# Psychological wellbeing and self-reported general health

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## Summary

1. Significant regional variations were observed.
2. All associations investigated were cross-sectional. We cannot tell the direction of causality.

Mental wellbeing and distress

1. Data indicate that **mental wellbeing is lower than average**, and **mental distress is higher than average**. Particularly notable is that levels of probable depression are higher than from a study of a population who were disrupted by flooding in 2013-14, while levels of probable anxiety are similar to those who were disrupted by flooding.
2. Mental distress was strongly associated with having an **existing chronic mental health condition.**
3. Increased mental distress was associated with overall worry about coronavirus, having gone out to meet friends and/or family in the last week, being the sole carer for dependent children, and thinking you have had coronavirus.
4. Poor mental wellbeing was strongly associated with **feeling less connected to others** and **increased self-reported poverty** (composite measure made up of: struggling to make ends meet, skipping meals and finding one’s current living situation difficult).
5. Poor mental wellbeing was also strongly associated with increased mental distress and poorer self-reported general health.

General health

1. Self-reported general health was **largely explained by sociodemographic factors**. Poorer self-reported general health was associated with not working, poorer education (not having a degree), having a coronavirus-relevant chronic condition, having a chronic mental health condition, and living in greater deprivation.
2. The majority of participants rated their general health as “good”.
3. Poorer self-reported general health was **strongly associated with poorer mental wellbeing and increased mental distress**.
4. Poorer self-reported general health was also associated with **feeling less connected to others** and **increased self-reported poverty.**

## Recommendations

1. **Promoting connectedness** will likely help improve mental wellbeing. Messaging could promote different ways to do this (e.g. by telephone, videocall) and target those who may be unfamiliar with this technology (e.g. older adults).
2. **Decreasing financial concerns and markers of self-reported poverty** will likely improve mental wellbeing and self-reported general health. This could target groups who may be particularly at risk of this.
3. Those with a **chronic mental health condition may need increased support**. This would likely decrease mental distress.

## Mental wellbeing (measures using the Short Warwick-Edinburgh Mental Wellbeing Scale; SWEMWBS)

* The Short Warwick-Edinburgh Mental Wellbeing Scale (SWEMWBS) is a valid tool for measuring wellbeing. Higher scores are associated with better mental wellbeing. Scores for the SWEMWBS (7 items) can be transformed to facilitate comparison with the Warwick-Edinburgh Mental Wellbeing Scale (14 items) (1).
* Normative data for the SWEMWBS in the UK population indicates the (transformed) mean score for women is 23.2 and the mean score for men is 23.7 (2).
	+ Scores for sample: Women: mean = 21.3, median = 21.5, mode = 19.3 (transformed). Men: mean = 21.8, median = 21.5, mode = 19.3 (transformed)
* Factors associated with mental wellbeing are shown in Table 1. We investigated the effect size of different independent variables by seeing how much of the variation of the outcome variable (in this case mental wellbeing) was explained by the independent variables. The greater this percentage, the higher the influence of the independent variables on the outcome.
* Sociodemographic factors (gender, age, having a dependent children, having a coronavirus-relevant chronic illness, having a mental health condition, a household member having any chronic illness, employment status, index of multiple deprivation, ethnicity, education, region, and living alone) explained 12.4% of the variance in mental wellbeing. This is a reasonable amount.
	+ Of these factors, poorer mental wellbeing was associated with younger age, having a coronavirus-relevant health condition, and having a chronic mental health condition (see Table 1).
* We then investigated the addition of different factors to sociodemographic variables.
* Feeling less connected to others and sociodemographic factors explained 28.6% of the variance. This is high. Increased self-reported poverty and sociodemographic factors also explained a large proportion of the variance (21.3%).
* Not feeling able to keep your children occupied and developing and sociodemographic factors explained 16.5% of the variance. Not agreeing that the Government is putting the right measures in place to protect British public from coronavirus and sociodemographic factors explained 14.3% of the variance.
* Increased worry about the function of the NHS and sociodemographic factors explained 14.0% of the variance; increased overall worry about coronavirus and sociodemographic factors explained 13.9% of the variance; increased worry about the UK economy and sociodemographic factors explained 13.4% of the variance; increased perceived risk to oneself and sociodemographic factors explained 13.3% of the variance; and increased perceived likelihood of catching coronavirus and sociodemographic factors explained 13.2% of the variance.
* Increased mental distress (as measured by the PHQ4) and sociodemographic factors explained 30.1% of the variance. Poorer self-reported general health (as measured by the first item of the SF-36) and sociodemographic factors explained 25.8% of the variance.
* Other factors (with sociodemographic factors) did not greatly increase the amount of variance in mental wellbeing explained. Therefore, while these factors were statistically significantly associated with mental wellbeing, they did not have a large impact.

## Mental distress – anxiety and depression (measured using the PHQ4)

* The PHQ4 is a valid tool for detecting anxiety and depressive disorders. Higher scores are associated with increased mental distress. Scores of 0 to 2 are rated “normal” (3).
	+ Week 13 data. Mean=3.3.
	+ Week 14 data. Mean=3.4.
* Normative data for the PHQ4 can be derived from a representative German population (4), a representative Colombian population (5), and from the UK BioBank (NB-restricted age limit (6)). In these groups, approximately 75% of the population show no mental distress (scores of 0 to 2).
	+ 50.1% of the current sample show mental distress
* We can split results from the PHQ4 to indicate possible anxiety and possible depression.
	+ 27.7% show possible anxiety
	+ 26.8% show possible depression
* Compared to results from the English national cohort study of flooding and health (7), this sample has higher levels of depression than those disrupted by flooding (flooded population: 20.1%) and similar levels of probable anxiety than those disrupted by flooding (flooded population: 28.3%).
* Due to different analysis methods used, we did not work out the amount of the variance explained by each analysis for this outcome. Instead we looked at the effect size of independent variables (8).
* Factors associated with mental distress are shown in Table 1.
* We first investigated sociodemographic factors. Increased mental distress was associated with female gender, younger age, having a dependent child in the household, having a coronavirus-relevant health condition, having a chronic mental health condition, having a household member who has chronic health condition, living in greater deprivation, not being in permanent employment, and living alone. Of these, having a chronic mental health condition had a medium effect size. All other sociodemographic factors had a small effect.
* Increased mental distress was associated with increased overall worry about coronavirus, having gone out to meet friends and/or family in the last week, being the sole carer for dependent children, and thinking that you have had coronavirus. These factors all exerted medium sized effects on mental distress.
* Increased mental distress was associated with poorer self-reported general health. This effect size was small, but borderline medium size. Increased mental distress was also associated with decreased mental wellbeing; this factor had a small effect.
* Other factors were statistically significantly associated with mental distress, but they exerted a small effect.

## General health (measured using the first item of the SF36)

* The short-form health survey (SF-36) is a generic measure of health status (9). For the purposes of this survey, we have only used the first item from this survey (“In general, would you say your health is...?”, response options: poor (1), fair, good, very good, excellent (5)).
* UK normative data for the measure exist (10), but as we have not used the full measure we are unable to compare it to these data.
	+ This item forms part of the “general health” scale, which includes 4 other items (item 33-36, see <https://www.orthotoolkit.com/sf-36/>)
* Scores were approximately normally distributed. The response given most often by people in the sample rated their health as “good” (37.9%).
* Factors associated with self-reported general health are shown in Table 1. As previously, we investigated how much of the variance of the outcome variable (self-reported general health) was explained by independent variables.
* Sociodemographic factors (gender, age, having a dependent children, having a coronavirus-relevant chronic illness, having a mental health condition, a household member having any chronic illness, employment status, index of multiple deprivation, ethnicity, education, region, and living alone) explained 19.8% of the variance of mental wellbeing. This is a large amount.
	+ Of these factors, poorer self-reported general health was associated with having a coronavirus-relevant health condition, a chronic mental health condition, living in greater deprivation, not working and poorer education (not having a degree; see Table 1).
* We then investigated the addition of different independent variables to sociodemographic variables.
* Feeling less connected to others and sociodemographic factors explained 23.2% of the variance. Increased perceived severity of coronavirus and sociodemographic factors explained 22.1% of the variance.
* The number of times a participant had gone out for a walk/exercise in the last week and sociodemographic factors explained 21.6% of the variance; increased perceived risk to oneself and sociodemographic factors explained 21.2% of the variance; and increased self-reported poverty and sociodemographic factors explained 21.0% of the variance.
* Poorer mental wellbeing (as measured by the SWEMWBS) and sociodemographic factors explained 32.1% of the variance. Increased mental distress (as measured by the PHQ4) and sociodemographic factors explained 23.1% of the variance.
* Other factors (with sociodemographic factors) did not greatly increase the amount of variance in self-reported general health explained. Therefore, although these factors were statistically significantly associated with mental wellbeing, they did not have a large impact.

Table 1. Associations with poorer wellbeing (as measured by PHQ4 and Short Warwick-Edinburgh Mental Wellbeing Scale) and poorer quality of life (general health).

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|  | **Mental distress (as measured by the PHQ4)** | **Mental wellbeing (as measured by the Short Warwick-Edinburgh Mental Wellbeing Scale; SWEMWBS)** | **Self-reported general health** |
| Associated with poorer wellbeing  | Female gender, presence of dependent children in household, being the sole carer for children, coronavirus-relevant health condition (self), having a chronic mental health condition (self – medium effect size), household member has chronic health condition, living in greater deprivation, living alone, lower socio-economic status (highest earner in household is manual worker), not in permanent employment, going out shopping once or more for items other than groceries/pharmacy, going out to help or provide care for vulnerable people, going out to meet friends and/or family, increased worry about coronavirus, increased perceived risk of coronavirus (to self and friends and relatives), increased perceived severity of coronavirus, increased perceived likelihood of catching coronavirus, concern about passing coronavirus to someone who might be at risk, thinking you have had coronavirus, increased worry about the functioning of the NHS, increased worry about the UK economy, increased self-reported poverty (as measured by Q24), poorer wellbeing (SWEMWBS), poorer quality of life (general health). | Coronavirus-relevant health condition (self), having a chronic mental health condition (self), going out shopping twice or more for groceries/pharmacy in the last seven days, increased worry about coronavirus, increased perceived risk of coronavirus (self and friends and relatives), increased perceived likelihood of catching coronavirus, increased worry about the functioning of the NHS, increased worry about the UK economy, increased self-reported poverty (as measured by Q24), increased mental distress (PHQ4), poorer quality of life (general health). | Coronavirus-relevant health condition (self), having a chronic mental health condition (self), living in greater deprivation, increased worry about coronavirus, increased perceived risk of coronavirus (self and friends and relatives), increased perceived severity of coronavirus, increased perceived likelihood of catching coronavirus, increased worry about the functioning of the NHS, increased worry about the UK economy, increased self-reported poverty (as measured by Q24), increased mental distress (PHQ4), poorer wellbeing (SWEMWBS). |
| Not associated | Working status, being self-employed, ethnicity, education, going out shopping twice or more for groceries/pharmacy in the last seven days, going out to work, agreeing that your personal behaviour has an impact on how coronavirus spreads. | Gender, presence of dependent children in household, household member has chronic health condition, working status, deprivation, ethnicity, education, living alone, being the sole carer for children, socio-economic status, employment type (permanent vs not), self-employed, number of times gone out for a walk/exercise in the last week, going out shopping once or more for items other than groceries/pharmacy, going out to work, going out to help or provide care for vulnerable people, going out to meet friends and/or family, perceived severity of coronavirus, concern about passing coronavirus to someone who might be at risk. | Gender, age, presence of dependent children in household, household member has chronic health condition, ethnicity, living alone, marital status, being the sole carer for children, socio-economic status, employment type (permanent vs not), self-employed, concern about passing coronavirus to someone who might be at risk, agreeing that your personal behaviour has an impact on how coronavirus spreads |
| Associated with better wellbeing | Older age, married/partnered/in a relationship, going out for a walk/exercise more times in the last week, agreeing that the Government is putting the right measures in place to protect British public from coronavirus, increased feeling of being connected to others, feeling able to keep your children occupied and developing, having seen or heard advice on mental wellbeing. | Older age, married/partnered/in a relationship, agreeing that your personal behaviour has an impact on how coronavirus spreads, agreeing that the Government is putting the right measures in place to protect British public from coronavirus, thinking you have had coronavirus, increased feeling of being connected to others, feeling able to keep your children occupied and developing, having seen or heard advice on mental wellbeing. | Working (vs not working), higher education (having a degree vs not), going out for a walk/exercise more times in the last week, going out shopping twice or more for groceries/pharmacy in the last seven days, going out shopping once or more for items other than groceries/pharmacy, going out to work, going out to help or provide care for vulnerable people, going out to meet friends and/or family, agreeing that the Government is putting the right measures in place to protect British public from coronavirus, thinking you have had coronavirus, increased feeling of being connected to others, feeling able to keep your children occupied and developing, having seen or heard advice on mental wellbeing |

## References

1. Stewart-Brown S, Tennant A, Tennant R, Platt S, Parkinson J, Weich S. Internal construct validity of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS): a Rasch analysis using data from the Scottish Health Education Population Survey. Health Qual Life Outcomes. 2009;7:15.

2. Ng Fat L, Scholes S, Boniface S, Mindell J, Stewart-Brown S. Evaluating and establishing national norms for mental wellbeing using the short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS): findings from the Health Survey for England. Qual Life Res. 2017;26(5):1129-44.

3. Kroenke K, Spitzer RL, Williams JB, Lowe B. An ultra-brief screening scale for anxiety and depression: the PHQ-4. Psychosomatics. 2009;50(6):613-21.

4. Lowe B, Wahl I, Rose M, Spitzer C, Glaesmer H, Wingenfeld K, et al. A 4-item measure of depression and anxiety: validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. J Affect Disord. 2010;122(1-2):86-95.

5. Kocalevent RD, Finck C, Jimenez-Leal W, Sautier L, Hinz A. Standardization of the Colombian version of the PHQ-4 in the general population. BMC Psychiatry. 2014;14:205.

6. Batty GD, McIntosh AM, Russ TC, Deary IJ, Gale CR. Psychological distress, neuroticism, and cause-specific mortality: early prospective evidence from UK Biobank. J Epidemiol Community Health. 2016;70(11):1136-9.

7. Waite TD, Chaintarli K, Beck CR, Bone A, Amlot R, Kovats S, et al. The English national cohort study of flooding and health: cross-sectional analysis of mental health outcomes at year one. BMC Public Health. 2017;17(1):129.

8. Chen HN, Cohen P, Chen S. How Big is a Big Odds Ratio? Interpreting the Magnitudes of Odds Ratios in Epidemiological Studies. Commun Stat-Simul C. 2010;39(4):860-4.

9. Ware JE, Jr., Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care. 1992;30(6):473-83.

10. Bowling A, Bond M, Jenkinson C, Lamping DL. Short Form 36 (SF-36) Health Survey questionnaire: which normative data should be used? Comparisons between the norms provided by the Omnibus Survey in Britain, the Health Survey for England and the Oxford Healthy Life Survey. J Public Health Med. 1999;21(3):255-70.

Datasets used:

* Department of Health and Social Care weekly tracker
	+ Tracking DHSC marketing, coronavirus attitudes, beliefs, knowledge, reported behaviour, satisfaction with Government response, credibility of Government.
	+ Data collected weekly (Monday to Wednesday) since late January.
	+ We used linear regressions to investigate associations between independent variables and mental wellbeing (as measured by the Short Warwick-Edinburgh Mental Wellbeing Scale; SWEMWBS. NB – raw scores were used to investigate associations).
	+ We used logistic regressions to investigate associations between independent variables and mental distress (defined as a score of 3 or more on the PHQ-4).
	+ We used linear regressions to investigate associations between independent variables and self-reported general health (as measured by the first item of the SF36).
	+ All analyses controlled for gender, age, having a dependent children, having a coronavirus-relevant chronic illness, having a mental health condition, a household member having any chronic illness, employment status (working vs not), index of multiple deprivation, ethnicity, education, region, and living alone.
	+ PHQ-4 was included in Wave 13 (data collected 20 - 22 April, n=2013) and Wave 14 (data collected 27 - 29 April, n=2000). The Short Warwick-Edinburgh Mental Wellbeing Scale and self-reported general health were only included in Wave 14.
	+ Market research company commissioned: BMG Research.

*Please note that this work has been conducted rapidly, and has not been peer reviewed or subject to normal quality control measures.*

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