


ARTICLE

Identifying targets for interventions to support public use of face coverings

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Abstract

Objectives: Interventions to promote the wearing of face coverings if required in the future can only be developed if we know why people do or do not wear them. Study aims were, therefore, to assess public adherence to wearing face coverings to reduce transmission of SARS-CoV-2 and to gauge why people were or were not wearing face coverings in work, public transport, and indoor leisure settings.

Design: Cross-sectional survey.

Methods: 10,622 adults (25 January–6 February 2022) who were representative of the UK population were asked about their (a) wearing of face coverings in work, public transport, and leisure settings; (b) sociodemographic characteristics; and (c) perceptions of capabilities, opportunities, and motivations (“COM-B”). Data were analysed descriptively, using within-participants ANOVA and multiple linear regression.

Results: Participants reported mostly wearing face coverings in public transport settings (>80%), but substantially less in work (<50%) and leisure (<30%) contexts. Perceptions of capabilities, opportunities, and motivations to wear face coverings were consistently associated with the actual wearing of face coverings across the three settings, but there were marked deficits in automatic motivation and

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social opportunity. People living in England, describing themselves as White, and men were least likely to wear face coverings.

Conclusions: Interventions targeted at men, people living in England, and those describing themselves as White that focus on increasing capabilities, providing greater opportunities and boosting motivations are suggested to promote the wearing of face coverings, with particular focus on addressing automatic motivation and social opportunity.

KEYWORDS

adherence, COVID-19, face covering, face mask, intervention, SARS-CoV-2

Statement of Contribution

What is known already?

- Widespread wearing of face coverings limits transmission of airborne viruses.
- Understanding why people do or do not wear face coverings is important in developing interventions to increase/sustain the wearing of face coverings.
- Something is known about psychological influences on intentions to wear face coverings, but little on actual behaviour.

What this study adds?

- An understanding of face covering that includes contextual, physical, psychological, social, and automatic influences on behaviour.
- A representative sample of the UK population ($N = 10,622$) reported wearing face coverings in public transport settings (>80%), but substantially less so in work (<50%) and leisure (<30%) contexts.
- Interventions targeted at men, people living in England, and those describing themselves as White that focus on increasing capabilities, providing greater opportunities, and boosting motivations are suggested to promote the wearing of face coverings, with particular focus on addressing automatic motivation and social opportunity.

BACKGROUND

At a very early stage of the COVID-19 pandemic, it was recognized that changes in behaviour would be important in preventing spread of the virus and that behavioural scientists would have a key role to play (e.g., van Bavel et al., 2020). In July 2020, the UK governments mandated the wearing of face coverings in defined public areas (e.g., on public transport) enforceable by fines of up to £6400 (US\$8700) (UK Government Cabinet Office, 2020) to mitigate the effects of the SARS-CoV-2 virus. Wearing face coverings protects the wearer from airborne viruses as well as protecting non-wearers from infection; even limited wearing of face coverings should decrease community transmission of airborne viruses (Greenhalgh et al., 2020; Howard et al., 2021). Adherence to government COVID-19-related instructions has generally been high (e.g., Armitage et al., 2021), and estimates suggest that adherence to

wearing face coverings may have been as high as 90% in some countries (e.g., Freidin et al., 2021) and 73% in the UK (Conroy et al., 2022). However, as countries relax legal imperatives with respect to the wearing of face coverings, there is a need to understand why people do or do not wear face coverings in case new airborne viral threats emerge and face covering mandates need to be reinstated.

Although several studies have examined why people do or do not wear face coverings, they have often been restricted to considering people's reflective motivation. For example, Howard (2021) found that men and women differed in their beliefs about face coverings, with men perceiving them as a threat to independence and women considering them to be uncomfortable. Sun et al.'s (2021) study used Ajzen's (1991) theory of planned behaviour to understand people's intentions to wear face coverings among 477 international students in Chinese universities. Although Sun et al. (2021) showed that attitudes and perceptions of control were predictive of intentions, intentions are just one part of the picture with respect to predicting behaviour (see also Capraro & Barcelo, 2020, who similarly use intention as a dependent variable). Michie et al.'s (2014) capabilities, opportunities and motivations model of behaviour change (COM-B), which is designed to capture all the key drivers of human behaviour would posit intention as an indicator of reflective motivation.

The UK National Institute for Health and Care Excellence endorses the COM-B model as a key theoretical framework for understanding and supporting behaviour change (NICE, 2014). Indeed, Howard (2021) recommends considering COM-B as a lens with which to understand differences in women and men's approaches to wearing face coverings. More recently, Wright et al. (2022) used indirect indices of people's capabilities (e.g., annual household income), opportunities (e.g., ethnicity), and motivations (e.g., household overcrowding) and recommended focusing on motivation to increase use of face coverings. However, there are questions as to how accurately these indirect indices reflect people's actual experiences of their capabilities, opportunities, and motivations. For example, it is not clear how well household overcrowding reflects people's reflective or automatic motivation to wear a face covering (Michie et al., 2014). A further limitation of previous research into the wearing of face coverings (e.g., Armitage et al., 2021; Conroy et al., 2022) is a focus on a single context, whereas government legislation/guidance attached to the wearing of face coverings has differed greatly between contexts (e.g., at all times on public transport; when not eating or drinking in leisure contexts) and has not been captured directly in previous studies.

The current study

For the first time, the present study aims to assess how many people are wearing face coverings in a large sample that is representative of the UK population and understand why people are or are not wearing face coverings in a range of settings. Ultimately, the aim is to provide data that will inform the development of evidence-based interventions to improve uptake and use of face coverings when required. For example, it would be valuable to know whether the population felt capable of wearing face coverings, but lacked motivation: interventions could then be targeted at boosting people's motivation.

METHOD

Study design and participants

The study design was cross-sectional. YouGov, a market research company, recruited probabilistically a sample of 10,622 UK residents aged 18+ from their existing database of over 1 million panel members based on a 90.6% completion rate. The sample was designed to be representative of the UK adult population, and participants were invited to take part in an online questionnaire and were incentivized in line with YouGov's points system. The data were sent securely to the research team for analysis. Ethical

approval was obtained from a University Research Ethics Committee (ref: 2021-13300-21577) and participants gave informed consent at the beginning of the survey.

Instrument

Sociodemographic variables

Sociodemographic measures of age, gender, ethnicity, and socioeconomic status and country (i.e., England, Northern Ireland, Scotland, Wales) were taken using standard UK Office for National Statistics (2020) items.

Behaviour

Participants rated the extent to which they wore face coverings on 0%–100% scales using the items, “Of the time you spent *at work/on public transport/doing leisure activities that brought you into contact with other people in indoor spaces (e.g., cinemas, theatres, live music, nightclubs)* in the last 7 days, roughly what percentage of it did you spend wearing a face covering?”

Psychosocial variables

Keyworth et al.’s (2020) COM-B measure was used to assess people’s capabilities, opportunities, and motivations with respect to wearing face coverings at work, on public transport, and during leisure activities. The items are based on Keyworth et al.’s (2020) measure that comprises six items designed to tap physical capability, psychological capability, physical opportunity, social opportunity, reflective motivation, and automatic motivation, which are presented in Table 2. The items are accompanied by brief definitions of each of the constructs (e.g., the reflective motivation item is accompanied with: “What is motivation? Conscious planning and evaluation (beliefs about what is good and bad) (e.g., I have the desire to, I feel the need to).

Data collection

The data were collected via an online survey between 25 January and 6 February 2022, during a phase of reduction in case numbers and deaths attributed to SARS-CoV-2 infection in the UK. At the time of data collection, there were no legal requirements in England to wear face coverings in any setting, but the government recommended “that you continue to wear a face covering in crowded and enclosed spaces where you may come into contact with other people you do not normally meet” (UK Department of Health and Social Care, 2022). Rules in Northern Ireland, Scotland and Wales were much more stringent (e.g., in Scotland there was a legal requirement for people aged 12 years and older to wear a face covering in most indoor spaces).

Statistical analyses

To ensure analyses properly reflected the UK population, data were weighted by age, gender, social class, region, and level of education based on the national profile of people aged 18+, including those without access to the internet. Descriptive statistics were used to characterize the population and illustrate levels of face covering in each context and perceptions of capabilities, opportunities, and motivations. Wearing of face coverings was entered as a dependent variable in multiple linear

regressions to examine associations between sociodemographic factors, psychosocial variables, and adherence. Because of large correlations within the capability, opportunity, and motivation model constructs ($r_s > .70$), three separate linear regression models were used for each of capability, opportunity, and motivation. Each model was adjusted (i.e., control variables were included) for potential correlates of face covering (age, gender, ethnicity, social grade, and country). To evaluate the effect of context on behaviour, we conducted within-person ANOVAs on behaviour and COM-B variables for those people who had attended a workplace, used public transport, and had been to an indoor leisure venue ($n = 624$).

RESULTS

Participant characteristics

Consistent with the sampling frame, the sample ($N = 10,622$) was broadly representative of the UK population (ONS, 2020). As presented in Table 1, most participants were White (88.4%) and half were women (51.3%) and roughly evenly split between people with backgrounds in non-manual (51.6%) and manual occupations/unemployed (48.4%). Mean age was 47.25 years ($SD = 17.65$). Table 1 also reports the proportions of people who did not wear face coverings at all when they were in work, public transport, and leisure settings. Relatively few people (<10%) avoided wearing face coverings on public transport, but almost half (43.7%) did so in leisure settings.

Table 2 shows data for those people who reported physically going into work, using public transport in the preceding 7 days, and/or who had taken part in leisure activities. Although not strictly directly

TABLE 1 Sociodemographic characteristics of the sample, $N = 10,622$

Variable	%	<i>M</i>	<i>SD</i>
Gender			
Men, $n = 5173$	48.7	—	—
Women, $n = 5449$	51.3	—	—
Age	—	47.3	17.8
Social grade			
Non-manual, $n = 5484$	51.6	—	—
Manual/unemployed, $n = 5138$	48.4	—	—
Ethnicity			
White, $n = 9390$	88.4	—	—
Black, Asian, Minority Ethnic/Prefer not to say, $n = 1232$	11.6	—	—
Country			
England, $n = 8912$	83.9	—	—
Northern Ireland, $n = 297$	2.8	—	—
Scotland, $n = 903$	8.5	—	—
Wales, $n = 510$	4.8	—	—
Did not wear a face covering at all at work, $n = 959/4364$	22.0	—	—
Did not wear a face covering at all on public transport, $n = 329/3770$	8.7	—	—
Did not wear a face covering at all in leisure settings, $n = 1548/3538$	43.7	—	—

Note. The denominators reported for the bottom three rows reflect those people who had reported physically being in work, using public transport and attending leisure settings.

TABLE 2 Behavioural and psychosocial characteristics of the independent samples attending work, using public transport and attending indoor leisure venues

Variable	Work, <i>N</i> = 4364 ^b		Public transport, <i>N</i> = 3770 ^c		Leisure, <i>N</i> = 3538 ^d	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Face Covering (0%–100%)	42.96	39.98	82.60	35.17	27.27	36.99
Physical Capability: “I am PHYSICALLY able to wear a face covering at work/on public transport/doing leisure activities” (0–10)	8.24	2.53	8.83	2.21	7.75	2.88
Psychological Capability: “I am PSYCHOLOGICALLY able to wear a face covering at work/on public transport/doing leisure activities” (0–10)	7.85	2.71	8.66	2.31	7.47	3.00
Physical Opportunity: “Of the time you spent working/on public transport/doing leisure activities in the last 7 days, roughly what percentage of it did you have the PHYSICAL opportunity to wear a face covering?” (0%–100%)	72.45	38.42	87.44	30.33	59.97	42.91
Social Opportunity: “Of the time you spent working/on public transport/doing leisure activities in the last 7 days, roughly what percentage of it did you have the SOCIAL opportunity to wear a face covering?” (0%–100%)	62.95	41.55	84.14	32.50	51.10	43.01
Reflective Motivation: “I am motivated to wear a face covering at work/on public transport/doing leisure activities” (0–10)	6.35	3.56	8.09	2.86	5.86	3.53
Automatic Motivation: “Wearing a face covering at work/on public transport/doing leisure activities is something that I do automatically” (0–10)	6.13	3.56	7.93	2.89	5.63	3.52

^a“Leisure activities” was expanded to specify, “doing leisure activities that brought you into contact with other people in indoor spaces (e.g., cinemas, theatres, live music, nightclubs)”.

^bTotal sample is 10,622, of whom 6258 (58.9%) described themselves as either “not currently in work” or “only working from home”.

^cTotal sample is 10,622, of whom 3770 (35.5%) described themselves as currently using public transport.

^dTotal sample is 10,622, of whom 3538 (33.3%) described themselves as having taken part in leisure activities that brought them into contact with other people in indoor spaces in the last 7 days.

comparable (e.g., people may have been to work but may not have used public transport), it is notable that the wearing of face coverings on public transport (82.60%) is substantially higher than in either work (42.96%) or leisure settings (27.27%). Correspondingly, people in public transport settings reported high levels of capabilities, opportunities, and motivations with respect to wearing face coverings, relative to people in work and leisure settings. Within each context, reports of automatic motivation were generally the lowest and ratings of physical and psychological capabilities were highest. The one exception to this pattern of findings was in leisure contexts, where people reported having the social opportunity to wear a face covering on 51.10% of occasions, but rated their automatic motivation as 56.30% (5.63 on a 0–10 scale).

Zero-Order correlations between behaviour and COM

Table 3 presents the zero-order correlations between behaviour and COM, divided into the three behavioural contexts. Consistent across all three contexts are the statistically significant correlations between the wearing of face coverings and each of the COM components, all of which exceed $r = .26$ and would therefore be considered “medium-sized” effects (Cohen, 1992). The correlation between physical opportunity and the wearing of a face covering on public transport is particularly large ($r = .70$). There is further good evidence of discriminant validity between capabilities, opportunities, and motivations but, as one would predict, there is a large amount of overlap within capability, opportunity, and motivation.

TABLE 3 Zero-order correlations among COM components and behaviour

Variables	Physical capability	Psychological capability	Physical opportunity	Social opportunity	Reflective motivation	Automatic motivation
Work						
Behaviour	.28	.33	.41	.49	.56	.61
Physical capability	–	.74	.31	.30	.42	.42
Psychological capability		–	.28	.30	.52	.51
Physical opportunity			–	.72	.20	.21
Social opportunity				–	.27	.29
Reflective motivation					–	.85
Public transport						
Behaviour	.45	.44	.70	.64	.53	.51
Physical capability	–	.82	.42	.40	.59	.58
Psychological capability		–	.39	.38	.66	.64
Physical opportunity			–	.80	.34	.32
Social opportunity				–	.34	.32
Reflective motivation					–	.83
Leisure						
Behaviour	.26	.29	.41	.49	.48	.48
Physical capability	–	.77	.34	.31	.44	.44
Psychological capability		–	.27	.30	.55	.54
Physical opportunity			–	.74	.14	.14
Social opportunity				–	.22	.23
Reflective motivation					–	.88

Note: All p -values $< .001$.

Associations between sociodemographic variables, COM, and wearing of face coverings and adherence

Multiple linear regression (Table 4) showed that controlling for sociodemographic variables, people's perceptions of their capabilities, opportunities, and motivations remained significantly associated with wearing face coverings. In each context, greater wearing of face covering was associated with greater perceptions of capabilities, opportunities, and motivations. Beyond this, there were different patterns of prediction depending on context. Wearing face coverings at work was associated with being a woman, working in a manual occupation, having a Black, Asian, or Minority Ethnic background, and living in Northern Ireland, Scotland, or Wales (Table 4). In contrast, wearing face coverings on public transport was not statistically significantly associated with any of the sociodemographic variables. In leisure settings, women, younger people, people with Black, Asian, or Minority Ethnic backgrounds, and people living in Northern Ireland, Scotland, or Wales were more likely to wear face coverings.

Effects of context on face covering

To evaluate the effect of context on behaviour, we conducted within-persons ANOVAs on behaviour and COM-B variables for those people who had attended a workplace, used public transport, and had been to an indoor leisure venue (Table 5). Findings revealed a powerful effect of context (Table 5): on average, people wore face coverings on 81.51% of occasions on public transport, but only 37.65% of the time at work and just 26.39% of the time in leisure venues. This pattern of findings remained the same for people's perceptions of capabilities, opportunities, and motivations, and all were statistically significant between each of the contexts. The proportions of time spent wearing a mask at work/on public transport/in leisure contexts were only weakly correlated with proportion of time spent with others in those setting ($r = .08; -.03; -.05$, respectively).

DISCUSSION

Principal findings

For the first time, the present research examined the wearing of face coverings in the context of the SARS-CoV-2 pandemic in three key contexts, namely, at work, on public transport, and in leisure settings. There were striking differences between contexts, with much more wearing of face coverings reported on public transport than in work or leisure contexts. Perceptions of capabilities, opportunities, and motivations were all associated with the wearing of face coverings regardless of context, and analysis of sociodemographic variables suggested that men and people in England (as opposed to the rest of the UK) may need extra support in wearing face coverings.

Previous studies

The finding that there was >80% use of face coverings in public transport settings closely resembles previous estimates of the wearing of face coverings of >70% (e.g., Conroy et al., 2022; Freidin et al., 2021). However, the context is clearly important and adherence to face coverings was markedly lower in work places and leisure settings. It is therefore plausible that previous high estimates of adherence to government COVID-19-related instructions may have been inflated by asking people about their wearing of face coverings in general, as opposed to specific contexts. The present study may have avoided people's tendency to self-serving bias (e.g., Allen et al., 2019) by examining different contexts, thereby allowing people to present their best possible selves (e.g., on public transport) alongside occasions on which they

TABLE 4 Associations between sociodemographic variables, COM-B, and face covering

Variable	<i>B</i>	<i>SE</i>	95% CI	<i>p</i>
Work				
Gender (1 = Men; 2 = Women)	9.77	1.02	7.76, 11.78	<.01
Age	0.01	0.04	-0.07, 0.08	.93
Social grade (1 = non-manual; 2 = manual)	7.92	1.02	5.92, 9.91	<.01
Ethnicity (1 = White; 2 = Black, Asian or Minority Ethnic)	14.28	1.59	11.16, 17.40	<.01
Country (1 = England; 2 = Northern Ireland, Scotland, Wales)	7.42	1.41	4.67, 10.18	<.01
Physical capability	1.72	0.33	1.08, 2.37	<.01
Psychological capability	3.54	0.31	2.94, 4.14	<.01
Physical opportunity	0.25	0.02	0.21, 0.28	<.01
Social opportunity	0.30	0.02	0.27, 0.34	<.01
Reflective motivation	2.11	0.26	1.59, 2.63	<.01
Automatic motivation	4.95	0.25	4.46, 5.43	<.01
Public transport				
Gender	0.83	0.81	-0.76, 2.43	.31
Age	-0.02	0.02	-0.07, 0.02	.37
Social grade	-1.06	0.82	-2.66, 0.55	.20
Ethnicity	0.65	1.13	-1.57, 2.87	.57
Country	1.68	1.16	-0.59, 3.94	.15
Physical capability	4.42	0.40	3.64, 5.19	<.01
Psychological capability	3.14	0.38	2.39, 3.88	<.01
Physical opportunity	0.61	0.02	0.57, 0.66	<.01
Social opportunity	0.23	0.02	0.19, 0.27	<.01
Reflective motivation	4.08	0.30	3.49, 4.67	<.01
Automatic motivation	2.84	0.30	2.26, 3.43	<.01
Leisure				
Gender	6.81	1.08	4.69, 8.92	<.01
Age	-0.10	0.03	-0.16, -0.39	<.01
Social grade	-0.24	1.11	-2.41, 1.94	.83
Ethnicity	8.14	1.82	4.58, 11.70	<.01
Country	6.51	1.57	0.06, 0.13	<.01
Physical capability	1.14	0.32	0.51, 1.76	<.01
Psychological capability	2.72	0.31	2.12, 3.32	<.01
Physical opportunity	0.09	0.02	0.06, 0.13	<.01
Social opportunity	0.35	0.02	0.31, 0.39	<.01
Reflective motivation	2.77	0.32	2.14, 3.40	<.01
Automatic motivation	2.54	0.32	1.90, 3.17	<.01

did not adhere. At the same time, the present research provides additional support for the predictive validity of the COM-B model, which has been shown successfully to predict adherence, but only in relation to COVID-19 related instructions (Armitage et al., 2021) and the delivery of opportunistic behaviour change interventions by health care professionals (Keyworth et al., 2020).

TABLE 5 Effects of context on COM-B, N = 624

Variable	Work		Public transport		Leisure		F	p	N _p ²
	M	SD	M	SD	M	SD			
Face Covering (0%–100%)	37.65	38.76	81.51	35.76	26.39	35.73	545.04	<.01	.47
Physical Capability: “I am PHYSICALLY able to wear a face covering at work/on public transport/doing leisure activities” (0–10)	8.36	2.32	8.79	2.16	7.40	3.06	90.19	<.01	.23
Psychological Capability: “I am PSYCHOLOGICALLY able to wear a face covering at work/on public transport/doing leisure activities” (0–10)	7.82	2.72	8.43	2.56	7.07	3.17	97.38	<.01	.24
Physical Opportunity: “Of the time you spent working/on public transport/doing leisure activities in the last 7 days, roughly what percentage of it did you have the PHYSICAL opportunity to wear a face covering?” (0%–100%)	72.99	37.80	89.57	26.88	60.41	42.28	179.53	<.01	.36
Social Opportunity: “Of the time you spent working/on public transport/doing leisure activities in the last 7 days, roughly what percentage of it did you have the SOCIAL opportunity to wear a face covering?” (0%–100%)	64.76	40.30	86.69	28.65	48.89	42.27	265.97	<.01	.46
Reflective Motivation: “I am motivated to wear a face covering at work/on public transport/doing leisure activities” (0–10)	5.77	3.47	7.65	3.29	5.39	3.60	212.94	<.01	.41
Automatic Motivation: “Wearing a face covering at work/on public transport/doing leisure activities is something that I do automatically” (0–10)	5.57	3.69	7.48	3.34	5.30	3.61	193.20	<.01	.38

Note: Simple contrasts show significant differences ($p < .01$) between work versus public transport, work versus leisure and leisure versus public transport.

Implications

The study findings suggest several possible avenues for intervention. First, it would be valuable to explore further the drivers underpinning people's capabilities, opportunities, and motivations to identify what needs to change and how to change it using the behaviour change wheel (Michie et al., 2014). Automatic motivation and social opportunity seem to be particularly low, and interventions that change people's habits and emotional reactions (automatic motivation) and provide social opportunities (e.g., creating social norms) might be good places to start, and the behaviour change wheel (Michie et al., 2014) provides a framework with which to design the content of such interventions. Concurrently, we have identified sections of the population at whom such interventions might be targeted, most notably men, people living in England, and people identifying as White: in-depth work with these groups is required to understand the lack of face covering. Perhaps more important, the present research showed that context was a key driver of behaviour, and it is notable that the wearing of face coverings was highest on public transport, where the wearing of face coverings was legally mandated when the pandemic was at its peak. In contrast, work places and leisure settings have had more flexibility with the implementation of rules; for example, even when people were required to wear face coverings in leisure settings, there was an exemption when people were eating or drinking. The behaviour change wheel approach could be used to analyse these policy-level decisions and propose solutions proposed, such as new approaches to legislation or fiscal measures (e.g., Michie et al., 2014).

Strengths and limitations

This is the first study to estimate the prevalence of face coverings during the COVID-19 pandemic within a representative sample of the UK population, and it highlights the importance of the context in which face coverings are being worn. However, the research is not without flaws: the cross-sectional design does not allow causal inference, and the quantitative survey methodology does not allow for inferences into what it is about being a man and/or living in England that leads to lower levels of face covering usage, for which qualitative research would be needed. A further limitation concerns the assessment of behaviour, which was self-reported but could be observed in future studies using security cameras or perhaps face coverings embedded with remote monitoring technology.

Future research

Further in-depth work is required to understand more fully why there are differences in face covering in different contexts and what needs to change in order to promote face covering. The present research provides a potentially useful first step in identifying the areas in which to target scarce resources. For example, automatic motivation was shown to be weakest in each context, and so interventions based on theories of automatic motivation could be tested in randomized controlled trials. One promising avenue might be to draw on Gollwitzer's (1993) work on implementation intentions, which have been shown consistently to change people's habits and their health behaviours (e.g., Armitage, 2016). Implementation intentions work by alerting people to triggers in the environment and providing them with ways to copy with those triggers automatically; they are brief enough to be deployed at scale with high public health 'reach', particularly in workplace and leisure settings.

CONCLUSIONS

Large proportions of people have worn face coverings in public transport settings, but less so in work places and leisure settings. Further work is needed to develop interventions that take into

account context, demographic group, as well as addressing people's capabilities, opportunities, and motivations.

AUTHOR CONTRIBUTIONS

Christopher J. Armitage: Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; writing – original draft. **Chris Keyworth:** Conceptualization; project administration; writing – review and editing. **Nicola Gartland:** Writing – review and editing. **Anna Coleman:** Writing – review and editing. **David Fishwick:** Writing – review and editing. **Sheena Johnson:** Writing – review and editing. **Martie van Tongeren:** Funding acquisition; writing – review and editing.

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CONFLICT OF INTEREST

All authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The datasets used during the current study are available from the corresponding author on reasonable request.

CONSENT TO PARTICIPATE

Informed consent was obtained from all individual participants included in the study.

ETHICAL APPROVAL

Ethical approval was obtained from a University Research Ethics Committee (ref: 2021–13300–21577).

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