 45% of participants point to scientific evidence, followed by information on the vaccine's safety, side effects, and long-term effects (23.7%) and testimonies from doctors and the Government (16%), as depicted in *Figure 11*. However, very importantly, people wanted information they could relate to. According to some responses:

“Understanding long term effects and unknowns around the possible effects from a gendered, age, and race perspective” P209

“...the drive for me and the research was based on other people’s experiences and just seeing how people are taking the booster from the news, those were what made me decide to go ahead and take the booster.” P8

“I think that people will listen more to someone or people they can relate to and identify with rather than someone they cannot relate to on TV or something like that.” P5.

The 3C model of vaccine hesitancy

The 3C model of vaccine hesitancy (Macdonald 2015) – Confidence, Complacency, and Convenience – highlights barriers and enablers to vaccine uptake. Our analysis identifies barriers and solutions to accessing COVID-19 vaccines within Scotland's African and Caribbean/Black communities. Confidence: Scotland's African, Caribbean, and Black communities are hesitant due to low confidence in the safety of COVID-19 vaccines and their effectiveness in reducing both the likelihood of infection and the impact of the virus. Complacency: in our data collection, some members of Scotland's African, Caribbean, and Black communities perceive the risk of COVID-19 to be low and do not see COVID-19 vaccines as necessary for overcoming it. This group of people instead emphasises the benefit of non-pharmaceutical interventions. Convenience: some members of Scotland's African, Caribbean, and Black communities are hesitant due to logistical or economic barriers, such as their caring responsibilities or the feeling that they cannot afford to be sick if the vaccine has side effects. See *Table 3*.

Table 3: Barriers and solutions to accessing COVID-19 vaccines

Confidence	Complacency	Convenient
Perceived vaccine safety, effectiveness, trust in science, authority, and systems, and the motivation behind vaccination?	the perceived risk of contracting the virus and negatively impacting on self and loved ones?	Have access and can afford to get vaccinated? Supportive cultural context, time and place appropriate, and understanding of the purpose of vaccination.
Barriers		
<p>“Aside from my beliefs, my personal belief, my faith belief, is that you know in history, vaccine rollout is not that fast and quick it takes a while for vaccines to roll out... You test the vaccine on pregnant people. You test the vaccine, and over the years, you can conclude that it is safe, but a vaccine that has not gone through those stages to me, no matter how clinically it sounds, it's not safe.” P12</p>	<p>“The Government is trying to protect the population. I trust them. I took the first and second dose and still got c-19. Now they are sending me the third one. For what? And there are so many variants. I don't want my grandchildren to be vaccinated because I didn't see any benefit of taking the vaccine.” P3</p>	<p>“My appointment was 2:00 pm, and then I didn't know how long I was going to spend there and still come back and pick up my daughter from school. If the centre was close by, it could have been good because so many people couldn't attend and ended up cancelling their appointments because it was far away.” P14</p>
<p>“Why do we have the first, second, and booster? Does it mean the first isn't working? And I've read that we will be having these boosters every six months. Is it true? We've got people that are not vaccinated like me and have not gotten COVID; we have people that have gotten the vaccine and still, they die – how can you explain that? ... how safe is it for pregnant women?” P4</p>	<p>“I don't think covid19 should be hyped the way it's being hyped. I do know that in the UK or a lot of European cities during winter, they'll be asked to come and take the flu jab to prevent you from the effect of flu, that's the way I see covid, and I keep hearing it has come to stay. So why are we killing ourselves over it?” P11</p>	<p>“I still see people that take it they still have the virus... they say if you take it, it will reduce. It won't stop you from having it. The whole thing is confusing, honestly. I'm telling you from my heart, it's confusing. I don't know who to believe again. [Also], I think propaganda in the west is too much.” P11</p>
<p>“Some people are saying that the producers had a clause that they should not be held liable if anything happens and that is part of the reason people are afraid to take the vaccine, so that is</p>	<p>“I had the virus about the same time when the stronger variants were spreading, and my body responded well to it, and from my understanding, my immune system has built antibodies. And</p>	<p>“The shocking thing about this covid is that there are so many conspiracy theories surrounding Covid-19; some say it is a way to reduce the population of the world, some say that the covid</p>

<p>what I would ask and if possible, they should take the vaccine in my presence to reassure me that there won't be any adverse side effects and that they trust their product. If they really trust their product, then they should take it." P8</p> <p>"[I] just don't trust the whole system." Survey 170</p>	<p>knowing that I have built antibodies, I don't think I need to take the vaccine. Besides, I have a young child and wife, and taking the vaccine would imply exposing them to the virus, so I really don't think I need to take the vaccine." P18</p>	<p>itself, should I say was manufactured in the lab as a biological weapon...people are afraid to take it, even those you feel are learned enough and should lead by example, are afraid to take it. For instance, you will not see our leaders in the society taking it publicly." P8</p>
<p>Enablers</p>		
<p>"A good marketing should be result-oriented, so we should see people buying into the vaccine, not out of fear or being compelled, but because they know it works. A lot of people are taking the vaccine because they know they will lose their job or cannot travel and so all these underlying factors coerce people to take the vaccine" p12</p>	<p>"The number one reason is the nature of my job because it was essential for us as frontliners. Number two, I also had Covid, I was hospitalised...So, the moment the vaccinations came, I went for it to protect myself. I lost a lot of colleagues. Then number three, because everybody was just dying and I felt that whether it is going to kill me or not, people are dying anyway." P15</p>	<p>"I'm hypertensive, and I take medication for it, so I needed to know. If I take the vaccine, would it affect me, and I asked questions right there at the point where I was supposed to take the vaccine. They said, no it is normal, and I did." P13</p>
<p>"I trust in the words of the professional." Survey P13</p>	<p>"My family contracted the virus recently and the effect seems mild because we are fully vaccinated." P24</p>	<p>"It provides immunity (although not completely) from spreading the virus. Symptoms would also be mild when vaccinated." P27</p>
<p>"It is more of a personal decision for me...It is not about the government official announcing the directives, it is about the individuals that are dying and the public health. For my children, when they are eligible to take the vaccine, they are definitely going for it." P20</p>	<p>"I live with older people and two, based on my internship, I was advised to get vaccinated because they kept asking me "When are you going to have it, when are you going to have it" because we deal with people, so these are some of the key factors that propelled me to go and take the vaccine." P7</p>	<p>"The vaccination centre was not far from my home. The process was very smooth with friendly staff on ground providing detailed information on the vaccine and expected side effects. I was asked to stay back for five minutes after the vaccine before leaving." P26</p>

Regression analysis

We conducted a regression analysis to see the relationship between socio-demographic characteristics (age, gender, religion, education, and residency status) and vaccine uptake. Below we report the statistically significant results. Our analysis reveals that vaccine uptake was influenced by age, religion, and visa status. Younger groups, those who identify their religion as Islam, and those with work permit visas are more likely not to have taken any dose of a COVID-19 vaccine. Most respondents over 50 years of age are fully vaccinated.

Age and vaccine hesitancy across doses

A chi-square test for independence with $\alpha = .05$ was used to assess whether the age range was related to hesitancy across doses. The older are more likely to be fully vaccinated and have taken at least one dose of a COVID-19 vaccine than the younger groups (see *Figure 12*).

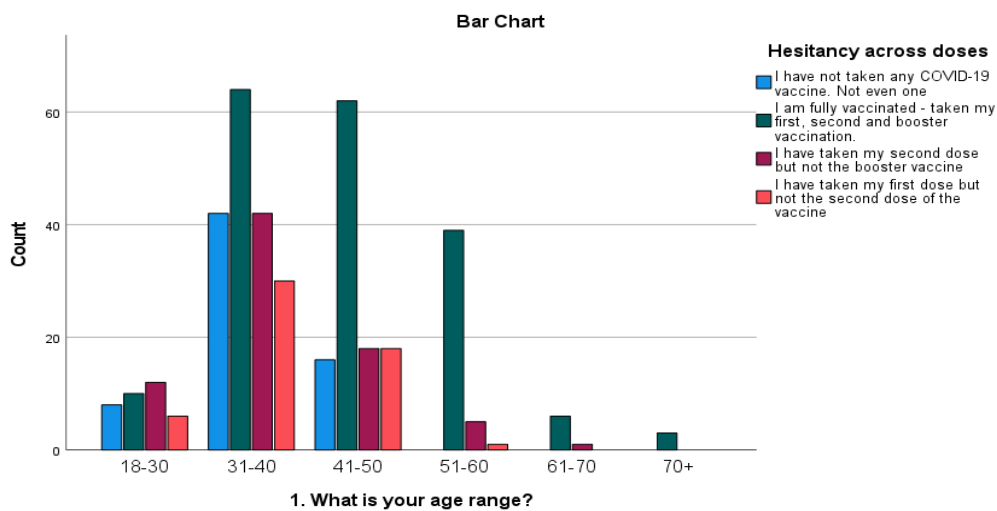


Figure 12: Age and vaccine hesitancy across doses

Religion and hesitancy across doses

A chi-square test for independence with $\alpha = .05$ was used to assess whether religion was related to hesitancy across doses. The results show that those who identify their religion as Islam are 12% more likely not to have taken any COVID-19 vaccine to date, as shown in *Figure 13*.

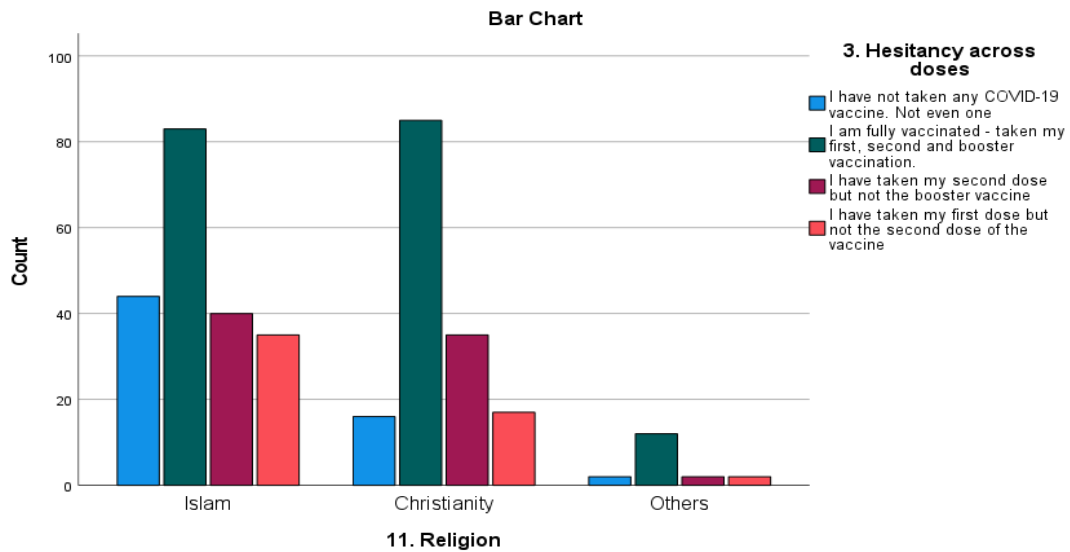


Figure 13: Religion and Hesitancy across doses

Visa status and hesitancy across doses

A chi-square test for independence with $\alpha = .05$ was used to assess whether visa status was related to a delay in vaccine uptake. Those on work permit visas are more likely not to have taken any dose of a COVID-19 vaccine (see *Figure 14*).

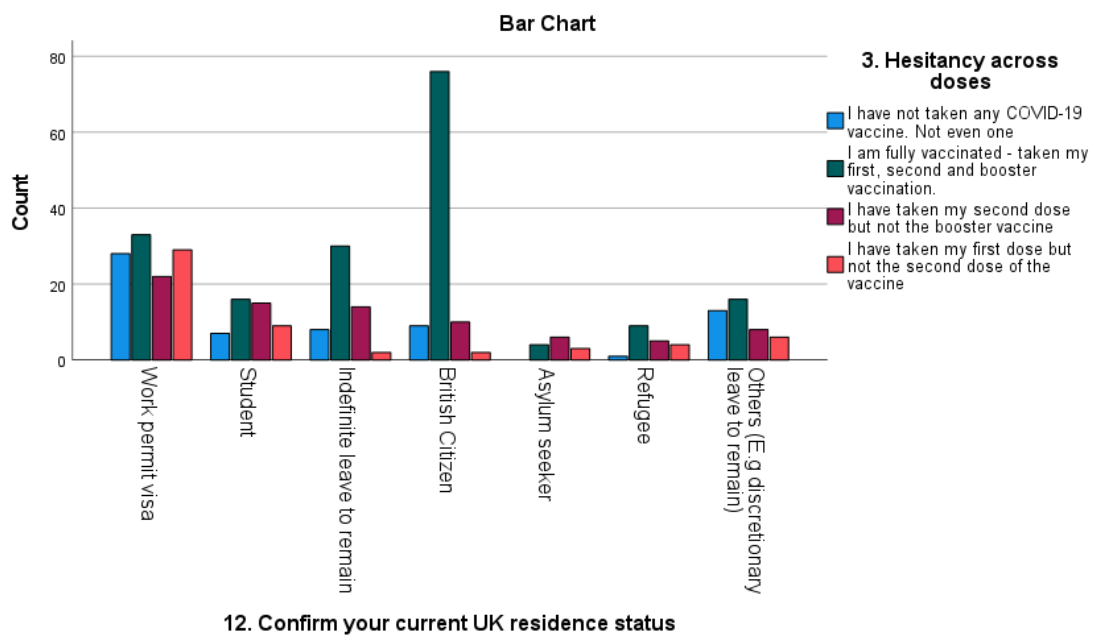


Figure 14: Visa status and hesitancy across doses

Recommendations

We recommend that future COVID-19 vaccine campaigns focus on three things: a., address concerns about hesitancy. b. build on influential (enabling) factors on vaccine uptake, and c. take a multi-stakeholder approach to enhance vaccine uptake. Improving access to COVID-19 vaccines should target the informational and response mechanisms that shape behavioural responses to risk. That should strengthen knowledge and understanding of the risk of COVID-19 and the COVID-19 vaccine by paying attention to learning and understanding acquired through experience and multiple information sources. An effort to strengthen the response mechanism should focus on strengthening the desired attitude (motivation, preference, and willingness), skills (cognitive flexibility and expertise), and providing the required resources (economic, logistics, and policy regulations) that influence the decision people make to take up COVID-19 vaccines. Taking a nuanced approach will require that all stakeholders understand their responsibilities and how they contribute to communities' overall health and wellbeing. There is a need for willingness and commitment from all stakeholders to resolve health inequalities in vaccine uptake. This multi-dimensional approach recognises the significance of the power, expertise, skills, and resources needed to resolve complex societal challenges such as vaccine uptake. It is in line with the principles of disaster risk management.

1. Policy and community commitment

- **High-level political commitment** from the Scottish Government, Public Health Scotland, Local Authorities, and Scotland's 14 Health Boards and social unity at the community **levels** to rapidly expand the current vaccination coverage specifically targeting Scotland's African and Caribbean communities. This will involve providing the needed resources and expertise to implement the necessary improvement in the vaccination programme and enhance access to health inequity.
- **Inclusion and diversity in policy making:** African, Caribbean, and Black community organisations, academic experts, and individual rights holders and citizens must have the opportunity, via adopting a human rights-based approach to policy development, to influence policy (such as the Scottish Governments Race Equality Framework and Race Equality Action Plans) that directly affects us.
- **Recognise the heterogeneity of the Black, African and Caribbean communities:** Duty bearers must stop perceiving African, Caribbean, or Black communities as a homogenous ethnic or geographical block. Aggregation of data into racial classifications such as "Black" that

encompasses African, Caribbean, and Black citizens obscures the reality of the variations of experience for ethnic groups within these classifications. Ethnicity data must be disaggregated as the default policy position. Future vaccination campaigns and other public health provisions must be able to disaggregate African, Caribbean, and Black ethnic groups in a similar way that the White racial classification is disaggregated into Scottish, British, Irish, Polish etc.

2. Providing accurate information and addressing misinformation and conspiracies

- **Information and education:** There is a need to continue to raise awareness within local communities about the benefits of vaccines to health and wellbeing. Even more essential is the need to highlight the social benefit of taking vaccines and the impact that will have on others in the broader population, especially the most vulnerable.
- **Provide relevant information to the African and Caribbean communities:** Rather than relying on blanket information on COVID-19 vaccines. There is the need to provide more specific and community-relevant information on issues that affect African and Caribbean people, especially around underlying conditions and the implication that COVID-19 vaccines may have for them.
- **Address concerns and questions raised by members of the community post-vaccination:** Efforts should be made to communicate the scientifically known side effects and help people articulate their post-vaccination experiences, especially where the side effects are not common or scientifically proven, highlighting uncertainties where they exist, and potential ways to manage them.
- **Dispel myths and conspiracies linked to religious and cultural beliefs:** Authorities should partner with community assets (e.g., places of worship and community organisations) to dispel myths or conspiracies that reside within local communities, especially those related to cultural and religious beliefs. There is also a misconception about the relationship between PHS (Public Health Scotland) and immigration that needs to be dispelled too.
- **Flag misinformation:** It is too much to leave the responsibility of discerning between credible and incredible sources of information to the individual alone. Therefore, policymakers should continue to work with social media platforms can do more to flag misinformation that is consistent with an open society, that gives people alternative ways of

discerning disinformation and not leaving it for individuals themselves to discern the credible from non-credible sources of information. Working with public health officials, this flagged information should be intervened with credible information and explanations.

- **Encourage training that builds intellectual virtue of the population:** There is the need to encourage training in cognitive flexibility to enhance the ability of individuals to discern credible from non-credible information sources. For example, schools should do more to embed intellectual virtue (e.g., cognitive flexibility and information search training) within the National School Curriculum. These are crucial skills in social media and the post-truth era that will help individuals discern credible from non-credible sources of information and evidence. It will also help them better interrogate testimonials in their search for the truth.

3. Expand micro-targeted vaccination campaign

- **Expand flexible and micro-targeted vaccination campaigns** at specific groups with different campaigns, e.g., door to door, community events, schools, or places of worship, etc.
- **Recruit and train community vaccine ambassadors** to help disseminate critical health and safety information to communities and help dispel myths and conspiracies, especially those related to cultural and religious beliefs. Community vaccine ambassadors are often trusted members of the communities as they share similar ideas and cultures with the communities. When recruitment within target communities becomes challenging, you should consider snowballing techniques. Snowballing involves starting with a few people and then recruiting more based on recommendations of needed expertise.
- **Open door policy for late uptake:** The door to vaccination should remain available to all those who are yet to decide to take the COVID-19 vaccine or not. When they do, they should be treated respectfully and not labelled as hesitant community members.
- **Integrate vaccination into the normal standard NHS operations:** In the long term, COVID-19 vaccination should be integrated into the normal standard of NHS operations.

4. Address inequity in access to health and care service provision in Scotland

- **Provide an emergency fund to address socio-economic reasons for vaccine hesitancy:** There is a need for the Government to address socio-economic disadvantages linked to COVID-19 vaccine hesitancy, especially for those below the poverty line who cannot afford to be sick (or off work unpaid). Support should also be given to single parents or carers who fear falling ill from taking the vaccine.
- **Address disadvantage, racism, and discrimination:** There is the need for those in a position of power to acknowledge and address the everyday microaggressions of discrimination, disadvantage, and racism faced by the African and Caribbean communities to build community trust and confidence in health and social care provision. Many of these underlying challenges have already been articulated to the Scottish Government by the expert reference group on COVID-19 and ethnicity. Everyday microaggressions of discrimination, disadvantage, and racism contribute to inequity to access health and care service provision in Scotland.
- **Invest and provide scholarships to train more Black professionals in health and care service provision (e.g., doctors and nurses)** to diversify the workplace and improve structural inequalities in NHS staffing which has implications for communication and community confidence in the health system.

5. Build trust with the community

- **Build partnership with various community assets:** Policy, health, and social care practitioners should create database profiling community assets within Scotland's African and Caribbean communities. These include places of the workshop, local shops, service provision (e.g., Radio station), and grassroots community organisations and groups that carry out high-impact community-level work and are known and trusted by the communities. This approach takes advantage of existing resources within the community while relying on sources that community members know and trust.
- **Profile and invest in grass root community groups:** There is the need to invest in grass-root led community groups to build their capacity and capabilities for the good and high-impact work they do in the community.

6. Address poverty:

- Many of the inequalities exposed by COVID-19 and COVID19 vaccine uptake are linked to underlying issues of poverty and lack of opportunities and business investment in the African and Caribbean communities. Data from this study suggest that Scotland's African, Caribbean, and Black communities are highly literate. Around 90% of the ACB population have at least a college education, and around 75% have a graduate degree. Our data also showed that over 7% of the population have a Ph.D. degree. Despite these high-level educational levels within these communities, this is not translating into economic prosperity for members of the community (which is one of the key dimensions of educational success), with around 25% of the population earning below £10,000 per annum or earning no income at all. We recommend that there is a need to investigate these further to discern contributing factors to the phenomena and what Governments, organisations, groups, and individuals can do to help members of African, Caribbean, and Black communities translate their education into wealth or value.

7. Future research

- **Further investigation** is required to understand whether the issues around **barriers to accessing COVID-19 vaccines** within the African, Caribbean, and Black communities are isolated or common in all health areas.
- **Learn lessons from other African countries where success has been recorded:** More research is needed to learn lessons from African countries that have recorded high-level success amongst their adult population. For example, in Mozambique, around 94% of the population is fully vaccinated.

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