Factors associated with attendee adherence to COVID-19 guidance during the 2021 DCMS Events Research Programme Phase 1 (Final report)

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Contents

1. Executive summary

As part of the DCMS Events Research Programme 2021, we surveyed and interviewed attendees of the FA Cup Semi-Final (18th April), Carabao Cup Final (25th April), the FA Cup Final (15th May), the Snooker World Championship (17th April – 3rd May) and Sefton Park music event (2nd May) to examine attendee experiences of the events, perceptions of the COVID-19 guidance, and factors most associated with self-reported adherence. This work is intended to complement observational data from Movement Strategies on adherence to COVID-19 measures at the same events by providing data on underlying processes. The key findings are:

- Self-reported adherence to physical distancing guidance was lower in open-air events and events that were 'outdoor' but in a tent compared to indoor events. This is, in part, because open-air and 'outdoor' events were associated with lower perceived risk of COVID-19 transmission.
- Adherence to physical distancing was lower at events with higher occupancies. Data from some participants suggests this was partially due to more difficulty adhering in higher densities (e.g., in barriers while queuing). However, data from the FA Cup Final suggests reduced adherence to distancing at higher occupancy events may also be due to greater numbers of regular attendees being present (i.e., season-ticket holders) who were more comfortable in close proximity with others compared to those who would did not regularly attend the events.
- There is good corroboration between the observed data collected by Movement Strategies and the self-report data provided by attendees. The areas where the observational data showed higher levels of non-adherence are the same areas where attendees either reported seeing non-adherence or having greater difficulty adhering.
- The self-report data suggests that observed non-adherence such as lack of physical distancing and mask wearing were associated with either lack of ability to adhere (e.g., many people egressing at once) or lack of clarity about expected behaviour (e.g., difficulty hearing live announcements).
- The variables consistently associated with adherence across all events were: (1) trust that the organisers had sufficiently prepared to keep attendees safe; (2) seeing other attendees adhere to the measures; (3) and motivation to keep others safe. There were different motivations expressed for keeping others safe: because attendees felt part of a group, wanted events to reopen, or wanted to support the Events Research Programme.

- Seeing other attendees adhere was associated with increased self-reported adherence but seeing non-adherence from other attendees was associated with decreased self-reported adherence.
- Pre-event communications were perceived as most effective for understanding the COVID-19 guidance and allowed participants to plan safe behaviour at events. Pre-event communications were rated as most effective compared to information available online, information from stewards, announcements during events, and information from other attendees. Announcements during the events and information from other attendees were rated as the least effective methods of obtaining information.
- Limitations to the study include low response rates, limited validity due to a partially unrepresentative sample of attendees who would not ordinarily attend events[1], and limited generalizability due to unique motivations for behaviour such as wanting to support events reopening. Key differences between frequent attendees and those who would not ordinarily attend are foregrounded throughout the report.

2. Methodology

In line with the SAGE EMG science framework for opening up group events[2], we address the priority research question '*which characteristics of events and venues and behaviours likely contribute most to transmission?'*, with a focus on examining behavioural processes via self-report measures. Specifically, we examine attendee experience, self-reported adherence, perceptions of the COVID-19 guidance, and barriers to adherence. Our key objectives were to:

1. Analyse spectator experiences across indoor and outdoor events and across spectator numbers
2. Compare self-report data on spectator adherence to COVID-19 guidance with observed data collected by Movement Strategies to suggest possible reasons for non-adherence
3. Identify risk factors associated with (non)adherence to COVID-19 guidance at events
4. Gain data to inform communication intervention strategies at later events phases to increase spectator adherence to COVID-19 guidance

We collected survey data from a total of 2,502 attendees across the FA Cup Semi-Final (277 participants, 9.79% response rate from 2,828 attendees), Carabao Cup Final (511 participants, 6.64% response rate from 7,700 attendees) and FA Cup Final (1,329 participants, 7.10% response rate from 18,720 attendees) at Wembley stadium, the Snooker World Championship (53 participants, response rate and number of attendees unknown) at the Crucible Theatre, and the Sefton Park music event (332 participants, 5.44% response rate from 6,101 attendees) in Liverpool as part of the DCMS Events Research Programme 2021. We also interviewed 37

[1] 44.5% of attendees were season-ticket holders, 7.7% were regular attendees (e.g., fans of the sport/musicians), 40% were neither a season-ticket holder nor regular attendee, and 7.7% did not select a response.
[2]https://www.gov.uk/government/publications/emg-and-dcms-science-framework-for-opening-up-group-events-16-march-2021

participants (5 participants from the FA Cup Semi-Final, 7 participants from the Carabao Cup Final, 12 participants from the FA Cup Final, 8 participants from the Snooker World Championship, and 5 participants from Sefton Park) all of whom had participated in the survey. Of the surveyed participants, 44.4% were season-ticket holders, 7.8% were regular attendees, 39.6% were neither, and 8.6% did not respond to this question. We provide effect sizes and power analyses throughout this report, but it is important to note that the response rates are low and some data is from a potentially biased sample of attendees who would not ordinarily attend the events (see section 8.3 for further discussion about sample generalisability).

We excluded participants who either did not indicate the event they attended, failed the attention check, did not complete the survey, or were outliers. We also excluded survey respondents who responded more than 10 days after the event (36 for the FA Cup Final and 22 for the Carabao Cup Final) since perceived safety in the crowd was significantly higher and perceived risk of COVID-19 spread was significantly lower for those who participated more than 10 days after the event, suggesting attendees evaluated the events as safer the longer they participated post-event. An exception to this was the Sefton Park music event where there were no statistically significant differences in answers given by respondents who responded before (N = 283) and after (N = 49) the 10-day threshold, so we did not exclude those who participated over 10 days after the event. We endeavoured to interview participants within 10 days of the event attended, but this was not always possible due to participant availability. Where interviews took place more than 10 days after the event, we recorded the number of days since the event and compared the themes with data from attendees to assess any impact on their perspectives. All interviews were included since no impact on the themes was observed.

Full ethical approval was obtained by the University of Edinburgh School of Philosophy, Psychology and Language Sciences Research Ethics Committee for both the online survey (reference number 397-1920/6 approved 16th April 2021) and the interviews (reference number 251-2021/3 approved 9th April 2021). All participants provided informed consent prior to participating in the online surveys and interviews. Participants had to be over the age of 18 to participate. All survey data was anonymised, and interviews were video recorded on Zoom or Teams before being transformed into anonymised transcripts for analysis at which point the videos were deleted.

3. Demographic information

Here we summarise the demographic information from the surveys and interviews, focusing on gender, age, employment status, and vaccination status of the participants. Attendees of the Events Research Programme included local residents and healthcare workers invited to take part in the programme, as well as people who would typically attend the events. The invited local residents and healthcare workers are not necessarily representative of people who would attend future events, so we also report whether or not our participants were

frequent attendees of the event (for further discussion about limitations and generalisability see Section 8.3).

Table 1. Summary of demographic information for survey data from FA Cup Semi-Final, Carabao Cup, FA Cup Final, Snooker World Championship, and Sefton Park.

Surveys	**FA Cup Semi-Final** *(N = 277)*	**Carabao Cup Final** *(N = 511)*	**FA Cup Final** (*N = 1329)*	**Snooker World Championship** *(N = 53)*	**Sefton Park** (*N* = 332)
	%	**%**	**%**	**%**	**%**
Gender					
Male	56.32	67.91	75.55	71.7	37.95
Female	43.67	32.09	24.05	28.3	61.14
Non-binary	0	0	0.15	0	0.30
Transgender male	0	0	0.23	0	0
Prefer not to say	0	0	0	0	0.60
Age range					
18-24	10.11	6.65	3.31	7.55	44.88
25-34	31.05	18.59	11.66	16.98	37.65
35-44	19.13	19.77	12.34	22.64	6.63
45-54	20.22	18.40	18.59	18.87	7.83
55-64	16.25	26.42	36.19	32.08	3.01
65-74	3.25	9.78	16.40	1.89	0
75-84	0	0.39	1.50	0	0
Prefer not to say	0	0	0	0	0
Employment status					
Full-time	80.14	73.78	64.26	67.92	58.43
Part-time	9.39	6.65	8.50	9.43	5.12
Unemployed looking for work	0.72	1.17	0.90	0	1.20

	FA Cup Semi-Final	Carabao Cup Final	FA Cup Final	Snooker World Championship	Sefton Park
Employment status					
Unemployed not looking for work	0.36	0.59	0.60	0	0
Retired	3.61	10.76	22.72	15.09	0.60
Student	3.61	3.52	1.43	3.77	33.13
Disabled	0.36	0.98	0.45	0	0
Furloughed	1.44	0.98	0.23	3.77	1.20
Full-time carer	0	0.19	0.15	0	0
Prefer not to say	0.36	1.37	0.75	0	0.30
Vaccine status					
Vaccinated	69.68	76.91	89.69	66.04	43.07
Not vaccinated	30.32	23.09	10.31	33.96	56.93
Had COVID-19 previously	22.74	17.22	14.07	11.32	29.82
Region					
England	100	99.02	99.25	98.11	99.1
Scotland	0	0.39	0.23	0	0.3
Wales	0	0	0.45	1.89	0.3
Outside UK	0	0.59	0.08	0	0
Prefer not to say	0	0	0	0	0.3
Attendee type					
Season-ticket	2.89	48.34	73.97	35.85	15.06
Neither season-ticket holder nor regular attendee	27.79	51.66	36.03	62.26	84.94
Did not say	69.31	0	0	1.89	0

Table 2. Summary of the demographic information for interview data from FA Cup Semi-Final, Carabao Cup, FA Cup Final, Snooker World Championship, and Sefton Park.

Interviews	**FA Cup Semi-Final** *(N = 5)*	**Carabao Cup Final** *(N = 7)*	**FA Cup Final** *(N = 12)*	**Snooker World Championship** *(N = 8)*	**Sefton Park** *(N = 5)*
	N	**N**	**N**	**N**	**N**
Gender					
Male	3	6	11	7	3
Female	1	1	1	1	2
Non-binary	1	0	0	0	0
Age range					
18-24	0	1	1	0	1
25-34	0	0	1	2	1
35-44	3	1	1	0	1
45-54	1	4	1	2	1
55-64	1	0	3	2	1
65-74	0	1	5	2	0
Employment status					
Full-time	4	4	8	4	5
Unemployed	0	0	0	1	0
Self-employed	0	2	0	1	0
Retired	1	1	4	2	0
Vaccine status					
Fully vaccinated	1	4	7	5	1
Not vaccinated	3	0	0	1	1

	FA Cup Semi-Final	Carabao Cup Final	FA Cup Final	Snooker World Championship	Sefton Park
Vaccine status					
Received one dose of the vaccine	1	3	5	2	3
Attendee type					
Regular attendee/fan	1	2	9	5	N/A
Neither a regular attendee nor fan	3	5	3	3	N/A
Did not say	1	0	0	0	N/A

4. Analysis of spectator experiences across indoor, open-air and 'outdoor' events and across spectator numbers

Occupancy levels increased across the Wembley events (2,828 at FA Cup Semi-Final; 7,700 at Carabao Cup Final; 18,720 at FA Cup Final), the World Snooker Championship (325 people per day rising to 900 for the final), and there was almost full occupancy at Sefton Park (6,101 attendees). The environments also differed across the events from open-air stadium (Wembley), fully indoor arena (World Snooker Championship) and 'outdoor' area under raised tent (Sefton Park). Adherence to physical distancing may be more difficult in higher densities, leading people to be in closer proximity than the 1m safety guidelines even when trying to maintain distance. Similarly, risk of transmission is lower in 'outdoor' areas which may impact the prevalence of protective health behaviours. Sefton Park is a unique event since physical distancing was required when queuing prior to entry, but inside neither physical distancing nor face coverings were required, although the use of hand sanitiser was encouraged. We compare self-reported behaviour across the events to explore whether occupancy levels, environment type, and safety guidance were associated with reasons for (non)adherence to the COVID-19 guidance.

4.1. Comparison of self-reported adherence to different measures across all events

We asked survey respondents to what extent they agreed they had adhered to safety measures of physical distancing, face mask wearing, and hand hygiene at each event on a scale of 1 = strongly disagree to 5 = strongly agree.

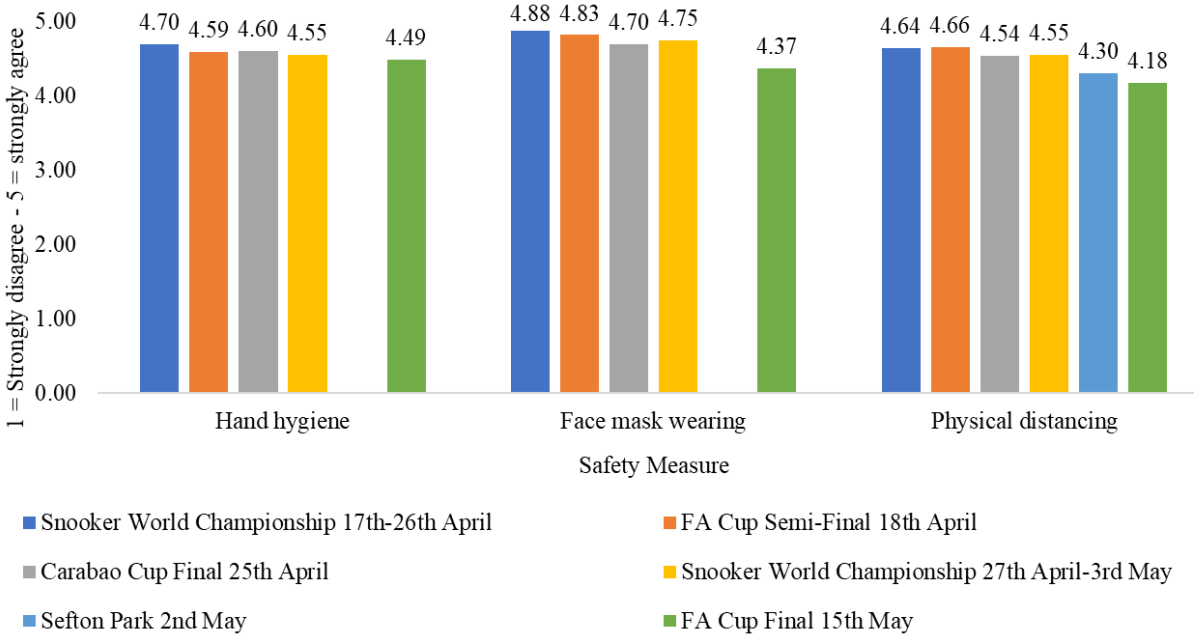

Figure 1. Mean self-reported adherence to hand hygiene, face mask wearing, and physical distancing across all events.

There was a significant interaction of event type on adherence[3] [4], whereby attendees of the FA Cup Final self-reported lower overall adherence to physical distancing and face mask wearing than attendees of the FA Cup Semi-Final, Carabao Cup Final, and the World Snooker Championship from the 17th – 26th April. Further, attendees of Sefton Park self-reported lower overall adherence to physical distancing than attendees of the FA Cup Semi-Final and Carabao Cup Final (see Figure 1)[5]. Notably, there appears to be a trend of diminished adherence over time, suggesting that time of the event is a possible confound. We further explore the differences across event environments in Section 4.1.1, and across occupancy levels in 4.1.2.

4.1.1. Comparison across event environments

We compared self-reported adherence across events that were fully indoor (Snooker World Championship), in an open-air stadium (all Wembley events), and 'outdoor' under a raised tent (Sefton Park). There was no main effect of event environment on self-reported adherence to hand hygiene, face mask wearing, or physical distancing guidelines across events, but post

[3] An a priori power analysis using G*Power for each separate test of mean differences across the six events of the Events Research Programme on self-reported adherence to hand hygiene, physical distancing and face mask wearing revealed that 324 participants would be needed to detect a medium effect size (0.25), where alpha = .05, and power = .95. Our $N = 2502$.
[4] There was a significant interaction of event type on measure of adherence (excluding Sefton Park), $F(2, 4336) = 34.362$, $p < .001$, $\eta^2 = 0.005$, but this represents a very small effect. There was a significant effect of event on physical distancing (including Sefton Park), $F(5, 2496) = 21.007$, $p < .001$, $\eta^2 = 0.040$, indicating a small to medium effect.
[5] Post-hoc tests using Bonferroni corrections revealed that the FA Cup Final has lower overall adherence (physical distancing $M = 4.18$, $SD = 1.00$) than the FA Cup Semi-Final (physical distancing $M = 4.66$, $SD = .68$; face mask wearing $M = 4.83$, $SD = .60$, $p < .001$), Carabao Cup Final (physical distancing $M = 4.54$, $SD = .77$; face mask wearing $M = 4.70$, $SD = .76$, $p < .001$), and the World Snooker Championship from the 17-26th April (physical distancing $M = 4.64$, $SD = .60$; face mask wearing $M = 4.88$, $SD = .42$, $p = .013$). Post-hoc analysis using Tukey adjustments for multiple comparisons revealed that Sefton Park has lower overall adherence to physical distancing measures ($M = 4.30$, $SD = .96$) than the FA Cup Semi-Final and Carabao Cup Final, both $p < .001$.

hoc analysis showed that self-reported adherence to physical distancing was significantly greater in indoor environments than in each of open-air and 'outdoor' events[6] [7].

4.1.2. Comparison across occupancy levels

The number of attendees rose across the Wembley events of the FA Cup Semi-Final (2,828 attendees), Carabao Cup Final (7,700 attendees), and the FA Cup Final (18,720 attendees). We compared self-reported adherence to hand hygiene, face mask wearing, and physical distancing at the events[8]. Self-reported adherence to all measures was significantly lower in the FA Cup Final, which was an event with the highest occupancy and in a latest time-period compared to the other events. There was significantly lower self-reported adherence to hand hygiene at the FA Cup Final (highest occupancy) than the Carabao Cup (lower occupancy) [9], and lower self-reported adherence to physical distancing[10] and face mask wearing[11] at the FA Cup Final (highest occupancy) than the Carabao Cup Final (lower occupancy), and FA Cup Semi-Final (lowest occupancy).

The events with lower self-reported adherence to physical distancing are the same events where attendees reported both feeling more comfortable in close proximity with others and less ability to physically distance. Attendees of the FA Cup Final felt more comfortable in close proximity to others compared to those who attended the Carabao Cup Final[12]. There was also less perceived ability to physically distance and egress safely[13] at the FA Cup Final than the other events, and less ability to distance and egress safely at the Carabao Cup than the FA Cup Semi-Final[14]. Thus, overall, participants felt less able to maintain physical

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[6] An a priori power analysis using G*Power for each separate test of mean differences across the event environments on self-reported adherence to hand hygiene, physical distancing and face mask wearing revealed that 252 participants would be needed to detect a medium effect size (0.25), where alpha = .05, and power = .95. Our $N = 2502$.

[7] $F(2, 2499) = 2.522$, $p = .080$, $\eta^2 = 0.002$, representing a very small effect size. LSD post hoc analysis showed that self-reported adherence to physical distancing was significantly higher in indoor environments ($M = 4.60$, $SD = .72$) than indoor open-air ($M = 4.33$, $SD = .93$, $p = .024$), and outdoor ($M = 4.30$, $SD = .96$, $p = .019$). There were no significant differences for self-reported adherence for face mask wearing and hand hygiene between the types of events, all comparisons $p > .05$.

[8] An a priori power analysis using G*Power for each separate test of mean differences across the three events for Wembley on self-reported adherence to hand hygiene, physical distancing and facemasks wearing revealed that 252 participants would be needed to detect a medium effect size (0.25), where alpha = .05, and power = .95. Our $N = 2117$. The same information applies to the analysis of comfort in close proximity, ability to physically distance, and ability to egress.

[9] $F(2, 2114) = 4.232$, $p = .015$, $\eta^2 = 0.004$, indicating a very small effect. Self-reported hand hygiene at the FA Cup Final ($M = 4.48$, $SD = .86$) was lower than at the Carabao Cup Final ($M = 4.60$, $SD = .79$), $p = .021$.

[10] $F(2, 2114) = 50.229$, $p < .001$, $\eta^2 = 0.045$, indicating a small to medium effect. Physical distancing was significantly lower at the FA Cup Final ($M = 4.18$, $SD = .93$) than the FA Cup Semi-Final ($M = 4.66$, $SD = .68$, $p < .001$) and Carabao Cup ($M = 4.54$, $SD = .77$, $p < .001$).

[11] $F(2,2114) = 44.58$, $p < .001$, $\eta^2 = 0.040$, indicating a small to medium effect. Wearing of face masks was lower at the FA Cup Final ($M = 4.37$, $SD = 1.00$) than the FA Cup Semi-Final ($M = 4.83$, $SD = .59$, $p < .001$) and the Carabao Cup Final ($M = 4.70$, $SD = 76$, $p < .001$).

[12] $F(2, 2114) = 3.123$, $p = .044$, $\eta^2 = 0.003$, indicating a very small effect. There was significantly greater comfort in close proximity at the FA Cup Final ($M = 3.41$, $SD = 1.04$) compared to the Carabao Cup Final ($M = 3.28$, $SD = 1.00$, $p = .035$). There was a non-significant difference in comfort in close proximity between the FA Cup Final ($M = 3.41$, $SD = 1.04$) and the FA Cup Semi-Final ($M = 3.35$, $SD = 0.94$, $p = 0.696$), and between the FA Cup Semi Final ($M = 3.35$, $SD = 0.94$) and the Carabao Cup Final ($M = 3.28$, $SD = 1.00$, $p = .568$).

[13] $F(2, 2114) = 20.970$, $p < .001$, $\eta^2 = 0.019$, indicating a small effect. There was significantly lower perceived ability to egress safely at the Carabao Cup Final ($M = 3.73$, $SD = 1.22$) compared to the FA Cup Semi-Final ($M = 4.07$, $SD = 0.98$, $p < .001$). There was also significantly lower perceived ability to egress safely at the FA Cup Final ($M = 3.58$, $SD = 1.23$) compared to both the FA Cup Semi-Final ($p < .001$) and the Carabao Cup Final ($p = .042$).

[14] $F(2, 2114) = 53.79$, $p < .001$, $\eta^2 = 0.048$, indicating a small to medium effect. There was significantly lower perceived ability to physically distance at the Carabao Cup Final ($M = 3.76$, $SD = 1.25$) compared to the FA Cup Semi-Final ($M = 4.23$, $SD = 0.96$, $p < .001$). There was also significantly lower perceived ability to physically distance at the FA Cup Final ($M = 3.43$, $SD = 1.27$) compared to both the FA Cup Semi-Final ($M = 4.23$, $SD = 0.96$, $p < .001$) and the Carabao Cup Final ($M = 3.76$, $SD = 1.25$, $p < .001$).

distancing as occupancy rates increased. Across the events, those who were season-ticket holders felt more comfortable in close proximity compared to those who would not ordinarily attend the events[15]. This may explain why comfort in close proximity was higher in the FA Cup Final which had the largest number of fans present and had the lowest self-reported adherence to physical distancing measures.

Self-reported adherence to the safety measures was compared between participants who attended the World Snooker Championship between the 17-26th April (lower occupancy) and the 27th April - 3rd May (higher occupancy). Similarly, we compared responses for the two time periods across comfort in close proximity with other attendees, ability to egress safely, and ability to physically distance[16]. All comparisons were non-significant[17].

Comparison for Sefton Park was not possible since it was a one-day event but the overall impact of environment and occupancy is discussed in Section 4.2.

4.2. Qualitative analysis on ability to adhere to the guidance across environments and occupancy levels

The event environment and occupancy levels were raised by interview participants as reasons for perceived safety and subsequent (non)adherence to the safety guidance.

Across all events, interviewees reported that physical distancing during ingress and egress was more difficult at event with higher occupancies. This is consistent with Movement Strategies video data showing lower physical distancing in areas with higher attendee numbers. For example, during the Snooker World Championship, where occupancy levels increased up to full capacity of the venue, one participant said:

> "*When you actually entered in [through] the door, you were quite close to other people and going up the sort of steps… it was fairly, fairly, close to other people (…). When they let you out (…) I'd say it was still… it still felt fairly busy, to be honest."* (Snooker World Championship Semi-Final, M, 26, full-time employed, one vaccine dose, non-regular attendee).

The increased occupancy levels were particularly worrying for participants in the indoor setting, while the 'outdoor' nature of Wembley and Sefton Park events was seen as a factor which made participants feel safe. For example, an interviewee from Sefton Park stated:

> *"I think outdoors, you pretty much can do anything really, I do think the lack of transmission is a massive thing"* (Sefton Park, M, 24, full-time employed, not vaccinated).

[15] $F(3, 2113) = 18.303$, $p < .001$, $\eta^2 = 0.025$, indicating a small effect. Comfort was higher for season-ticket holders (M = 3.51, SD = 1.02) than for those who would not ordinarily attend the event (M = 3.14, SD = 1.04), $p < .001$.
[16] A post hoc power using G*Power with a sample size of 33 and 20 for the Snooker events on the 17th- 26th April and the 27thApril- 3rd of May 2021 respectively revealed that the statistical power for the test of mean differences on comfort in proximity in the crowd was 0.45 with an effect size d = 0.53, ability to egress in the crowd was 0.13 with an effect size d = 0.23, ability to physical distance was 0.16 with an effect size d = 0.28, self-reported adherence to hand hygiene was 0.10 with an effect size d = 0.19, self-reported adherence to physical distancing was 0.07 with an effect size d = 0.12, self-reported adherence to facemasks was 0.12 with an effect size d = 0.22.
[17] All comparisons were non-significant at $p > .05$.

Even at the event with the highest level of occupancy, participants thought Wembley stadium was not crowded:

> *"They were following the guidance. But, also, they were following the guidance because there was space (…) it was the capacity was so so low, people were just standing. I mean the groups, people standing around in groups which weren't socially distanced. Let's be honest."* (FA Cup Final, M, 68, retired, fully vaccinated, fan).

However, across all occupancy levels, fans said that due to the 'outdoor' nature of the Wembley events, they did not see the need to adhere to face mask wearing:

> "*Well, I don't think wearing a mask understands…I personally didn't think was necessary 'cause like I said, we were spaced out and it was outdoors. I struggle to see the benefit of that.* (FA Cup Final, M, 52, full-time employed, one vaccine dose, fan).

The indoor setting of the Snooker World Championship events, on the other hand, was associated with greater motivation to adhere to face mask wearing:

> *"If you've got a mask on then it means there's no medical reason not to wear it… So, to have it on but not cover your nose is not considerate (…) as far as I'm concerned when you're all in a relatively confined space and you're watching two people who are trying their best to entertain us"* (Snooker World Championship Final, M, 69, retired, one vaccine dose, non-regular attendee).

5. Comparison of results from observational and self-report data on spectator adherence to COVID-19 measures

Here we compare additional problems in adherence observed in Movement Strategies' analysis of the same five events with barriers reported by the attendees in the interviews.

Table 3. Adherence issues identified in the observed data from Movement Strategies and possible reasons indicated in the self-report measures and interviews

Observed issue	**Possible reasons**
Lack of physical distancing in queues for entry	• Lack of ability to physically distance in crowd barriers • Lack of clarity about why physical distancing was needed prior to entry when there were no physical distancing restrictions inside the event (Sefton Park)
Lack of physical distancing and mask wearing in hospitality areas	• Uncertainty about how to follow the guidance in hospitality areas, including not being able to clearly hear live announcements • Taking mask off to eat and keeping it off when talking
Lack of physical distancing during egress	• Lack of clarity about how to adhere • Normative behaviour of leaving immediately if team loses

Lack of face mask wearing in seating areas (at Wembley)	• Lack of clarity about when face mask wearing was needed due to open-air environment and seats arranged to observe physical distancing • Difficult to perform normative cheering and singing behaviour in mask
Lack of hand hygiene	• Perceived return to normality (Sefton Park) • Safety in 'outdoor' environment

Findings of the observed data from Movement Strategies suggest low physical distancing within the queueing barriers at Wembley when crowd size increased. In line with this observation, our participants frequently mentioned the difficulty of keeping physical distance from each other in the queues:

> *"The barrier is set up to pick you up for it, which is a sort of zigzag, so everyone is very close to each other without the mask. Indoors again, so that I- I thought there might be some stricter enforcement of that."* (FA Cup Semi-Final & Carabao Cup Final, M, 42, full-time employed, not vaccinated, neutral)

Similar issues were reported by the attendees in the hospitality areas:

> "*the queues even to get the food and that, they weren't probably 2 meters, they certainly weren't 2 metres"* (Carabao Cup Final, M, 72, retired, fully vaccinated, neutral).

In Sefton Park, where Movement Strategies reported lack of adherence to physical distancing in the outside queues, participants in the interviews attributed the non-adherence to lack of clarity about why physical distancing was needed:

> *"to be honest, I thought, what would be the point of people social distancing in the queue to get in to get into the venue that we'd all been tested for, and that was why we were being allowed in?"* (Sefton Park, F, 53, full-time employed, fully vaccinated).

Consistent with observations made by Movement Strategies that mask wearing was low in hospitality areas, some interviewed participants were not sure what measures applied in this space:

> *"I've got the food and…and some some drink and I'm standing inside going…Oh, I can take my face mask off…what do I do now, do take my face mask off here?"* (Carabao Cup Final, M, 39, self-employed, fully vaccinated, fan).

Consistent with Movement Strategies' data on lack of physical distancing during egress, another key risk area reported by most participants in the interviews was that there was lack of clarity about how to egress:

> *"There were a few times where social distancing was harder, like when we were leaving and everyone is leaving together"* (FA Cup Final, F, 24, full-time employed, fully vaccinated, neutral).

The lack of assistance with egress was also apparent in situations where it is normative for fans of the losing team to leave at once and prior to the fans of the winning team:

> *"(..)but when you lose a match, you know, you lose a game, you just slope off."* (FA Cup Final, M, 68, retired, fully vaccinated, fan).

Lack of mask wearing in the seating areas in Wembley reported by Movement Strategies was also openly described by the interviewees. The reasons for non-adherence were attributed to the difficulty to perform normative behaviours such as shouting or singing in a mask:

> *"it was sort of a put you mask on and take it off as soon as he [steward] turns the back thing. Which, ehm, it sounds a bit rebellious, but it's common at football. (…)So it's like a norm… if that makes any sense.* (FA Cup Final, M, 52, full-time employed, one vaccine dose, fan).

Movement Strategies observed a lack of physical distancing when queuing and low use of hand sanitiser at Sefton Park. One of the reasons for decreased adherence to measures may be that the temporary loosening of restrictions at the event lead the attendees to loosen their adherence to COVID-19 safety measures in general. One participant mentioned feeling strange returning to more cautious behaviour after experiencing the level of freedom allowed at the festival:

> *"...it felt incredibly surreal to go from being that free to being cautious again"* (Sefton Park, F, 41, full-time employed, one vaccine dose).

Together, the observed and self-report data indicate that cases of (non)adherence are associated with physical ability to follow the guidance, clarity of the communication, and the behaviour of other attendees. We look further into the variables associated with (non)adherence in Section 6 and focus on the role of communication approaches in Section 7.

6. Identify risk factors associated with self-reported non-adherence to COVID-19 guidance at events

6.1. Barriers and facilitators associated with adherence

We conducted a regression analysis to examine possible predictors associated with self-reported adherence to hand hygiene, physical distancing, and face mask wearing across all events[18].

The recurring variables positively associated with adherence to the safety measures were **(1) trust that the organisers had sufficiently prepared to keep attendees safe, (2) seeing other attendees adhere to the measure, and (3) motivation to keep others safe** (see Table 4). Feeling safe in the crowd was negatively associated with adherence to all measures at all events: the safer people felt, the less they adhered.

[18] An a priori power analysis using G*Power with 7 predictor variables revealed the total sample size needed to find variables associated with self-reported adherence separately to hand-hygiene, physical distancing, and face mask wearing across all events is 95 participants to detect a medium effect size (0.25), where alpha = .05, and power = .95. Our $N = 2502$.

Table 4. Predictors associated with self-reported adherence to hand hygiene, physical distancing, and face mask wearing across all events.

	β	β(*SE*)	*p*	CI
Using hand sanitiser/washing hands				
Lack of concern that other crowd members could transmit COVID-19	-.148	.028	< .001	[-.203, -.093]
Trust in organisers	.110	.020	< .001	[.071, .149]
Seeing others adhere to the measure	.210	.016	< .001	[.178, .241]
Motivation to keep others safe	.120	.017	< .001	[.087, .153]
Feeling safe in the crowd	-.145	.028	< .001	[-.200, -.090]
Physical distancing				
Feeling safe in the crowd	-.112	.031	< .001	[-.173, -.051]
Trust in organisers	.157	.023	< .001	[.112, .201]
Seeing others adhere to the measure	.257	.016	< .001	[.240, .303]
Motivation to keep others safe	.110	.017	< .001	[.077, .144]
Sufficient measures in place to physically distance	.060	.020	.002	[.021, .099]
Comfort in close proximity to others	-.179	.021	< .001	[-.221, -.137]
Face mask wearing				
Feeling safe in the crowd	-.248	.029	< .001	[-.305, -.190]
Trust in organisers	.141	.020	< .001	[.101, .181]
Motivation to keep others safe	.147	.017	< .001	[.113, .181]
Seeing others adhere to the measure	.210	.014	< .001	[.181, .238]

Notably, the motivation to keep others safe may at least in part have been due to motivation to help events reopen or support the Events Research Programme, and therefore may not be valid for future events. This is supported by the interview data which indicated that motivation to return to live events and motivation to contribute to the Events Research Programme influenced adherence to the guidance. The interviews also indicated that trust in organisers influenced adherence to the guidance, but barriers to adherence included seeing others non-adhere, and trying to engage in previously normative behaviours.

Key demographic differences included:

- Female attendees reported higher adherence than male attendees to hand hygiene, physical distancing, and face mask wearing.[19]
- Season-ticket holders at the sporting events self-reported lower adherence to hand hygiene, physical distancing, and face mask wearing than attendees who were fans of the sport but not season-ticket holders and those who were neither (i.e., locals invited to attend as part of the Events Research Programme who would not ordinarily attend).

[19] Hand hygiene: $F(3, 2166) = 22.691$, $p < .001$, $\eta^2 = 0.030$, indicating a small to medium effect. Tukey post hoc tests showed that female attendees reported higher adherence ($M = 4.75$, $SD = .61$) than male attendees ($M = 4.45$, $SD = .89$), $p < .001$. Physical distancing: $F(3, 2166) = 11.986$, $p < .001$, $\eta^2 = 0.019$, indicating a small effect. Tukey post hoc tests showed that female attendees reported higher adherence ($M = 4.50$, $SD = .83$) than male attendees ($M = 4.25$, $SD = .96$), $p < .001$. Mask wearing: $F(3, 2166) = 21.321$, $p < .001$, $\eta^2 = 0.029$, indicating a small effect. Tukey post hoc tests showed that female attendees reported higher adherence ($M = 4.74$, $SD = .66$) than male attendees ($M = 4.43$, $SD = .98$), $p < .001$.

A recurring theme in the interviews was the participants' motivation to follow the safety measures to ensure the successful return to live events:

> *"I am desperate... to get back to…watching my team..in the stadium… if I can do anything to ameliorate that process, I'm willing to do it. So that's why I was behaving myself a 100%...and…and…if if they wanted to the, do the…monitoring, testing, checking, you name it…I was willing to go with it…"* (FA Cup Semi-Final, M, 65, retired, fully vaccinated, neutral).

The motivation to return to 'normal' was then also a factor associated with keeping others safe:

> "*I try to ensure that things are done the correct way and in compliance with the law and stuff. (…) We've got a think about us and others around us moving forward* (Snooker World Championship Final, M, 48, full-time employed, fully vaccinated, regular attendee).

A consistent motivating factor for adherence across the events were cases when participants identified with the venue itself or the Events Research Programme. According to the interview data, this was particularly true for attendees of the earlier pilot events. For example, one participant said:

> "*there was also being part of the study, so it felt like quite, a quite momentous occasion being on the first people to see live sport since the pandemic started.*" (FA Cup Semi-Final, M, 38, full-time employed, not vaccinated, neutral).

Seeing safety being carefully monitored at the events built trust in the organisers, and this was associated with lower perceived risk of COVID-19 spread at all events. Ensuring negative results of the lateral flow tests was seen a particularly effective safety measure that reduced the perceived risk. For example, an attendee at Sefton Park said:

> *"Yeah I think the people on the gates, you know, checking and making sure (…) I thought "oh you know, they're doing it properly, they're not just waving everyone in without looking"* (Sefton Park, F, 53, full-time employed, fully vaccinated).

This is supported by an attendee of the Carabao Cup Final who said:

> "*And knowing that it's in a safe setting…that the authorities…and the stadium, the…event planners are kind of taking all the precautions for the safety of my attendance in the event. Also, knowing that all people were lateral flow tested or negative at that time…."* (Carabao Cup Final, M, 48, full-time employed, fully vaccinated, fan).

In contrast, seeing others non-adhere was associated with higher identification as a football fan in Wembley events, which motivated participants to enjoy the games in normative ways (e.g., loudly cheering), but also decreased motivation to adhere to the safety measures:

"*the vast majority didn't wear, wear masks….And…when we scored there was some quite a group sort of got together hugging each other, all the social distancing just flew out the window then (…) they just…abandoned everything and went for it and then they spent most of the game together...*" (FA Cup Final, M, 52, full-time employed, one vaccine dose, fan).

6.2. Group psychology factors associated with adherence and non-adherence

Motivation to adhere to the safety measures in relation to feeling as part of a group was mentioned across the interviews. However, in other instances, feeling part of a group was associated with non-adherence due to the nature of the group norms.

In World Snooker Championship events and in Sefton Park, a sense of being part of a group was associated with adherence to safety measures. For example, the feeling of being part of a 'snooker family' enhanced the participants' motivation to follow safety measures:

> *"I know it's a hackneyed old expression in every sport, but I really felt it was a…I really felt it was a snooker family coming together to take this giant step [towards normality] (...)[The safety measures] It was necessary this year. In 2022 I would still say it was at least desirable"* (Snooker World Championship Final, M, 72, retired, fully vaccinated, regular attendee).

The sense of being part of 'everyone working together' towards the success of the event was also apparent in peoples' motivations to adhere:

> *"I think we've got to a point now where everyone is happy to play their part, I mean we've played our part for over a year, to make sure we get back to doing good things again."* (Sefton Park, M, 24, full-time employed, not vaccinated, regular attendee).

However, in some cases belonging to a group also promoted risky behaviours, especially in cases where particular behaviours were usually normative for the event, such as being in close proximity with others:

> "*But then as the…you know…the atmosphere grows and people are kind of naturally pulled together a bit (…) So that was good in terms of the atmosphere, but obviously it crossed my mind that if I was there…the distancing..you know..may or may not be the problem."* (Carabao Cup Final, M, 48, full-time employed, fully vaccinated, not a usual attendee).

The relationship between feeling safe and lowered adherence is supported by the survey data, but specifically the analysis suggests that the more respondents felt in the same group with

others (had a shared social identity with them), the safer they felt, and in turn, the lower they reported adherence to the safety measures[20].

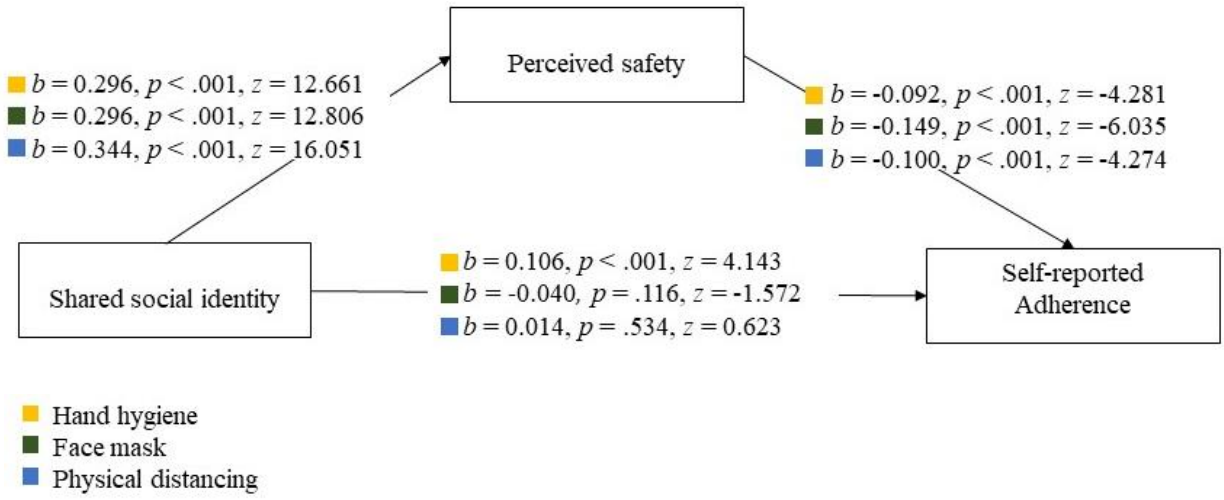

Figure 2. Mediation analysis depicting relationship between shared social identification with other attendees and self-reported adherence via perceived safety.

6.3. Impact of vaccine status or having COVID-19 previously

Across all events, perceived importance of the safety measures (e.g., limits to the number of people who can attend, queuing systems designed in line with physical distancing guidance and face masks being worn by attendees) differed between attendees who had received the COVID-19 vaccine and those did not, and between attendees who previously had COVID-19 and those did not. Overall, those that received the vaccine reported higher importance of the safety measures, including limits to the numbers of people who can attend, queuing systems designed in line with physical distancing guidance, and face masks being worn by the attendees, compared to those that were not vaccinated against COVID-19[21]. Similarly, those that did not previously have COVID-19 reported more importance of face masks being worn by attendees and queuing systems designed in line with physical distancing guidance, and

[20] There was a significant direct effect of shared social identity on self-reported adherence for handwashing, b = 0.106, z = 4.143, p < .001, but not for wearing a face mask, b = -0.040, z = -1.572, p = .116 or physical distancing b = 0.014, z = 0.623, p = .534. There was a significant partial mediation effect of shared social identity on self-reported adherence via perceived safety for hand hygiene, b = -0.031, z = -4.107, p <.001, and indirect effect on physical distancing, b = -0.034, z = -4.200, p <.001, and wearing a face mask, b = -0.044, z = -5.699, p <.001. The total effects were: hand hygiene: b = 0.075, p = .002, z = 3.084; wearing a face mask, b = -0.084, p < .001, z = -3.489, and physical distancing, b = -0.020, p = .338, z = - 0.959.

[21] A post hoc power using G*Power with a sample size of 1956 for attendees who received a COVID-19 vaccine and 546 for those that did not, across all events, revealed that the statistical power for each separate test of means differences on comfort in proximity and perceived importance of the safety measures, including limits to the number of people who can attend, queuing systems designed in line with physical distancing guidance and face masks being worn by attendees exceeded .99 for the detection of medium effect size.

lower comfort in close proximity compared to those that had COVID-19 previously[22] [23]. However, it is worth noting that many of the attendees were health care workers who were likely to be vaccinated and believe the safety measures to be important, which might not be applicable to future events with regular attendees.

7. Understanding and developing communication strategies for the COVID-19 guidance

7.1. Comparison of information sources

Clear communication about how to follow the COVID-19 safety measures is crucial to ensure that spectators know how to adhere. We asked spectators how effective they found different sources of information about the guidance, from 1 = very ineffective to 5 = very effective (see Figure 3).

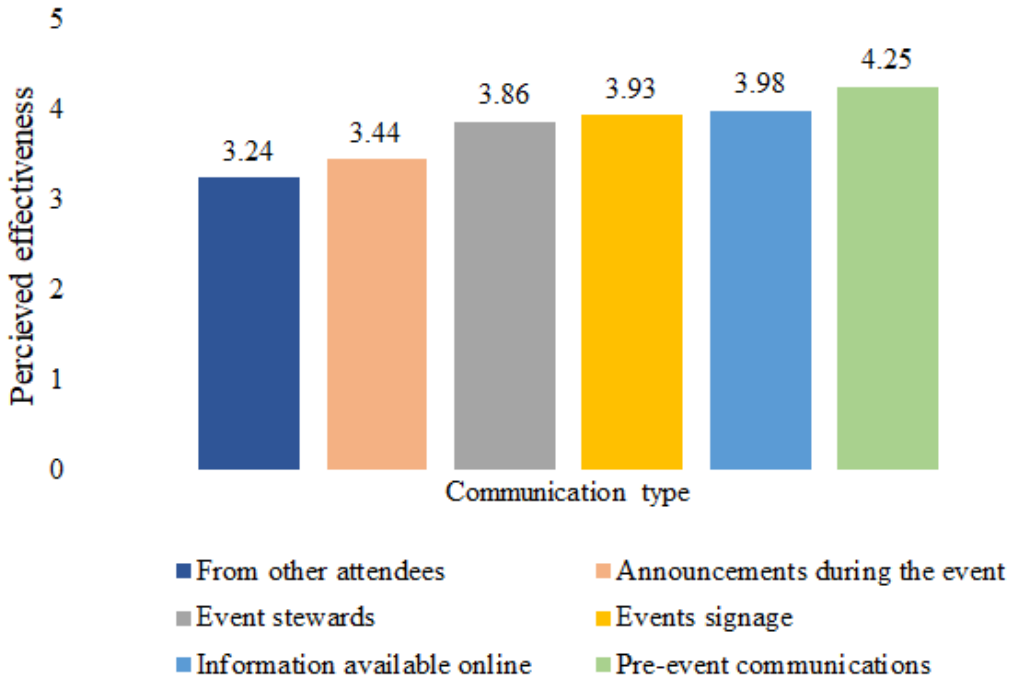

Figure 3. Perceived effectiveness of communication method across all 6 events. In order of perceived effectiveness: from other attendees (*M* = 3.24, *SD* = .94), announcements during the event (*M* = 3.44, *SD* = 1.06), event stewards (*M* = 3.86, *SD* = 1.09), events signage (*M* = 3.93, *SD* = .92), information available online (*M* = 3.98, *SD* = .87), and pre-event communications (*M* = 4.25, *SD* = .84).

[22] A post hoc power using G*Power with a sample size of 443 for attendees who had COVID-19 previously and 2059 for those that have not, across all events, revealed that the statistical power for the test of means differences on comfort in proximity was 1.00 with an effect size of *d* = 0.46 (medium effect), perceived importance of face masks being worn by attendees was 0.96 with an effect size of *d* = 0.19 (small effect) and perceived importance of queuing system designed in line with physical distancing guidance was 0.89 with an effect size *d* = 0.17 (small effect).

[23] Vaccinated respondents reported higher importance on the safety measures, including limits to the numbers of people who can attend (*M* = 3.62, *SD* = 1.18 vs. *M* = 3.24, *SD* = 1.25), queuing systems designed in line with physical distancing guidance (*M* = 3.79, *SD* = 1.15 vs. *M* = 3.41, *SD* = 1.25) and face masks being worn by attendees (*M* = 3.60, *SD* = 1.30 vs. *M* = 2.97, *SD* = 1.44) compared to those that were not vaccinated against COVID-19, all at $p < .001$. Those that did not previously have COVID-19 reported more importance on face masks being worn by attendees (*M* = 3.51, *SD* = 1.35 vs. *M* = 3.25, *SD* = 1.36) and queuing systems designed in line with physical distancing guidance (*M* = 3.74, *SD* =1.17 vs. *M* = 3.54, *SD* = 1.21), and lower comfort in close proximity (*M* = 3.46, *SD* = 1.05 vs. *M* = 3.74, *SD* = 1.05), compared to those that had COVID-19 previously, all at $p < .01$.

Across all events, pre-event communications were rated significantly more effective than all other methods, followed by information available online, and information from stewards. Announcements during the events were rated consistently as one of the least effective methods of communication about the COVID-19 guidance[24].

Interviewees reported that communication prior to all events was clear. The primary mode was communication via email that included information about safety measures directly on the tickets:

> *"So yeah basically just the email information that we had. I mean obviously I could have searched myself, but I didn't need to because we were getting that much contact and that. It was, it was good.*" (Sefton Park, M, 33, full-time employed, one vaccine dose).

However, some attendees raised a concern about the lack of clear communication about where to get a COVID-19 test which would be accepted by the venues before the events:

> *"I can't remember what the term was, but we had to go to an assisted testing centre. (...) Uh, and that caused a little bit of confusion because we on the link that we were sent we could see our local testing centres, but we didn't know if it offered this assisted term (...) So, I think that that could have been made a little bit clearer"* (FA Cup Final, M, 26, full-time employed, one vaccine dose, fan).

Communication during the event consisted of public announcements and guidance from stewards, which was seen as effective. However, some attendees reported issues with the ability to hear public announcements which limited their ability to adhere, particularly during intervals and egress. In the Snooker World Championship events, issues with clarity of communication were reported especially during the interval breaks:

> "*it was the first time I've been to snooker as well, so I wasn't sure what was to do with covid and what (...) so I'm not sure… It was a bit confusing to be honest"* (Snooker World Cup Semi-Final, M, 26, full-time employed, fully-vaccinated, non-regular attendee).

Some participants raised that there was a lack of clarity about whether taking the COVID-19 test after the events was optional or mandatory and this impacted their motivation to take the test:

[24] Across the events, there was a significant difference in how effective attendees rated communication methods, $F(4, 12485) = 676.536$, $p < .001$, $\eta^2 = .116$, indicating a large effect. Post-hoc comparison using tukey adjustment for multiple comparisons revealed that pre-event communications were rated significantly more effective than all other sources at $p < .001$. Information from events signage was rated second most effective and significantly more effective than information from stewards, announcements during the event and information from other attendees, all at $p < .001$. Information from stewards was rated as the third most effective method, and this was higher than live announcements during the event and information from other attendees, both at $p < .001$. Announcements during the event were rated as significantly less effective than all other methods of communication except information from other attendees, all at $p < .001$.

"...without the sort of connection with how it is being done and the fact that it was, seemed very optional, I wasn't sure how effective that would be. So why would I go through that effort as well? And do that so I didn't bother with the after game test?" (FA Cup Semi-Final, M, 42, full-time employed, not vaccinated, neutral)

7.2. Who attendees look to for information

Across the events, attendees looked most to stewards for information compared to other attendees and players/musicians [25]. In most events, other attendees were looked to more than the players/musicians[26], except at the World Snooker Championships.

Previous research from social psychology suggests that in novel situations, people's actions are influenced by those who they perceive to be part of their group[27]. Since self-reported adherence was associated with the perception of being in a group with others (see Section 6.2), we also compared who attendees looked to for information with the extent to which they felt in a group with them. There was a positive association between feeling part of a group with the sources of information and looking to them for information[28].

8. Conclusions, limitations and next steps

This study contributes evidence on processes associated with (non)adherence to the COVID-19 guidance during the Events Research Programme. Notably, the self-report data broadly mirrors the observed findings from Movement Strategies (see Sections 5 and 8.2) but add information about the reasons associated with (non)adherence. In this section, we summarise the key findings, compare the self-report and observed data, note the study limitations, and make recommendations for future events.

8.1. Key findings

The variables positively consistently associated with self-reported adherence to the safety measures at all events were trust that the organisers had sufficiently prepared to keep attendees safe and seeing other attendees adhere to the measure. However, seeing the behaviour of others was a double-edged sword. On one hand, observing others adhere was associated with a cascading effect of higher self-reported adherence to the same measures, but seeing non-adherence was associated with lower adherence. This was especially the case

[25] $F(2, 4994) = 1587.325$, $p < .001$, $\eta^2 = .206$, indicating a large effect. Post-hoc comparison using Tukey adjustment for multiple comparisons found that across all events, attendees looked significantly more to stewards for information *(M* = 3.29, *SD* = 1.24) compared to other attendees (*M* = 2.33, *SD* = 1.22) and players (*M* = 1.86, *SD* = 1.10). It was also found that attendees looked significantly more to other attendees for information (*M* = 2.33, *SD* = 1.22) than players (*M* = 1.86, *SD* = 1.10), all $p < .001$.

[26] Attendees looked significantly more to other attendees for information (Sefton Park: *M* = 2.73, *SD* = 1.21; FA Cup Semi-Final: *M* = 2.36, *SD* = 1.29; FA Cup Final: *M* = 2.24, *SD* = 1.16) compared to the players/musicians (Sefton Park: *M* = 2.14, *SD* = 1.15; FA Cup Semi-Final: *M* = 1.88, *SD* = 1.12; *M* = 1.79, *SD* = 1.12; FA Cup Final: *M* = 1.80, *SD* = 1.05), all $p < .001$.

[27] Drury, J., Brown, R., Gonzalez, R., & Miranda, D. (2015). Emergent social identity and observing social support predict social support provided by survivors in a disaster: Solidarity in the 2021 Chile earthquake. *European Journal of Social Psychology, 46*, 209-233. https://doi.org/10.1002/ejsp.2146

[28] Stewards, $r = .362$, $p < .001$; players/musicians, $r = .402$, $p < .001$; and other attendees, $r = .267$, $p < .001$.

when frequent attendees (i.e., season-ticket holders) were together and saw others engage in behaviours normally expected as part of events that are now unsafe, such as taking off face masks to assist chanting and singing to support players.

Adherence to physical distancing was higher in indoor than open-air or 'outdoor' events. This appears to be related to attendees' perception that there was less risk of COVID-19 transmission in open-air and 'outdoor' events. Consistently throughout the interviews, attendees appeared to make personal risk assessments about the level of risk which impacted their adherence. Thus, it is important that participants are provided with appropriate information about *why* the safety procedures are necessarily and how to follow them to enable them to make informed choices (see Section 8.4 for recommendations).

The importance of risk awareness was also related to physical distancing as occupancy levels increased and the attendee demographic returned to those who would ordinarily attend events. On the one hand, participants reported difficulty following the physical distancing guidance as occupancy rates increased (e.g., when in queuing barriers and exiting venues) and some expressed concern about the risk this posed. Season-ticket holders, however, were comfortable in close proximity to others, and the observational data suggests clustering occurred in fan zones even when physical space was available. It is vital that venues provide the physical opportunity to adhere to the safety measures at all stages of the event, but also that organisers are aware of potential factors associated with lack of physical distancing, such as fans feeling comfortable around fellow group members or wanting to be close to them.

Effective communication was vital to allow participants to adhere to the guidance. Pre-event communications were perceived as most effective across all events to allow participants to plan safe behaviour and obtain a lateral flow test prior to entry. Lack of clarity about how to behave was associated with non-adherence at all events, particularly during intervals and in hospitality areas where attendees could not properly hear live announcements detailing the safety guidance. Stewards were viewed as particularly effective sources of information due to being approachable. The perceived approachability was related to stewards being seen to intervene without being over-bearing if non-adherence occurred, thus fostering positive relations with attendees.

8.2. Comparison with observational data

Overall, there is good corroboration between the observed data collected by Movement Strategies and both the self-report survey and interview data analysed here. Combined, the observed and self-report data can be used to identify both *where* key areas of non-adherence occur and *why* they occur.

The self-report data suggests that observed non-adherence such as lack of physical distancing and mask wearing were associated with lack of ability to adhere (e.g., queuing in crowd barriers) and/or lack of clarity about expected behaviour (difficulty hearing live announcements). Non-adherence was particularly prominent in the fan zones at Wembley where fans engaged in behaviours that are normally normative (i.e., before COVID-19) but are now potentially unsafe (e.g., singing without a face mask, leaving immediately if the supported team loses). Again, this demonstrates the need for venues to provide the physical

opportunity for attendees to adhere, clear guidance about why adherence is needed and how to adhere, and to identify potentially risky behaviours that may be expected as part of the event to plan for alternative safe behaviours (see Section 8.4 for recommendations).

8.3. Limitations

There are several limitations to the study and therefore the implications for future events.

The study achieved a low response rate at each event (see Section 2) meaning that there were many participants' views and perspectives we could not obtain. Our sample is also not entirely representative of usual attendees at the events since attendees were also comprised of healthcare workers and local inhabitants asked to join as part of the Events Research Programme (this was less the case for the FA Cup Final, see Tables 1 and 2 for percentages and numbers of attendees who were season-ticket holders, fans, or neither). Self-reported adherence was lower for season-ticket holders than non-regular attendees, and the observational data suggested lower adherence in fan zones than neutral zones. Thus, the data from season-ticket holders and other fans are the most representative for understanding likely adherence at future events where most attendees will be season-ticket holders or fans. Nonetheless, the data from all participants provides useful information on reasons for non-adherence, such as lack of clarity of information and physical constraints to adherence.

The applicability of some of the results is also limited because participants repeatedly reported being motivated to follow the safety measures to facilitate the safe return to live events and/or support the Events Research Programme. This may mean that the self-reported adherence is inflated and not representative of what might take place at later events. Nonetheless, interviewed participants were particularly open about reasons for non-adherence that could be relevant for future events, such as meeting in houses with others prior to the event as part of the normal pre-game routine.

Another way in which the event environments differ from normal events is that many attendees did not take public transport for their journey[29], instead opening for private transportation or walking. Travel to and from events on public transport were raised as areas of concern for some attendees due to inability to physical distance and other passengers not wearing face masks properly. For future events where travel on public transport will be more frequent, in line with suggestions made in a paper by SPI-B (2020)[30], future event planning should include focus on the entire spectator journey, including to and from events as potential areas of risk.

Finally, the data for the World Snooker Championship is divided into two dates (17-26th April and 27th April-3rd May). As such, we only have aggregated data for each week and not

[29] 37.1% used public transport for all of their journey, 9.8% used public transport for part of their journey, 12.1% travelled by coach, 11% walked, 19% drove their own vehicle, 3.5% were dropped off by family or a friend, 6.3% took a taxi, 0.3% cycled, and 1% selected 'other'.

[30] SPI-B (2020): Consensus statement on the reopening of large events and venues, 19 August 2020. https://www.gov.uk/government/publications/spi-b-consensus-statement-on-the-reopening-of-large-events-and-venues-19-august-2020https://doi.org/10.1016/j.ssci.2021.105243

fine-grained analysis on variables such as self-reported adherence each day as occupancy rates increased.

7.4. Recommendations

Here we draw out from our findings five key recommendations for maximizing COVID-secure behaviours at live events.

(i) Ensure attendees can adhere to physical distancing guidelines at all stages of the event. Providing the opportunity for attendees to adhere is essential to mitigate risks, so organisers should provide physical opportunity to adhere throughout the entire event. This includes when attendees are behind crowd barriers prior to entry, and in potentially less structured zones such as during intervals and egress.

(ii) Provide clear guidance about why the safety measures are necessary, how to adhere to the measures, and what precautions the organisers have taken to facilitate attendee safety[31]. Clear guidance should be present at all stages of the event and should be provided in multiple accessible forms (e.g., live signage, stewards, and live announcements) to mitigate the potential that communication is missed (e.g., being unable to hear live announcements in hospitality areas due to noise). Guidance should be consistent across all mediums to avoid ambiguity.

(iii) Event organisers should make clear what measures they are taking to facilitate attendee safety and why, but it is vital that attendees are still aware of the risks posed by COVID-19 and the importance of following the safety guidance. For example, make clear why seating is designed in line with physical guidance and the importance of spectators avoiding changing seats that might disrupt the physical distancing plans and increase risk.

(iv) Use effective communication sources such as players/ artists, clubs and stewards to facilitate adherence to the guidance. Attendees were most likely to look for information about how to act from those they felt were part of their group, thus making those sources a potentially influential medium to communicate safe behaviour. Organisers can identify who is seen by fans as a part of the group and consider using them to deliver messages about the safety guidance. Levels of self-reported adherence were related to the extent others were perceived to be adhering, so it is vital that influential members (e.g., players, club representatives) are seen to be following the guidance.

(v) Be aware of normally normative behaviour occurring and posing risks, and promote possible alternative safe behaviours (for more detail on social norms, see Neville et al., 2021[32]; Templeton et al., 2020[33]). For example, fans of the losing team tend to leave quickly

[31] Drury, J., Carter, H., Cocking, C., Ntontis, E., Tekin Guven, S., & Amlôt, R. (2019). Facilitating collective psychosocial resilience in the public in emergencies: Twelve recommendations based on the Social Identity Approach. *Frontiers in Public Health.* https://doi.org/10.3389/fpubh.2019.00141

[32] Neville, F., Templeton, A., Smith, J., & Louis, W. R., (2021). Social norms, social identities and the COVID-19 pandemic: Theory and recommendations. *Social and Personality Psychology Compass,* e12596. https://doi.org/10.1111/spc3.12596

[33] Templeton, A., Smith, K., Dang Guay, J., Barker, N., Whitehouse, D., & Smith, A. (2020, October 15). *Returning to UK sporting events during COVID-19: Spectator experiences at pilot events*. Sports Ground Safety Authority

at the end of the game which can lead to close proximity during busy egress. Organisers can provide practical alternative behaviours such as managed staggered egress (e.g., see the egress measures used in English teams' games in Europe). However, they can also work with expected normative behaviour to facilitate safety in a way that is seen to be in the group interest. One example would be to mitigate fans taking off their face masks to chant in support of players by emphasising that wearing face masks when chanting allows live crowd events to occur and thus allows the fans to support the players.

https://sgsa.org.uk/spectator-experiences-at-pilot-events/returning-to-uk-sporting-events-during-covid-19-analysis-of-spectator-experiences-at-pilot-events/

9. Appendices (survey and interview schedule)

Appendix A: Online survey for FA Cup Semi-Final, Carabao Cup, FA Cup Final, and World Snooker Championship

Experiences of crowd events during Covid-19

Please mark either 'yes' or 'no' for every statement below:

	Yes	No
I have read and understood the Participant Information Sheet	○	○
I am aware of the potential risks (if any)	○	○
I am taking part in this research study voluntarily (without coercion)	○	○
The anonymised data only may be shared in public research repositories	○	○
I consent to take part in the above study, including the anonymised results of video recording being used in analysis	○	○
I consent to take part in the above study	○	○

Please enter a unique identifier code made up of the first 3 letters of your mother's maiden name, the first 2 numbers of your date of birth. This is to keep the data anonymous but ensure that you can withdraw at any point until the study is written up by providing the unique identifier code to the research team. For example, if your mother's maiden name is Herbert, you were born on the 28th July your unique identifier code would be HER-28.

_____

Please select the event you attended from the dropdown menu below.

▼ 17th-26th April - Snooker World Championships ... 27th April-3rd May - Snooker World Championships

Please rate the extent to which you disagree or agree with the following statements

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Keeping other attendees safe was important to me	○	○	○	○	○
I was motived to help others keep safe	○	○	○	○	○
Supporting my club is important to me	○	○	○	○	○
Supporting my club was a major motivation in attending the event	○	○	○	○	○
It is important to me to follow the COVID-19 safety guidance	○	○	○	○	○
I was focused on following the COVID-19 safety guidance	○	○	○	○	○

Please rate how unimportant or important the following safety measures are to you.

Limits on the number of people who can attend

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Seats spaced in line with physical distancing guidance

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Queuing systems designed in line with physical distancing guidance

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Face masks being worn by attendees

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Please rate the extent to which you agree or disagree that each restriction impacted your enjoyment of the event.

	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
Limits of number of people who could attend	○	○	○	○	○
Physical distancing in queuing	○	○	○	○	○
Physical distancing in sitting/standing in spectator areas	○	○	○	○	○
Wearing of face mask	○	○	○	○	○

Would you recommend friends and family to attends events with similar measures in place?

- ○ Yes
- ○ Maybe
- ○ No

Below are a number of ways that safety information may have been communicated to attendees at events. Please rate the extent to which you found the communication approach ineffective or effective at your event.

	Very ineffective	Ineffective	Neither ineffective or effective	Effective	Very effective
Pre event communications	○	○	○	○	○
Events signage	○	○	○	○	○
Event stewards	○	○	○	○	○
Announcements during the event	○	○	○	○	○
Information available online	○	○	○	○	○
Information from other attendees	○	○	○	○	○

Below are questions about the safety information and safety measures. Please rate the extent to which you disagree or agree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I was provided with sufficient practical information about what to do when leaving the venue	○	○	○	○	○
I understood what actions were expected of me when leaving the venue	○	○	○	○	○
I was provided with sufficient practical information about how to follow physical distancing measures	○	○	○	○	○
I understood what physical distancing actions were expected of me during the event	○	○	○	○	○
Planned egress helps to keep attendees safe	○	○	○	○	○
Planned egress helps attendees to egress efficiently	○	○	○	○	○

Page Break

Please rate the extent to which you disagree or agree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
There were sufficient measures in place to egress safely	○	○	○	○	○
The organisers helped the attendees prepare for egress	○	○	○	○	○
There were sufficient measures in place to allow safe physical distancing	○	○	○	○	○
Physical distancing helped to keep attendees safe	○	○	○	○	○
I found the information about the safety measures at this event to be consistent	○	○	○	○	○

The questions below ask perceptions of the safety instructions. Please rate the extent to which you disagree or agree with the following statements about the safety guidance.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I wanted to go against the safety guidance	○	○	○	○	○
I was willing to follow the instructions of the event organisers	○	○	○	○	○
I intended to adhere to the instructions from the event organisers	○	○	○	○	○
I felt confident that the organisers had sufficiently prepared to keep attendees safe	○	○	○	○	○
I felt that the organisers were open about the actions they were taking to keep attendees safe	○	○	○	○	○
I looked to the club for information about how to follow the COVID-19 safety measures	○	○	○	○	○
I looked to the players for information on how to act within the COVID-19 safety measures	○	○	○	○	○
I looked to the other attendees for information about how to follow the COVID-19 safety measures	○	○	○	○	○
I looked to the stewards for information on how to act within the COVID-19 safety measures	○	○	○	○	○

This is an attention check. Please select 'strongly agree'	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I thought that myself and the management of this event were similar	○	○	○	○	○
There was great togetherness between the attendees and the management	○	○	○	○	○
There were positive relations between the attendees and management	○	○	○	○	○
I thought of myself and the stewards as similar	○	○	○	○	○
I felt a sense of unity with the stewards	○	○	○	○	○
There was great togetherness between the attendees and the stewards	○	○	○	○	○
I thought that myself and the players were similar	○	○	○	○	○
I felt a sense of unity with the players	○	○	○	○	○
I thought of myself and the players as being part of the same group	○	○	○	○	○

The following questions will ask about your feelings and views of the crowd at the event. Please answer to the best of your ability from 'strongly disagree' to 'strongly agree'.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I felt a sense of unity with the other crowd members	○	○	○	○	○
I thought of myself and the others crowd members as being part of the same group	○	○	○	○	○
I felt I had very little in common with the other crowd members	○	○	○	○	○
I thought everyone in the crowd felt part of the same group	○	○	○	○	○
I thought everyone in the crowd felt united	○	○	○	○	○
I thought everyone in the crowd felt a sense of commonality with one another	○	○	○	○	○

To what extent do you disagree or agree that the **other attendees** overall adhered to the following safety measures?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Using hand sanitiser/washing hands	○	○	○	○	○
Following physical distancing guidelines	○	○	○	○	○
Wearing a facemask when required	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The typical attendee maintained physical distancing	○	○	○	○	○
Most attendees would support others to keep safe	○	○	○	○	○
The typical attendee would intervene if they saw another person not adhering	○	○	○	○	○
Most attendees thought it was important to follow the COVID-19 safety measures	○	○	○	○	○

To what extent do you disagree or agree that **you** adhered to the following safety measures?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Using hand sanitiser/washing hands	○	○	○	○	○
Following physical distancing guidelines	○	○	○	○	○
Wearing a facemask when required	○	○	○	○	○

If you saw that another attendee was not following theCOVID-19 safety measures, how would you feel?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I would feel confident intervening to help them adhere	○	○	○	○	○
I would feel comfortable intervening	○	○	○	○	○
I would be nervous to get involved	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I felt safe when I was with the other crowd members	○	○	○	○	○
I was concerned about other crowd members spreading germs	○	○	○	○	○
I felt that the other crowd members cared about my safety	○	○	○	○	○
I felt that the other crowd members took care of one another	○	○	○	○	○
I felt that the crowd members could put me at risk	○	○	○	○	○
I could expect support from the other crowd members to keep safe	○	○	○	○	○
I was concerned that the other attendees could transmit COVID-19	○	○	○	○	○
I was worried about catching COVID-19 from other attendees	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I enjoyed being in close proximity to other attendees	○	○	○	○	○
I wanted to be close to the other attendees	○	○	○	○	○
I felt uncomfortable with the close physical proximity of the other attendees	○	○	○	○	○
Being close together with other attendees is an important part of live events for me	○	○	○	○	○
Being near other attendees is a valuable part of live events	○	○	○	○	○

How did you travel *to* the event?

- ○ Public transport (all of the journey)
- ○ Public transport (part of the journey)
- ○ By coach
- ○ Drove in own vehicle
- ○ Dropped off by friend/family member
- ○ Taxi
- ○ Walked
- ○ Cycled
- ○ Other (please state) _____

How did you travel *from* the event?

- ○ Public transport (all of the journey)
- ○ Public transport (part of the journey)
- ○ By coach
- ○ Drove in own vehicle
- ○ Dropped off by friend/family member
- ○ Taxi
- ○ Walked
- ○ Cycled
- ○ Other (please state) _____

Have you had a COVID-19 vaccine?

- ○ Yes
- ○ No

Have you had COVID-19 previously?

- ○ Yes
- ○ No

Are you either a season ticket holder or regular attendee of this event?

- ○ Season ticket holder
- ○ Regular attendee
- ○ Neither

This is the final set of questions. Please provide us with some basic demographic information.

Please select your age bracket

- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84
- ○ 85 or older
- ○ Prefer not to say

Please select your employment status

- ○ Employed full time
- ○ Employed part time
- ○ Unemployed looking for work
- ○ Unemployed not looking for work
- ○ Retired
- ○ Student
- ○ Disabled
- ○ Furloughed
- ○ Full time carer
- ○ Prefer not to say

Please select your gender identity

- ○ Male
- ○ Female
- ○ Non-binary
- ○ Transgender male
- ○ Transgender female
- ○ Prefer not to say

Please select the region that you live in

- ○ England
- ○ Scotland
- ○ Wales
- ○ Northern Ireland
- ○ Outside of UK
- ○ Prefer not to say

Appendix B: Interview schedule for A Cup Semi-Final, Carabao Cup, FA Cup Final, and World Snooker Championship

1. Could you tell me what you were most looking forward to at the event?
2. Did you have any concerns about attending?
    - What were the concerns? What did you think were the main risk areas for catching the virus?
3. How did you travel to the event? With others?
4. Have you been to this venue before?
    - What do you think of the venue organisers? Do you usually meet other people you know there?
5. Did you see other people that you knew there [other than those they travelled with]?
    - How did you react when you saw them?
    - Is that typically how you would have greeted them?
6. How did you find the COVID-19 safety measures (e.g., physical distancing during queuing)?
    - Wearing face masks or coverings; keeping physical distance from others; and using hand sanitiser.
    - How necessary do you think the measures were?
    - Did you want follow them?
    - Why/why not?
    - Did you feel able to follow the measures?
    - Who do you think decides on these measures?
7. How did you access the guidance about the covid-19 safety measures?
    - [Ask about which sources – from the venue, from NHS etc.]
    - Did you understand how to follow the guidance?
    - Why/why not?
    - What parts did you find most (un)clear?
    - Who/where did you look to for information?
8. How well do you think the other attendees agreed with the safety measures?
    - Why do you think that?
    - Was there anything that might have stopped them from following the safety measures?
9. What did you think about the overall organisation of the event?
    - What made you feel safe or unsafe?
10. How did you find the crowd experience compared to before COVID-19?
    - How did you feel towards the other attendees at the event?
    - How do you think they felt towards you?
    - What were the interactions like?
11. One of the great things about live events is getting to support your team and celebrate with others. How did you show your support or celebrate?
    - Did the COVID-19 measures change your experience or actions in any way?
    - How did the others at the event show support or celebrate?
12. Now thinking about when you were leaving the event. What were you asked to do?
    - Was the guidance (un)clear?
    - Were you able to follow the guidance?
    - Which parts (e.g., wearing face masks, using hand sanitiser, physical distancing)?
    - How did others act?
13. Is there anything else you would like to mention, that we haven't already discussed?

Appendix C: Online survey for Sefton Park

Please enter a unique identifier code made up of the first 3 letters of your mother's maiden name, the first 2 numbers of your date of birth. This is to keep the data anonymous but ensure that you can withdraw at any point until the study is written up by providing the unique identifier code to the research team. For example, if your mother's maiden name is Herbert, you were born on the 28th July your unique identifier code would be HER-28.

_____

Please rate the extent to which you disagree or agree with the following statements

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Keeping other attendees safe was important to me	○	○	○	○	○
I was motived to help others keep safe	○	○	○	○	○
It is important to me to follow the COVID-19 safety guidance prior to entering the venue	○	○	○	○	○
I was focused on following the COVID-19 safety guidance prior to entering the venue	○	○	○	○	○

Please rate how unimportant or important the following safety measures are to you.

Limits on the number of people who can attend

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Queuing systems designed in line with physical distancing guidance

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Face masks being worn by attendees

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Providing a negative result from a lateral flow test prior to entry

- ○ Very unimportant
- ○ Unimportant
- ○ Neither unimportant or important
- ○ Important
- ○ Very important

Please rate the extent to which you agree or disagree that each restriction impacted your enjoyment of the event.

	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
Limits of number of people who could attend	○	○	○	○	○
Physical distancing in queuing prior to entry	○	○	○	○	○

Would you recommend friends and family to attends events with similar measures in place?

- ○ Yes
- ○ Maybe
- ○ No

Below are a number of ways that safety information may have been communicated to attendees at events. Please rate the extent to which you found the communication approach ineffective or effective at your event.

	Very ineffective	Ineffective	Neither ineffective or effective	Effective	Very effective
Pre event communications	○	○	○	○	○
Events signage	○	○	○	○	○
Event stewards	○	○	○	○	○
Announcements during the event	○	○	○	○	○
Information available online	○	○	○	○	○
Information from other attendees	○	○	○	○	○

Below are questions about the safety information and safety measures. Please rate the extent to which you disagree or agree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I was provided with sufficient practical information about what to do when leaving the venue	○	○	○	○	○
I understood what actions were expected of me when leaving the venue	○	○	○	○	○
I was provided with sufficient practical information about how to follow physical distancing measures before entry	○	○	○	○	○
I understood what physical distancing actions were expected of me before entry	○	○	○	○	○
Planned exiting helped to keep attendees safe	○	○	○	○	○
Planned exiting helped attendees to leave efficiently	○	○	○	○	○

Please rate the extent to which you disagree or agree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
There were sufficient measures in place to exit the venue safely	○	○	○	○	○
The organisers helped the attendees prepare for exiting the venue	○	○	○	○	○
There were sufficient measures in place to allow safe physical distancing prior to entry	○	○	○	○	○
Physical distancing helped to keep attendees safe prior to entry	○	○	○	○	○
I found the information about the safety measures at this event to be consistent	○	○	○	○	○

The questions below ask perceptions of the safety instructions. Please rate the extent to which you disagree or agree with the following statements about the safety guidance.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I wanted to go against the safety guidance	○	○	○	○	○
I was willing to follow the instructions of the event organisers	○	○	○	○	○
I intended to adhere to the instructions from the event organisers	○	○	○	○	○
I felt confident that the organisers had sufficiently prepared to keep attendees safe	○	○	○	○	○
I felt that the organisers were open about the actions they were taking to keep attendees safe	○	○	○	○	○
I looked to the musicians for information on how to act within the safety measures	○	○	○	○	○
I looked to the other attendees for information about how to follow the safety measures	○	○	○	○	○
I looked to the stewards for information on how to act within the safety measures	○	○	○	○	○
This is an attention check. Please select 'strongly agree'	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I thought that myself and the management of this event were similar	○	○	○	○	○
There was great togetherness between the attendees and the management	○	○	○	○	○
There were positive relations between the attendees and management	○	○	○	○	○
I thought of myself and the stewards as similar	○	○	○	○	○
I felt a sense of unity with the stewards	○	○	○	○	○
There was great togetherness between the attendees and the stewards	○	○	○	○	○
I thought that myself and the musicians were similar	○	○	○	○	○
I felt a sense of unity with the musicians	○	○	○	○	○
I thought of myself and the musicians as being part of the same group	○	○	○	○	○

The following questions will ask about your feelings and views of the crowd at the event. Please answer to the best of your ability from 'strongly disagree' to 'strongly agree'.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I felt a sense of unity with the other crowd members	○	○	○	○	○
I thought of myself and the others crowd members as being part of the same group	○	○	○	○	○
I felt I had very little in common with the other crowd members	○	○	○	○	○
I thought everyone in the crowd felt part of the same group	○	○	○	○	○
I thought everyone in the crowd felt united	○	○	○	○	○
I thought everyone in the crowd felt a sense of commonality with one another	○	○	○	○	○

To what extent do you disagree or agree that the **other attendees** overall adhered to the following safety measures?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Following physical distancing guidelines prior to entry	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The typical attendee maintained physical distancing prior to entry	○	○	○	○	○
Most attendees would support others to keep safe	○	○	○	○	○
The typical attendee would intervene if they saw another person not being safe	○	○	○	○	○
Most attendees thought it was important to follow the safety measures	○	○	○	○	○

To what extent do you disagree or agree that **you** adhered to the following safety measures?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
Following physical distancing guidelines prior to entry	○	○	○	○	○

If you saw that another attendee was not following the COVID-19 safety measures, how would you feel?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I would feel confident intervening to help them adhere	○	○	○	○	○
I would feel comfortable intervening	○	○	○	○	○
I would be nervous to get involved	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I felt safe when I was with the other crowd members	○	○	○	○	○
I was concerned about other crowd members spreading germs	○	○	○	○	○
I felt that the other crowd members cared about my safety	○	○	○	○	○
I felt that the other crowd members took care of one another	○	○	○	○	○
I felt that the crowd members could put me at risk	○	○	○	○	○
I could expect support from the other crowd members to keep safe	○	○	○	○	○
I was concerned that the other attendees could transmit COVID-19	○	○	○	○	○
I was worried about catching COVID-19 from other attendees	○	○	○	○	○

To what extent do you disagree or agree with the following statements?

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I enjoyed being in close proximity to other attendees	○	○	○	○	○
I wanted to be close to the other attendees	○	○	○	○	○
I felt uncomfortable with the close physical proximity of the other attendees	○	○	○	○	○
Being close together with other attendees is an important part of live events for me	○	○	○	○	○
Being near other attendees is a valuable part of live events	○	○	○	○	○

How did you travel *to* the event?

- ○ Public transport (all of the journey)
- ○ Public transport (part of the journey)
- ○ By coach
- ○ Drove in own vehicle
- ○ Dropped off by friend/family member
- ○ Taxi
- ○ Walked
- ○ Cycled
- ○ Other (please state) _____

How did you travel *from* the event?

- ○ Public transport (all of the journey)
- ○ Public transport (part of the journey)
- ○ By coach
- ○ Drove in own vehicle
- ○ Dropped off by friend/family member
- ○ Taxi
- ○ Walked
- ○ Cycled
- ○ Other (please state) _____

Have you had a COVID-19 vaccine?

- ○ Yes
- ○ No

Have you had COVID-19 previously?

- ○ Yes
- ○ No

Are you either a season ticket holder or regular attendee of this event?

- ○ Regular attendee
- ○ Neither

This is the final set of questions. Please provide us with some basic demographic information.

Please select your age bracket

- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84
- ○ 85 or older
- ○ Prefer not to say

Please select your employment status

- ○ Employed full time
- ○ Employed part time
- ○ Unemployed looking for work
- ○ Unemployed not looking for work
- ○ Retired
- ○ Student
- ○ Disabled
- ○ Furloughed
- ○ Full time carer
- ○ Prefer not to say

Please select your gender identity

- ○ Male
- ○ Female
- ○ Non-binary
- ○ Transgender male
- ○ Transgender female
- ○ Prefer not to say

Please select the region that you live in

- ○ England
- ○ Scotland
- ○ Wales
- ○ Northern Ireland
- ○ Outside of UK
- ○ Prefer not to say

Appendix D: Interview schedule for Sefton Park

1. Why did you want to come to the event?
2. Could you tell me what you were most looking forward to at the event?
3. Did you have any concerns about attending?
    a. Prompt: What were the concerns? What did you think were the main risk areas for catching the virus?
4. How did you travel to the event? With others?
5. Have you been to this venue before?
    a. Prompt: What do you think of the people who run the venue? Do you usually meet other people you know there?
6. Did you see other people that you knew there [other than those they travelled with]?
    a. Prompt: How did you react when you saw them? Is that typically how you would have greeted them?
7. How did you feel about not having covid-19 safety measures such as physical distancing and not wearing face masks)?
    a. Prompt: This event was part of a broader programme testing live crowd events where safety measures were in place like physical distancing and mask wearing. How necessary do you think the measures such as wearing masks usually are for live events during covid-19?
    b. How safe did you feel at the event?
8. There were some covid-19 safety measures in place such as physical distancing when queuing before entering the event, and having a negative results on a lateral flow test. What did you think of physical distancing in the queue? What did you think of taking the lateral flow test?
    a. Prompt: were you happy to comply with the physical distancing? With the lateral flow test?
    b. Prompt: Did you feel able to comply with the physical distancing? With taking the lateral flow test?
    c. Prompt: Who do you think decides on these measures?
9. How did you access the guidance about the covid-19 safety measures that were in place, such as taking a lateral flow test before arriving?
    a. Prompt: [ask about which sources – from the venue, from NHS etc.]
    b. Prompt: Did you understand how to follow the guidance? Why/why not? What parts did you find most (un)clear?
    c. Prompt: Who/where did you look to for information?
10. How well do you think the other attendees agreed with the safety measures?
    a. Prompt: Why do you think that?
    b. Prompt: Was there anything that might have stopped them from following the safety measures?
11. What did you think about the overall organisation of the event?
    a. Prompt: What made you feel safe or unsafe?
12. How did you find the crowd experience compared to before covid-19?
    a. Prompt: How did you feel towards the other attendees at the event?
    b. Prompt: What were the interactions like?
    c. Prompt: How do you think they felt towards you?

13. One of the great things about live events is getting to share the experience with others. How did you find being together with others to watch the musicians?
    a. Prompt: How did you show you were enjoying the event? (e.g., singing along to the music)
    b. Prompt: How did the others at the event show they were enjoying it?
    c. Prompt: Did the decision to not have covid-19 measures such as mask-wearing change your experience or actions in any way?
14. Now thinking about when you were leaving the event. What were you asked to do?
    a. Prompt: Was the guidance (un)clear? Were you able to follow the guidance? Which parts? How did others act?
15. Is there anything else you would like to mention that we haven't already discussed?