Do people with symptoms of an infectious illness follow advice to stay at home? Evidence from a series of cross-sectional surveys in the UK.

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Abstract

Objectives: To assess the percentage of people with cough, fever, or loss of taste or smell who had been to work, to shops, socialised or provided care to a vulnerable person in the ten days after developing symptoms. To investigate whether these rates differed according to the type of symptom, what the participant thought the cause of their symptoms was, and whether they had taken a COVID-19 test.

Methods: We analysed data from four online surveys conducted 20 September to 3 November 2021, commissioned via a market research company. Participants were aged over 16 years and lived in the UK.

Results: 498 participants reported one or more symptoms and had not had a positive COVID-19 test. Most employed participants had attended work (51.2% to 56.3% depending on the symptom, 95% CIs 42.2% to 65.6%). Rates of other behaviours ranged from 31.4% (caring for a vulnerable person after developing a cough: 95% CI 24.3% to 38.4%) to 61.5% (shopping for groceries or pharmacy after developing a cough: 95% CI 54.1% to 68.9%). There were no differences according to symptom experienced or what the participant felt might be the cause. People who had taken a COVID-19 test engaged in fewer behaviours than people who had not taken a test.

Conclusion: Most people in the UK with symptoms of an infectious disease are not following advice to stay at home, even if they believe they have an infectious illness. Reducing these rates may require a shift in our national attitude to infectious illnesses.

Keywords: behaviour, symptoms, influenza-like-illness, COVID-19

Key messages

What is already known about this subject?

- Employees who attend work with symptoms of an infectious disease risk spreading it to their co-workers and others who they interact with.
- In the UK, recent advice to reduce pressure on the National Health Service is for people to stay at home if they have symptoms of any infectious illness. There are no data on how well people are adhering to this.

What are the new findings?

- Most people with new onset cough, fever or loss of their sense of smell or taste are not following the advice to stay at home. Most employees report having gone to work, and between 31.4% and 40.1% (depending on the symptom) report having provided help or care for a vulnerable person.
- These rates are the same regardless of what symptom the person has or whether they think it might be caused by an infectious disease or not. People who have taken a test for COVID-19 are less likely to engage in these behaviours, perhaps because testing is more common in sectors that are serious about the need to reduce the spread of infection.

How might this impact on policy or clinical practice in the foreseeable future?

- Reducing these high rates will require concerted action from the UK Government, employers and employees. Statements asking employees to “try” to stay at home are unlikely to succeed by themselves.

INTRODUCTION

The spread of infectious disease within a workplace represents a risk to employees, those who come into contact with them and to the productivity of the organisation. Although transmission can be reduced if employees who are ill stay at home, systematic reviews have demonstrated that there are a wide range of factors that determine whether someone will have the capability, opportunity or motivation to do so.[1,2]

The COVID-19 pandemic has made this issue particularly pressing. In the UK, people who develop a new continuous cough, a fever, or a loss or change to their sense of taste or smell (the so-called 'cardinal symptoms' of COVID-19) are urged to stay at home and to take a polymerase chain reaction (PCR) test. If they receive a positive test result, they are then legally obliged to remain at home. Yet self-isolating if you receive a positive COVID-19 result is only one aspect of the UK Government's plan to ease pressure on the National Health Service during the pandemic. According to official guidance, people should also "[try] to stay at home if you are feeling unwell" even in the absence of a positive COVID-19 test, while businesses are "encouraged to ask employees to stay at home if they are feeling unwell."[3] This is intended to reduce the spread of influenza-like illness throughout workplaces and reinforces pre-exiting advice to stay off work or school when ill.[4]

While a growing body of research has explored whether people are adhering to policies around COVID-19 testing and self-isolation,[5] we are unaware of any evidence as to whether people are adhering to advice to "stay at home if you are feeling unwell" even in the absence of COVID-19. In this study, we explored the behaviour of people who reported having symptoms using a series of national surveys. We analysed rates of five behaviours among people who were symptomatic: going to work, going to the shops for food or medicine, going to the shops for other things, meeting up with friends or family you do not live with, and providing help or care for a vulnerable person. We tested whether rates differed according to the symptom that was reported, what the participant believed might have caused their symptoms, and whether the participant had taken a test for COVID-19.

METHODS

Design

The English Department of Health and Social Care commissioned a series of cross-sectional, nationally representative surveys from market research companies, beginning in January 2020. For this analysis, we used data from survey waves 58 to 61 (20 September to 3 November 2021). More details are available elsewhere.[6]

Participants

Participants were aged over 16 years, lived in the UK and had previously opted-in to receive invitations to take part in online market research surveys. Quotas were used based on age and gender (combined) and region to ensure the sample was broadly representative of the UK population on these variables. Quotas were based on mid-year (2018) projections from the Office for National Statistics.

Questionnaire items

Participants were asked whether they had developed any from a list of 13 symptoms in the past ten days. This included new continuous cough, high temperature / fever, loss of sense of smell and loss of taste. Participants who reported one of these symptoms were asked "what do you think your

symptoms could have been caused by" and were able to tick one or more of: "hayfever / allergies," "a cold," "asthma," "flu," "coronavirus," "long COVID," "other, please specify" [with a free-text space provided] and "don't know." They were also asked which, if any, of a list of actions they took "while you had these symptoms," which included "I took a test to confirm whether I have coronavirus." Anyone who ticked this option was asked whether they took a PCR test or a lateral flow test (LFT). Participants reporting cardinal symptoms were also asked "how many times after developing symptoms recently, if at all, have you completed each of these activities" and were presented with a list of eleven daily activities, of which five might involve contact with other people.

Analysis

We restricted our sample to participants who reported having experienced one or more cardinal symptoms. We excluded anyone who reported that their most recent test for COVID-19 was positive, on the basis that such people would be legally obliged to self-isolate and should have received support and regular encouragement to do so via the UK's NHS Test and Trace service. We calculated the percentage of participants who reported engaging in each of the five activities. To calculate a percentage for work attendance, we restricted the sample to those who reported being in full, part-time or self-employment. We used χ^2 tests to assess whether attribution of symptoms was associated with behaviour, by grouping participants into mutually exclusive groups according to whether they reported COVID-19 as a possible cause, whether they reported another infectious disease as a possible cause (excluding COVID-19), or whether they did not list any infectious disease as a cause. We also assessed whether behaviour differed according to whether participants had sought a test for COVID-19 because of their recent symptoms.

RESULTS

Out of a total sample of 8547, 548 participants (6.4%) reported cardinal symptoms. Of those, 50 reported that their most recent COVID-19 test was positive and were excluded. Of the remaining 498: 54.8% (n=273) were male, 44.8% (n=223) were female and 0.4% (n=2) preferred to self-describe or not say; 71.3% (n=355) identified as white British, 7.4% (n=37) identified as white other, 20.1% (n=100) identified as being from another ethnic group and 1.2% (n=6) preferred not to say; and 71.5% (n=365) were working, 26.7% (n=133) were not working and 1.8% (n=9) preferred not to say. The mean age was 36.3 years (standard deviation 15.2 years).

Most people with fever (52.5%, 95% CI 43.5% to 61.4%), cough (51.2%, 95% CI 42.2% to 60.3%) and loss of taste or smell (56.3%, 95% CI 46.9% to 65.6%) reported having been to work after developing their symptoms. Rates of going to the shops, meeting friends or family that you do not live with, and providing care for a vulnerable person ranged from 31.4% (95% CI 24.3% to 38.4%) to 61.5% (95% CI 54.1% to 68.9%; Table 1). Rates did not differ according to what symptom was reported or what the participant believed had caused their symptoms. Participants who had taken a test to check whether they had COVID-19 were generally less likely to engage in each of the behaviours.

Table 1. Behaviours among people with fever, cough or loss of taste or smell and who have not had a positive COVID-19 test

		Been out to…																			
		the shops for groceries/pharmacy					the shops for things other than groceries/pharmacy					go to work [total n=356]				meet friends or family that you don't live with				provide help or care for a vulnerable person			
		No		Yes			No		Yes			No		Yes		No		Yes		No		Yes	
		% (95%CI)	*n*	% (95%CI)	*n*	*p*	% (95%CI)	*n*	% (95%CI)	*n*	*p*	% (95%CI)	*n*	% (95%CI)	*n*	*p*	% (95%CI)	*n*	% (95%CI)	*n*	*p*	% (95%CI)	*n*	% (95%CI)	*n*	*p*
Symptom	Fever	40.7 (33.2, 48.2)	68	59.3 (51.8, 66.8)	99	.91	48.5 (40.8, 56.2)	81	51.5 (43.8, 59.2)	86	.11	47.5 (38.6, 56.5)	58	52.5 (43.5, 61.4)	64	.73	50.9 (43.2, 58.6)	85	49.1 (41.4, 56.8)	82	.75	59.9 (52.4, 67.4)	100	40.1 (32.6, 47.6)	67	.17
	Cough	38.5 (31.1, 45.9)	65	61.5 (54.1, 68.9)	104		55.6 (48.1, 63.2)	94	44.4 (36.8, 51.9)	75		48.8 (39.7, 57.8)	59	51.2 (42.2, 60.3)	62		52.7 (45.1, 60.3)	89	47.3 (39.7, 54.9)	80		68.6 (61.6, 75.7)	116	31.4 (24.3, 38.4)	53	
	Loss of taste/smell	39.1 (31.5, 46.8)	63	60.9 (53.2, 68.5)	98		44.1 (36.3, 51.9)	71	55.9 (48.1, 63.7)	90		43.8 (34.4, 53.1)	49	56.3 (46.9, 65.6)	63		48.4 (40.6, 56.2)	78	51.6 (43.8, 59.4)	83		60.2 (52.6, 67.9)	97	39.8 (32.1, 47.4)	64	
Attributed to[a]	COVID-19	41.6 (31.8, 51.4)	42	58.4 (48.6, 68.2)	59	.43	48.5 (38.6, 58.4)	49	51.5 (41.6, 61.4)	52	.71	51.2 (40.2, 62.3)	42	48.8 (37.7, 59.8)	40	.29	53.5 (43.6, 63.4)	54	46.5 (36.6, 56.4)	47	.10	59.4 (49.7, 69.1)	60	40.6 (30.9, 50.3)	41	.70
	Infectious illness	40.5 (35.0, 46.0)	125	59.5 (54.0, 65.0)	184		50.8 (45.2, 56.4)	157	49.2 (43.6, 54.8)	152		43.9 (37.1, 50.6)	93	56.1 (49.4, 62.9)	119		52.8 (47.2, 58.3)	163	47.2 (41.7, 52.8)	146		64.1 (58.7, 69.5)	198	35.9 (30.5, 41.3)	111	
	Non-infectious illness	33.3 (23.2, 43.4)	29	66.7 (56.6, 76.8)	58		46.0 (35.3, 56.7)	40	54.0 (43.3, 64.7)	47		50.8 (37.9, 63.7)	31	49.2 (36.3, 62.1)	30		40.2 (29.7, 50.7)	35	59.8 (49.3, 70.3)	52		63.2 (52.9, 73.6)	55	36.8 (26.4, 47.1)	32	
Testing uptake[a]	No test	33.8 (28.4, 39.2)	100	66.2 (60.8, 71.6)	196	.001	40.9 (35.2, 46.5)	121	59.1 (53.5, 64.8)	175	<.001	41.2 (34.6, 47.7)	91	58.8 (52.3, 65.4)	130	.03	44.3 (38.6, 49.9)	131	55.7 (50.1, 61.4)	165	.002	54.4 (48.7, 60.1)	161	45.6 (39.9, 51.3)	135	<.001
	LFT only	40.2 (30, 50.4)	37	59.8 (49.6, 70)	55		60.9 (50.7, 71)	56	39.1 (29, 49.3)	36		55.2 (42.0, 68.4)	32	44.8 (31.6, 58)	26		58.7 (48.4, 68.9)	54	41.3 (31.1, 51.6)	38		81.5 (73.4, 89.6)	75	18.5 (10.4, 26.6)	17	
	PCR test	54.1 (44.6, 63.6)	59	45.9 (36.4, 55.4)	50		63.3 (54.1, 72.5)	69	36.7 (27.5, 45.9)	40		56.6 (45.2, 68)	43	43.4 (32, 54.8)	33		61.5 (52.2, 70.8)	67	38.5 (29.2, 47.8)	42		70.6 (62.0, 79.3)	77	29.4 (20.7, 38)	32	

a. Due to a technical error, one person was not asked about their symptom attribution or test type, therefore n for those analyses is 497.

DISCUSSION

While pre-existing advice[4] and more recent messages[3] ask people to stay at home if they feel unwell, our data show that a substantial proportion of people with cough, fever or loss of their taste or smell go to work, go shopping, socialise with others, and provide care to vulnerable people. While it might be expected that such behaviours would occur less frequently in people who have a fever or who believe themselves to be infectious, we did not find this to be the case. Previous reviews have noted a wide range of factors that can prevent someone from staying at home when ill, including the absence of paid sick leave, organisational culture, a sense of professional obligation, and concern about the impact of your absence on other people.[1,2] It may be that such factors are more relevant in determining behaviour when ill than knowledge as to whether you might be contagious. If so, this has implications for interventions in this area. Encouragement to stay at home, in the absence of support, change in organisational processes, increased sick pay and indeed changes in our national culture regarding presenteeism may be insufficient.

Participants who had taken a test for COVID-19 were less likely than those who had not taken a test to have engaged in each of the five behaviours that we assessed. Given that attributing your symptoms to COVID-19 did not affect behaviour, why might this be? We have previously shown that use of a test is more common in employees who work for specific sectors where daily lateral flow tests are the norm.[7] It may be that taking a test is a marker of working in a sector where tackling the spread of infectious disease is viewed as a priority. Equally, it may be that use of a test is an indicator that someone is more adherent to Government advice in general.

Our study has several limitations. First, although we used standard market research practice to obtain our sample, we cannot be sure about its representativeness. Second, we asked people if they had developed symptoms in the past ten days, and what actions they had taken after developing symptoms. If symptoms developed ten days ago and actions were taken yesterday, the participant might have been outside of any infectious window. However, official advice is that people remain infectious with a common cold for two weeks and with influenza for eight days, suggesting this was not a major limitation.[8,9] Third, we relied on self-report of behaviour. If anything, the rates we identified are therefore likely to be underestimates.

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COMPETING INTERESTS

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DATA AVAILABILITY STATEMENT

No additional data are available from the authors.

ETHICS STATEMENT

This work was conducted as a service evaluation of the Department of Health and Social Care's public communications campaign and, following advice from King's College London Research Ethics Subcommittee, was exempt from ethical approval.

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