Parenthood, employment, anxiety, gender, and race: drivers of non-compliance with lockdown measures

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Abstract:

Since the COVID-19 pandemic started, there has been increasing evidence suggesting that current gendered and racially biased structures put in place to deal with the crises lead women and BAME population to be disproportionately affected by the pandemic. Yet, there is less information on how different groups respond to the pandemic in terms of compliance with the measures implemented by the government, and the role that parenthood and employment play in explaining compliance for such groups. We take insights from the literature on policy preferences and compliance to argue that gender, ethnicity, parenthood and employment are associated with high levels of worry about the consequences of the pandemic, leading to variations in compliance with social distancing measures. We test our argument using data from an original nationally representative survey. Results indicate that women and BAME respondents present important challenges to manage anxiety, stress and worry but they manifest differently in their compliance with social distancing measures. We also find that parenthood and employment affect compliance but in an unexpected direction. Together, results indicate that compliance is not only a matter of individual choice but also a matter of structural and contextual factors.

Keywords: COVID-19, women, BAME, parenthood, anxiety, worry

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Introduction

Since the COVID-19 pandemic started, there has been increasing evidence that the crisis affects people in different ways based on their gender (e.g. Wenham, Smith, and Morgan 2020) and race (e.g. ONS 2020, Razaq et al. 2020) and therefore, measures to resolve the crisis should take these factors into account. However, current research has mainly focused on the medical implications of the pandemic and its consequences for domestic violence, mental health, and finances. An aspect often ignored in the recent stream of research on the Covid-19 pandemic is how psychological traits and emotions can condition people's responses to public policies. In this paper, we contribute to the literature in two main ways: (i) by exploring how these differences relate to compliance with measures taken by the authority to control the pandemic; and (ii) by incorporating the role of emotional anxiety as a determinant for such compliance.

We follow an exploratory approach to answer the question of how structural, individual, and emotional aspects interact in determining compliance with safety measures around the Covid-19 pandemic. We use data from a nationally representative survey (Karyotis, et al 2020), to describe differences in terms of gender, race, parenthood and employment and how these differences are (inter) related to predicting people's willing to observe these measures. Our results are mixed. We do observe relevant differences in the levels of worry and non-compliance between male and female, and between white and Black, Asian and Minority Ethnic (BAME) respondents, and both in the direction predicted. However, the direction of the association between worry and compliance is different than we expected, with more worry being associated with higher levels of non-compliance. Finally, we find that parenthood and employment do not show a significant association with non-compliance, but they do deepen the relationship between worry and non-compliance. We discuss the implications of these results and propose some explanations for such patters and venues for further research.

This article contributes to our understanding of compliance by showing that variations in levels of anxiety play different roles in encouraging compliance in different sectors of the population. These differences are relevant in the design and implementation of government policies, along with providing novel understanding about preference formation in emergency contexts. Finally, this article presents an important contribution to our understanding of the gendered and racial effects of the crisis and the worries and needs of underrepresented groups during these challenging times.

Structural and individual factors and compliance with public policies

In order to understand what lies behind compliance with Covid-19 safety policies, we initially focus on how gender and race matter in terms of behaviour. This is relevant because the outcomes of the pandemic are heterogeneous, with women and people from Black, Asian and Minority Ethnic (BAME) groups being on the receiving end of its worst consequences. On the medical front, it has been argued that while men seem to be more likely to contract the virus and die from it (Spagnolo, Manson, and Joffe 2020), women make up 70% of all health and social-services staff globally (WHO 2018). They are in the front line when caring for the ill, either in hospitals or caring for infected family members (Alon et al. 2020). Thus, even if the mortality rate among women is lower than that of men, being in the front -line expose women to a higher risk of infection (Wenham, Smith, and Morgan 2020). In terms of ethnicity, the latest figures from the UK Office for National Statistics - ONS – showed that Black people are two times more likely to die from COVID-19, even after taking region, socio-economic background, and gender into account. Higher mortality rates are also observed for other ethnic minorities, such as people from Asian heritage (ONS 2020).

There is mounting evidence that domestic, sexual and gender-based violence increase during crises and the COVID-19 pandemic is not the exception (Chandan et al. 2020). For many women, the quarantine means being locked with an abuser, with little room for manoeuvre or escape, increasing feelings of isolation, violence and trauma (van Gelder et al. 2020).

Other reports have focused on the economic and social impacts of the pandemic. In the short term, since employed women are less likely to be in professions classified as "key" or "essential" than employed men, they are disproportionately affected by massive layouts (Alon et al. 2020). There are also long-term consequences of the long lockdown imposed in many cities around the world. Since women have the heaviest caring responsibilities, they are more likely to see their productivity affected when working from home. This will likely reflect in patterns of future earnings and promotions (Davis and VON Wachter 2011). Similar findings have been shown with regards to gender inequalities concerning the UN Sustainable Development Goals (Azcona et al. 2020)

In sum, current research argued that the medical, economic, and social dimensions of the pandemic manifest by reinforcing structures that make women and BAME population more vulnerable or by widening existing gaps between groups. The variations in the source and strength their worries (Collignon 2020) and experiences make a "one size fits all" approach to the pandemic difficult and unsuitable (Wenham, Smith, and Morgan 2020). Thus, there is a need to include their perspectives when designing policy responses to the crisis.

However, although we seem to be learning more everyday about the gendered and racialised outcomes of the pandemic, we argue that there is a lack of information about how these different groups respond to the pandemic in terms of compliance with the measures implemented by the government to deal with the spread of the virus.

The literature on structural differences in terms of public opinion and policy preferences have shown that respondents differ systematically when it comes to their views on policy issues, depending on their race, gender, and parenthood (Burlacu & Lühiste 2020) and that people tend to follow self-interested goals when defining policy preferences (Finseraas 2012, Martin et al 2019). Consequently, we could expect that the particular pressures of parenthood (e.g. the need secure employment, the increasing tension between career and family) will affect negatively the levels of compliance with measures that restrict people's abilities to work and provide for their families.

In terms of compliance with public policies - and not only on preferences towards them - the literature has been mainly focused on tax compliance and issues around policing suggesting that that sex, education and gender roles are also drivers of compliance with the rules with women being more compliant than men (Kaspillai and Jabar, 2006; Kastlunger et al, 2010; Crawford and Burns 2010). Men are consistently less compliant than women and this effect is exacerbated when it is a woman who is in a position of authority (Crawford and Burns 2010; Elias and Loomis 2006). In summary, men and women differ in the way in which they approach and behave towards policy requirements, which supports the idea that these individual-level differences could matter to study compliance with health measures around Covid-19.

Furthermore, when it comes to the novel coronavirus pandemic, early evidence shows that there are gender differences in terms of attitudinal and behavioural responses. Deckman et al. (2020) study how members of the Generation Z vary in terms of their views about the pandemic and show that young women are more likely to be concerned about the social and health consequences of the pandemic, including issues of future employment and caring responsibilities. This is consistent with the notion that women's views are rooted in their economic vulnerability (amongst other things, due to the disproportionate share of women in charge of caring for their children, in comparison with men), while men are more likely to be concerned about their own individual situation. Furthermore, economic vulnerability lies at the core of the effectiveness of lockdowns during the pandemic. As shown by Bennett (2020) examining the case of Chile and their use of lockdowns at the municipal level, these measures do not seem to have an effect in terms of stopping the transmission of the virus in low-income areas. Based on the evidence presented by Bennett, it could be expected that people

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under more precarious employment might also be less willing to stay at home, given the need to secure income for their families. Recent evidence has also shown that fragile masculinity is related to low use of face masks (Cassino & Bessen-Cassino, 2020), and that strategies that foster "benevolent sexism" - i.e. emphasising the idea that wearing a mask and keeping social distance can protect women - can increase compliance (Chen & Farhart, 2020).

Finally, we are interested on how these factors (gender, ethnicity, employment and parenthood) vary in their relationship with compliance depending on how worried people are about the outcomes of the pandemic. We have discussed above how the actual consequences of the disease, both social and health-wise, disproportionately affect women and BAME populations. Moreover, early evidence shows similar patterns with levels of anxiety produced by the pandemic, with women suffering from more depression-like symptoms than men (Özdin & Özdin, 2020; Solomou & Constantinidou, 2020). However, we do not have a good understanding how these different levels of worries and anxiety can affect (or not) compliance.

In this exploratory article, we take insights from these bodies of literature to argue that the behaviours associated with the pandemic could be influenced by the different underlying structural conditions of the population. As such, we anticipate the presence of several potential mechanisms. First, we believe that the levels of worry will be associated with underlying conditions, such as gender and ethnicity. Groups that are traditionally more vulnerable should show higher concern about the pandemic and its consequences. Second, that worries should be associated with higher levels of compliance. Finally, we expect that other conditions, such as parenthood and employment (i.e., those associated with economic vulnerability), will be associated with lower levels of compliance. The main rationale for these relationships is that for parents and people on certain employments, compliance might be a less likely choice.

Data and methods

The data for this article comes from an original online survey of 2,100 UK nationals conducted by Karyotis, et al (2020) between April 10 and April 15, 2020 when the UK was already in its fourth week of lockdown[2]. The sample is nationally representative in terms of age, gender, and region. With

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[2] The survey was conducted as part of the project Pandemic Politics (**www.pandemicpolitics.net**) by Georgios Karyotis, Sofia Collignon, John Connolly, Andrew Judge and Dimitris Skleparis. We thank them for letting us use their data for this article.

respect to gender, 47% of respondents are male (N=984) and 53% female (N= 1,116). 10% of the sample self-identified as belonging to an ethnic minority (N=224).

The survey contained questions about emotional responses to the crisis and self-reported behaviour with regards to social distancing measures and traditional socio-economic variables. We first explore the descriptive nature of the worrying patterns displayed by sex and ethnicity. We use them to construct our main independent variable **- worry intensity -** by adding them up in a continuous index that goes from zero (no worry) to 52 (the maximum level of worry in the sample). The variable has a mean of 27 and a standard deviation of 10.46.

We move then to analyse the **non-compliance** with social distancing measures. We focus on those activities that were explicitly forbidden by the government at the time the survey took place and included the self-reported frequency in which respondents went to church, visited family and friends or attended social events. In all cases, we find high levels of compliance, between 88 and 92% of respondents indicated that they did not engage in such activities during the week previous to the survey. We also included activities strongly advised against by the government (going to work and taking public transport). In this case, we find that 88% of respondents avoided using public transport but only 23% indicated that they did not went to work. The exact levels of compliance of each item can be found in table 1 in the appendix. Respondents also indicated how often they engaged in such activities; We used this information to construct our independent variable as an additive scale for **-non-compliance-** with lockdown rules, allowing us to create a fine-grained measure that differentiate between those that mostly comply with rules and those that did not. The variable has a range that goes from zero to 18, with a mean of 2 and a standard deviation of 2.8. The variable is skewed to the left, indicating that the majority of the people in the sample showed large levels of compliance (the higher the value, the lower is the level of compliance) during this first stage of the pandemic.

Our main analysis consists in understanding the role that worries about the virus, along with gender, race, employment and parenthood, play in predicting non-compliance with social distancing measures. Therefore, the analysis focuses on the differences between male and female respondents, and the differences between white and BAME population. We also include parenthood (Burlacu & Luhiste, 2020) as we expect to observe patterns between parents and non-parents, between fathers and mothers. Finally, we include a binary measure of employment situation to look for differences between hose who are employed and those who are not. We include as controls left / right ideological placement, caring for the elderly, age, education and being in a profession classified as key by the

government as these variables have been previously identified as playing a role in explaining support and compliance with lockdown measures. We fit a series of censored (tobit) regression models to estimate its relationship with our predictors of interest. We used tobit models because they are better suited to address continuous responses where the outcome variable is censored. In this case, we established the upper and lower limits at 0 and 18, respectively, because they are the minimum and maximum possible values that our dependent variable can take.

Results

The relationship between sex, ethnicity and worry about the pandemic

The survey asked respondents to indicate, in general, how worried they are about the spread of the coronavirus in the UK and the sources of their worries. Table 1 presents systematically when the observed differences by sex and ethnicity are statistically significant (p<=0.05) and figures 1 and 2 in the appendix show graphically the distribution of responses.

Women show significantly higher levels of worry. 93% of women are either concerned or very concerned about contagion with 88% of men fall in the same category. The survey confirms that health-related worries are at the top of everyone's minds, with 66% of women and 62% of men saying they are concerned or very concerned about a member of their household contracting the virus. Some 60% of women are worried about contracting the virus themselves, compared with 54% of men and 52% are also worried about not being able to obtain medicine or medical treatment in case of need. Meanwhile, only 44% of men have the same concern.

Women are also significantly more worried about not being able to obtain medicines (29% of women are very concerned vs 21% of men); feeling isolated or not able to reach family and friends in case of need (22% of women show the highest level of concern vs 14% of men) and not being able to pay their bills, rent or mortgage (19% and 12% of women and men affirm to be very concerned). Interestingly, it is known that the pandemic put women at a higher risk of domestic violence and that they carried a larger share of domestic work and care but they are as concerned as men about being able to juggle the responsibilities of family life, such as childcare, and work and being subject of abusive or violent behaviour.

Looking at the relationship between ethnicity and worry about the pandemic, the survey shows that 63% of white respondents and 71% % of BAME say they are concerned or very concerned about a member of their household contracting the virus. Some 57% of white respondents are worried about

contracting the virus themselves, compared with 59% of BAMEs. Regarding health, BAME and white respondents are equally concerned.

However, BAME respondents are systematically more concerned about the social and economic effects of the pandemic than white respondents. They are mainly concerned about not being able to obtain medicines (57%), reach family and friends (48%) or not being able to pay for their mortgage, bills or rents (45%). BAME respondents are more than twice (30%) as concerned as white respondents (13%) about being subject of abuse and violent behaviour or running out of food (44% and 24%, respectively).

Table 1 Statistical differences in levels of worry by sex and ethnicity

	Catching the virus myself	A member of my household catching the virus	Not able to obtain medicine	Running out of food	Being able to pay my bills etc	Being able to carry out social distancing	Feeling isolated	Juggle resp of family life	Being subject of abusive or violent behaviour
Sex	*	*	*	*	*	*	*	⊗	⊗
Ethnicity	⊗	⊗	*	*	*	*	*	*	*

Significant differences where p-value <=0.05 are denoted with ∗

P-values larger than 0,05 are indicated by ⊗

Statistical analysis: Understanding non-compliance

The previous section showed that at the time the survey took place, levels of worry and anxiety about the pandemic were very high in general and in particular for BAME and women. We then proceeded to look at the relationship between worry and compliance as well as variation in patterns between groups using a series of tobit models using the additive measure described before (higher values indicate less compliance).

As table 2 M1 shows, high levels of worry are positively correlated with non-compliance. Female respondents consistently show lower levels of no-compliance compared to male respondents. This is true even after controlling for worry intensity, parenthood, race, education, and ideological position.

M2 shows that the effects of the interaction between sex and worry are not significant, indicating that when it regards to compliance, men and women react similarly to worry. In other words, women are more worried about the pandemic, but this does not lead them to be more or less compliant with the lockdown rules than men.

In the case of BAME respondents, M1 indicates that they are more likely to report higher levels of no-compliance with social distancing norms. In M3, we explore these associations deeper by estimating its interaction with worry intensity. As we can observe, we do not see a significant difference between white and BAME respondents with regards to the association between worry and non-compliance.

One potential explanation for the lower level of compliance amongst BAME can be related to higher levels of poverty, labour informality or that racial and ethnic minorities disproportionately hold higher-risks front-line positions which makes compliance with social distancing more difficult. A similar rationale can explain the results in terms of BAME respondents with children. For example, the overall proportion of BAME staff in the NHS is close to 20%[3], which is higher to the 14% in the working-age population. This percentage increases to 30% in the case of medical staff. A similar story can be told around other occupations deemed as "key workers" (courier, drivers, supermarkets), where these groups were able to send their kids to school during the lockdown and therefore, their levels of non-compliance are significantly higher in the models.
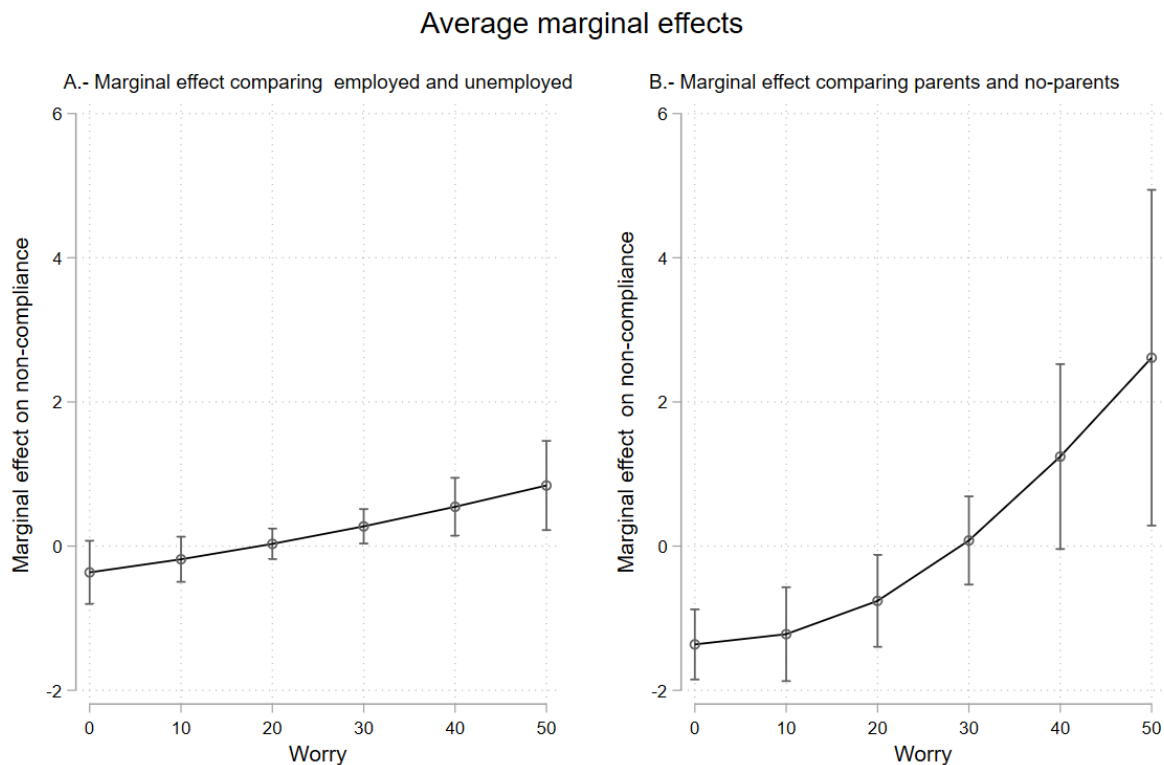
Table2: Censored (tobit) regression models using non-compliance as dependent variable.

VARIABLES	(1) M1	(3) M2	(5) M3	(7) M4	(9) M5
Worry	0.0441***	0.0498***	0.0413***	0.0394***	0.0205*
	(0.00801)	(0.0120)	(0.00809)	(0.00807)	(0.0120)
Female	-1.005***	-0.685*	-1.005***	-0.998***	-0.990***
	(0.146)	(0.398)	(0.146)	(0.146)	(0.145)
BAME	0.986***	0.986***	0.126	0.954***	0.965***
	(0.310)	(0.310)	(0.999)	(0.310)	(0.309)
Kids	0.500	0.502	0.485	-4.182**	0.482
	(0.510)	(0.510)	(0.510)	(1.653)	(0.505)
Employed	0.245	0.243	0.246	0.251	-0.652*
	(0.157)	(0.157)	(0.157)	(0.157)	(0.396)
Female * Worry		-0.0118			
		(0.0159)			
BAME * Worry			0.0274		
			(0.0322)		
Kids * Worry				0.143***	
				(0.0554)	
Employed * Worry					0.0350**
					(0.0151)

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Elderly	0.123	0.126	0.111	0.110	0.136
	(0.281)	(0.281)	(0.281)	(0.276)	(0.280)
Age	-0.442***	-0.442***	-0.444***	-0.451***	-0.447***
	(0.0580)	(0.0579)	(0.0577)	(0.0580)	(0.0579)
Graduated	-0.176	-0.180	-0.175	-0.173	-0.187
	(0.150)	(0.150)	(0.150)	(0.150)	(0.150)
Left / Right	0.227***	0.227***	0.226***	0.225***	0.221***
	(0.0378)	(0.0377)	(0.0376)	(0.0379)	(0.0372)
Key worker	1.162***	1.163***	1.161***	1.165***	1.151***
	(0.192)	(0.192)	(0.192)	(0.191)	(0.192)
Constant	1.179**	1.035**	1.267***	1.357***	1.809***
	(0.460)	(0.507)	(0.446)	(0.459)	(0.494)
AIC	9176	9178	9177	9165	9172
Observations	2,100	2,100	2,100	2,100	2,100

Figure 1 Graphical representation of marginal effects of interaction terms

Average marginal effects

A.- Marginal effect comparing employed and unemployed

B.- Marginal effect comparing parents and no-parents

The more surprising results come when we interact the level of worry with being employed and having kids. On their own, these variables are insignificant predictors of compliance, indicating that parents and the employed are as likely as no parents and the unemployed to comply with lockdown measures (M1). However, M4 and M5 show a significant effect of the interaction terms, suggesting that when levels of worry increase, parents and employed respondents are significantly more non-compliant than non-parents and the unemployed. Figure 5 present the marginal effects of interaction

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terms. Figure 1A shows that at low levels of worry (0), the employed present 0.36 points less non-compliance than the unemployed. This pattern is reversed later on and we find that at high levels of worry (50), the employed are about one point (0.84) more non-compliant than the unemployed. This is, going from minimum to maximum levels of worry, makes the employed 1.2 points more non-compliant than the unemployed. In the case of parents, figure 1B shows that the higher the levels of worry, the more non-compliant parents are. Going from minimum to maximum levels of worry leads parents to be 3.47 points more non-compliant than non-parents.

One possible explanation for this findings may lay on the source of the worry, the social distancing measures implied that a lot of families lost their support network, in many occasions this meant that parents couldn't stay at home with the children, perhaps for lack of space to keep children occupied at home, or couldn't rely on the grandparents to take care of the children when going to work or that the employed had to find alternative arrangements to be able to continue with their job responsibilities. When the stress and anxiety of the lockdown increased, they had to find alternative ways to cope with the situation, leading them to break social distancing measures.

Conclusion

There is no question that the COVID-19 pandemic has changed the world as we know it, for men and women, white and BAME people alike. However, the gendered and racial social and economic structures in place before the pandemic started have derived in an uneven carry of the burden of the disease.

The distinctive position in which women and BAME people find themselves during the pandemic also translates in challenges to manage anxiety, stress and worry. This article suggests that while men and women worry for their health and the health of loved ones, women worry in larger degree about the short- and long-term economic consequences of the pandemic as well. A similar story can be told between white and BAME respondents, who express higher levels of concern in almost all aspects asked in the survey than white respondents. Research has shown that managing high levels of stress and worry affects mental health and this may explain other research findings suggesting that being female is associated with severe consequences of lockdown on mental health (Özdin and Bayrak Özdin 2020).

Now, although women and BAME population coincide in their levels of anxiety and concern, they do differ in terms of compliance as women are more compliant with social distancing rules than men and BAME respondents are less compliant than white respondents. We argue that this could be

explained by deeper structural forces at play, such as the disproportionate number of BAME people in more precarious jobs, a notion supported by our analysis of the source of worries. BAME and white respondents show similar patterns of health-related worries but BAME respondents indicated higher levels of worry related to the economic and social consequences of the pandemic.

Finally, our results trying to understand the interaction between worry, parenthood and employment are particularly striking. These results might seem illogical at first glance. Why would someone who is more worried about COVID-19 and its consequences show lower levels of compliance with measures to stop the spread of the virus? We can think of two potential explanations that escape from the scope of this paper. First, we might be in the presence of a reversed causality, where the worries are higher because there is low compliance. That would suggest that compliance is not an easy choice and that might lead to higher levels of worry about the virus. This particular explanation sounds more reasonable when we realise that those who are parents and employed show an even larger association between worry and compliance. In essence, what we are observing is that compliance is not only a matter of individual choice but also a matter of structural and contextual factors.

Governments and policy-makers need to recognise those differences and advocate for measures to address the pandemic and its economic fallout that include gender and racial perspectives that also consider the structural drivers of compliance. Policy design around measures to fight the spread of Coronavirus cannot follow a "one size fits all" agenda. We already know how the effects of the pandemic are gendered and racialised. Policymakers should ask how different structural patterns can affect the effectiveness of social distancing, and consequently, the effectiveness of the government's response to the pandemic.

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Appendix

Table 1. Items included in the additive scale no-compliance

In the last week, how often did you personally do each of the following?		N	%
	Never	1,925	91.67
Assisted to a social event	Once	71	3.38
	Two or three times	69	3.29
	Four or more times	35	1.67
	Never	1,934	92.1
Went to Church	Once	63	3
	Two or three times	74	3.52
	Four or more times	29	1.38
	Never	1,796	85.52
Visited family or friends	Once	164	7.81
	Two or three times	109	5.19
	Four or more times	31	1.48
	Never	1,858	88.48
Had visits at home	Once	119	5.67
	Two or three times	90	4.29
	Four or more times	33	1.57
	Never	1,842	87.71
Used public transport	Once	114	5.43
	Two or three times	99	4.71
	Four or more times	45	2.14
	Never	490	23.33
Go to work	Once	1,009	48.05
	Two or three times	512	24.38
	Four or more times	89	4.24

Figure 1 How concerned are you about the following...?

Main worries during the COVID-19 pandemic

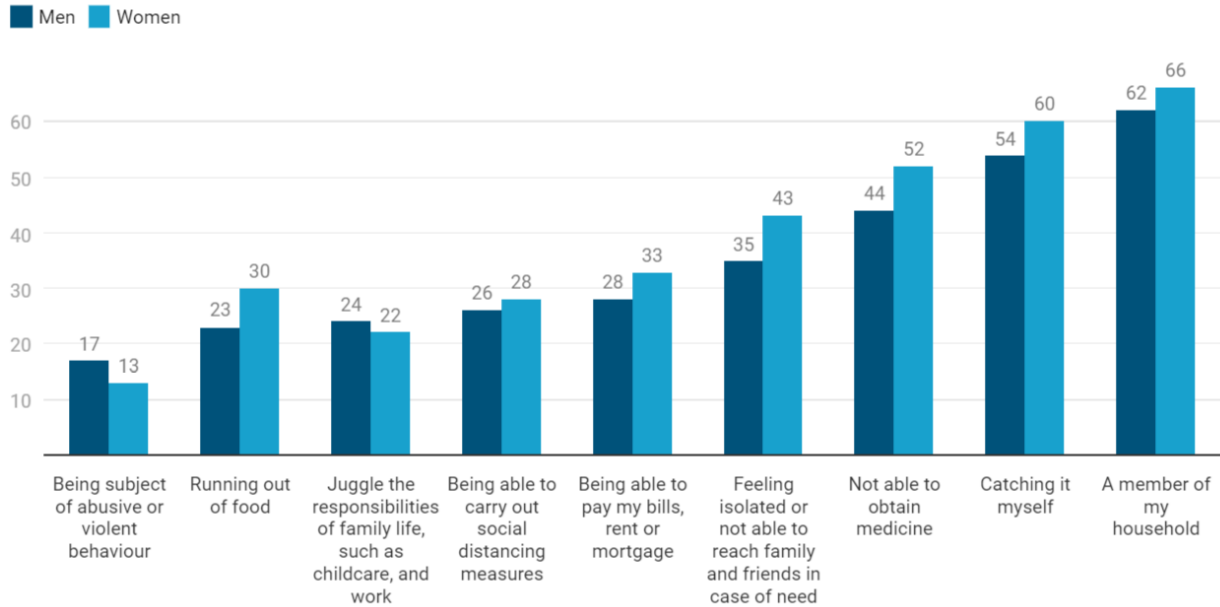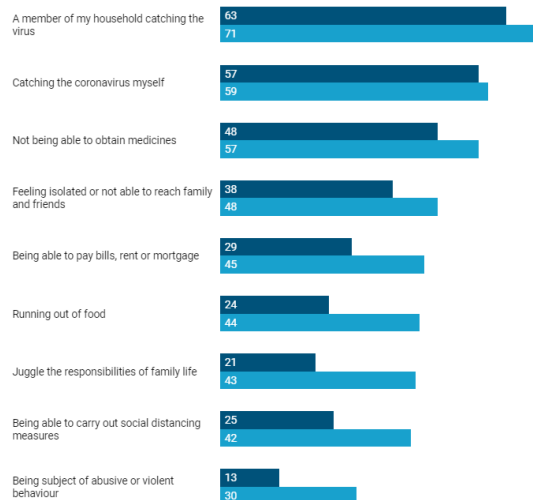Proportion of men and women who are either concerned or very concerned

■ Men ■ Women

Figure 2 Worrying patterns by ethnicity

How concerned are you currently about the following aspects of your personal situation?

Percentage or respondents that are concerned or very concerned

■ White ■ BAME

Data from Pandemic Politics Project (https://www.pandemicpolitics.net/)