Mental health inequalities in healthcare, economic, and housing disruption during COVID -19: an investigation in 12 longitudinal studies

Supplementary file 2

Contents

S2.1 Ethics and data access statements for each study

The most recent sweeps of the **NSHD, NCDS, BCS70**, **Next Steps** and **MCS** have all been granted ethical approval by the National Health Service (NHS) Research Ethics Committee and all participants have given informed consent. Data for NCDS (SN 6137), BCS70 (SN 8547), Next Steps (SN 5545), MCS (SN 8682) and all four COVID-19 surveys (SN 8658) are available through the UK Data Service. NSHD data are available on request to the NSHD Data Sharing Committee. Interested researchers can apply to access the NSHD data via a standard application procedure. Data requests should be submitted to mrclha.swiftinfo@ucl.ac.uk; further details can be found at http://www.nshd.mrc.ac.uk/data.aspx. doi:10.5522/NSHD/Q101; doi:10.5522/NSHD/Q10.

Ethical approval was obtained from the **ALSPAC** Ethics and Law Committee and the Local Research Ethics Committees. The study website contains details of all the data that is available through a fully searchable data dictionary and variable search tool: http://www.bristol.ac.uk/alspac/researchers/our-data. ALSPAC data is available to researchers through an online proposal system. Information regarding access can be found on the ALSPAC website (http://www.bristol.ac.uk/media-library/sites/alspac/documents/researchers/data-access/ALSPAC_Access_Policy.pdf).

All wave of **TwinsUK** have received ethical approval associated with TwinsUK Biobank (19/NW/0187), TwinsUK (EC04/015) or Healthy Ageing Twin Study (H.A.T.S) (07/H0802/84) studies from NHS Research Ethics Committees at the Department of Twin Research and Genetic Epidemiology, King's College London. The TwinsUK Resource Executive Committee (TREC) oversees management, data sharing and collaborations involving the TwinsUK registry (for further details see https://twinsuk.ac.uk/resources-for-researchers/access-our-data/).

The University of Essex Ethics Committee has approved all data collection for the **Understanding Society** main study and COVID-19 waves. No additional ethical approval was necessary for this secondary data analysis. All data are available through the UK Data Service (SN 6614 and SN 8644).

Waves 1-9 of **ELSA** were approved through the National Research Ethics Service, while the COVID-19 Sub-study was approved by the UCL Research Ethics Committee. All participants provided informed consent. All data are available through the UK Data Service (SN 8688 and 5050).

Generation Scotland obtained ethical approval from the East of Scotland Committee on Medical Research Ethics (on behalf of the National Health Service). Reference number 20/ES/0021. Access to data is approved by the Generation Scotland Access Committee. See https://www.ed.ac.uk/generation-scotland/for-researchers/access or email access@generationscotland.org for further details.

The **GLAD** Study was approved by the London - Fulham Research Ethics Committee on 21st August 2018 (REC reference: 18/LO/1218) following a full review by the committee. Researchers wishing to access GLAD Study participants or data are invited to submit a data and sample access request to the NIHR BioResource to request a collaboration.

S2.2 Funding statements for studies and authors

S2.3 Further details of measures of psychological distress

MCS: The K-6[1] is a 6-item measure of psychological distress (i.e., general anxiety and depression). Responses are rated on a 5-point Likert-type scale, and capture distress over a period of four weeks prior to administration of the scale. Scores range from 0 to 24, with a conservative cut-off of 13+ applied to indicate probable psychological distress.

NCDS, BCS70: The 9-item version of the Malaise Inventory[2] was used to assess general psychological distress. Items are scored using a simple 'Yes/No' response, meaning continuous scores range from 0-9. Scores of four or more are indicative of probable psychiatric distress.

Understanding Society, **Next Steps, Generation Scotland, NSHD**: The 28-item General Health Questionnaire (GHQ)[3] was used to detect symptoms of psychological distress in GS and NSHD. The GHQ is a screening instrument designed to detect symptoms of psychological distress (i.e. general anxiety and depression). Each item is scored 0-3 resulting in scores ranging from 0-84. There is an alternative scoring where each item is scored as 0-0-1-1. The 12-item GHQ was used to detect symptoms of psychological distress in Understanding Society and Next Steps. This version is scored in the same manner as the 28-item questionnaire, resulting in scores ranging from 0-36.

GLAD: The Patient Health Questionnaire (PHQ-9)[4] is a 9-item tool used by healthcare professionals to assess severity of depressive symptoms. Individuals are asked to indicate, from 0 "Not at all" to 3 "Nearly every day" how often they have been bothered by problems such as "Little interest or pleasure in doing things?". Each answer is scored between 0 and 3, leaving each participant with a total score out of 27.

ALSPAC G1: Self-reported depressive symptoms were measured using the short mood and feelings questionnaire (SMFQ).[5] The SMFQ is a 13-item questionnaire that measures the presence of depression symptoms in the previous two weeks and was administered via postal questionnaire or in research clinics. Each item is scored between 0-2, resulting in a summed score between 0-26. Depression severity can be rated in the following score bands: 0-4 none, 5-9 mild, 10-14 moderate, 15-19 moderately severe, 20-27 severe.

ALSPAC G0: The Edinburgh Postnatal Depression Scale (EPDS)[6] was originally developed to screen for postnatal depression in women, but has since been shown to effectively screen for depression in men also.[7] This 10-item questionnaire assesses the severity of depressive symptoms over the previous 7 days using a 4-point Likert response scale. Cut-off values of 13 or higher are most often used to identify those who might have probable depression.

ELSA: Depressive symptoms were measured using the 8-item version of the Center for Epidemiologic Studies Depression Scale (CES-D).[8] This measure asks respondents to indicate how often they experienced symptoms over the previous week using a 4-point Likert response. A binary (present/absent) scoring system was applied in the present study.

TwinsUK: The Hospital Anxiety and Depression Scale (HADS)[9] is a 14-item scale used to measure levels of psychiatric distress in non-psychiatric patient populations. Responses are indicated on a 4-point ordinal Likert scale.

S2.4 Supplementary Tables

Supplementary Table S1. Percent (and N) distribution of demographic and socio-economic characteristics by study

	MCS	ALSPAC G1	NS	BCS 70	NCDS	NSHD	USOC	ELSA	GS	ALSPAC G0	TWINS UK	GLAD
Total analytic N	3,028	2,698	3,209	4,303	5,394	1,310	13,175	5,061	3,179	3,212	2855	12,107
Female	65.5 (2,007)	68.1 (1,837)	64.7 (2,077)	57.8 (2,494)	53.6 (2,892)	52.8 (691)	57.9 (7,623)	57.1 (2,891)	63.7 (2,025)	72.5 (2,327)	89.8 (2,565)	82.1 (9,935)
Mean age in 2020 (range)	19.5 (18-20)	27.6 (27-29)	30.6 (29-31)	50.5	62.6	74.0	51.2 (16-96)	70.3 (52-90+)	60.1 (27-100)	58.8 (45-81)	64.4 (22-96)	43.0 (16-89)
Ethnicity												
White	86.1 (2,636)	96.7 (2,608)	75.1 (2,409)	--	--	--	87.4 (11,517)	96.4 (4,881)	99.3 (3,157)	98.5 (3,143)	98.5 (2,811)	95.8 (11,572)
South Asian	8.3 (255)	--	16.5 (528)	--	--	--	6.5 (861)	1.8 (88)	0.2 (7)	--	0.2 (6)	--
Black	2.7 (82)	--	3.9 (126)	--	--	--	2.5 (329)	1.0 (50)	0 (1)	--	0.6 (18)	0.3 (37)
Mixed	2.5 (76)	--	4.6 (146)	--	--	--	1.8 (238)	0.8 (42)	0.4 (13)	--	0.5 (15)	2.1 (259)
Other	0.5 (14)	--	0	--	--	--	1.8 (230)	--	0 (1)	--	0.3 (5)	0.9 (108)
Ethnic minority	13.9 (427)	3.3 (88)	24.9 (800)	--	--	--	12.6 (1,658)	3.6 (180)	0.7 (22)	1.5 (48)	1.5 (44)	4.2 (507)
High Education	56.5 (1,729)	20.4 (551)	49.9 (1,600)	47.6 (2,053)	46.4 (2,504)	29.9 (391)	47.2 (6,219)	25.6 (1,297)	46.6 (1,483)	30.2 (969)	52.9 (1,509)	59.0 (7,138)
Social class												
Managerial, Admin, and Professional occupation	60.5 (1,560)	45.6 (1,066)	54.0 (1,461)	67.6 (2,797)	60.9 (3,075)	56.0 (733)	35.1 (4,624)	34.0 (1,720)	61.0 (1,939)	52.3 (1,520)	--	--
Intermediate occupations	17.9 (461)	53.2 (1,246)	23.5 (635)	18.4 (763)	21.8 (1,098)	34.5 (452)	17.1 (2,250)	24.1 (1,221)	11.2 (355)	47.1 (1,369)	--	--
Routine and Manual occupations	21.6 (556)	1.2 (28)	22.5 (608)	13.7 (567)	16.8 (846)	9.2 (121)	20.1 (2,641)	28.4 (1,438)	3.3 (104)	0.6 (17)	--	--
Never worked, long-term unemployed, or missing	--	--	--	0.3 (11)	0.5 (27)	0.3 (4)	27.8 (3,660)	13.5 (682)	24.5 (781)	--	--	--
Country of residence												
England	67.5 (2,066)	--	96.8 (3,105)	86.0 (3,709)	84.1 (4,536)	87.0 (1,140)	84.1 (11,078)	100 (5,061)	16 (0.5)	--	92.5 (2645)	89.5 (10,837)
Scotland	13.0 (397)	--	0.6 (20)	8.1 (351)	8.8 (476)	7.6 (99)	7.5 (983)	--	99.4 (3,160)	--	3.6 (104)	5.4 (654)

Wales	11.5 (351)	--	0.6 (19)	5.0 (215)	5.2 (281)	4.3 (56)	5.1 (669)	--	--	--	3.2 (92)	2.5 (307)
N.Ireland	7.4 (227)	--	0.2 (5)	0.1 (2)	0.1 (3)	--	3.4 (445)	--	--	--	0.5 (14)	2.6 (309)
Other	0.7 (22)	--	1.9 (60)	0.8 (35)	1.8 (98)	0.7 (9)	--	--	0.1 (3)	--	--	--

Sources: MCS (Millennium Cohort Study); ALSPAC G1 (Children of the Avon Longitudinal Study of Parents and Children); NS (Next Steps); BCS 70 (1970 British Cohort Study), NCDS (National Child Development Study); NSHD (National Survey of Health and Development); USOC (Understanding Society); ELSA (English Longitudinal Study of Ageing); GS (Generation Scotland: the Scottish Family Health Study); TWINS UK (UK Adult Twin Registry); GLAD (Genetic Links to Anxiety and Depression), ALSPAC G0 (parents of ALSPAC). Notes: Samples for each study restricted to respondents with non-missing pre-pandemic psychological distress measure, with at least one disruption experienced during the pandemic, and valid information on sex and age. -- (not available/applicable).

Supplementary Table S2. Mean pre-pandemic psychological distress scores and % with high psychological distress, by study

	MCS	ALSPAC G1	NS	BCS70	NCDS	NSHD	USOC	ELSA	GS	ALSPAC G0	TWINS UK	GLAD
Measure	K6	SMFQ	GHQ-12	Malaise	Malaise	GHQ-28	GHQ-12	CES-D	GHQ-28	EPDS	HADS	PHQ9
Range	0-24	0-26	0-36	0-9	0-9	0-27	0-36	0-8	0-70	0-30	0-36	0-27
Mean (SD)	7.7 (5.0)	6.7 (6.2)	11.9 (6.0)	1.9 (2.2)	1.4 (1.9)	1.7 (3.3)	11.5 (8.4)	1.4 (1.9)	14.9 (7.7)	6.4 (5.5)	7.4 (6.0)	11.2 (6.9)
% High psychological distress	18.4	23.9	24.3	21.8	13.2	15.2	20.1	12.8	11.8	18.3	5.8	54.5
Threshold for high psychological distress	13+	11+	4+	4+	4+	4+	4+	4+	24+	12+	11+	10+
Year of pre-pandemic assessment	2018	2017/18	2015	2016	2008	2015	2018/19	2018/19	2006/11	2011/13	2017/18	2018/20
Gap (in years) to pandemic	2	2/3	5	4	12	5	1/2	1/2	9/14	7/9	2/3	0/2
Mean age when assessed	17.3	25.3	26.0	46.9	50.7	69.0	48.0	68.4	49.6	51.1	65.3	42.1

Sources: MCS (Millennium Cohort Study); ALSPAC G1 (Children of the Avon Longitudinal Study of Parents and Children); NS (Next Steps); BCS 70 (1970 British Cohort Study), NCDS (National Child Development Study); NSHD (National Survey of Health and Development); USOC (Understanding Society); ELSA (English Longitudinal Study of Ageing); GS (Generation Scotland: the Scottish Family Health Study); TWINS UK (UK Adult Twin Registry); GLAD (Genetic Links to Anxiety and Depression), ALSPAC G0 (parents of ALSPAC). Weighted data.

Supplementary Table S3. Mean pre-pandemic psychological distress scores (and 95% confidence intervals) by socio-demographic characteristics and study

	MCS	ALSPAC G1	NS	BCS 70	NCDS	NSHD	USOC	ELSA	GS	ALSPAC G0	TWINS UK	GLAD
Male	6.8 (6.3-7.2)	5.3 (4.9-5.7)	11.4 (11.0-11.7)	1.6 (1.4-1.7)	1.1 (1.0-1.2)	1.0 (0.7-1.3)	10.8 (10.6-11.0)	1.1 (1.0-1.25)	13.9 (13.5-14.3)	5.4 (5.0-5.8)	6.2 (5.6-6.8)	10.8 (10.5-11.1)
Female	8.7 (8.2-9.1)	7.4 (7.1-7.7)	12.4 (12.1-12.6)	2.3 (2.1-2.4)	1.67 (1.6-1.8)	2.3 (1.7-3.0)	12.1 (11.9-12.3)	1.7 (1.6-1.8)	15.6 (15.2-15.9)	6.8 (6.5-7.1)	7.6 (7.3-7.8)	11.3 (11.1-11.4)
No high education	8.0 (7.5-8.6)	6.9 (6.6-7.2)	12.3 (11.9-12.6)	2.1 (1.9-2.3)	1.51 (1.4-1.6)	1.9 (1.4-2.4)	11.6 (11.4-11.8)	1.5 (1.4-1.6)	15.1 (14.7-15.5)	6.2 (6.3-6.9)	7.6 (7.3-8.0)	12.7 (12.5-12.8)
High education	7.4 (7.0-7.7)	6.2 (5.6-6.7)	11.8 (11.5-12.1)	1.5 (1.4-1.6)	1.22 (1.2-1.3)	1.1 (0.6-1.5)	11.3 (11.1-11.5)	1.1 (0.9-1.2)	14.8 (14.4-15.2)	5.8 (5.5-6.2)	7.2 (6.9-7.5)	10.2 (10.0-10.3)
White	7.8 (7.5-8.2)	6.7 (6.4-7.0)	12.1 (11.9-12.4)	--	--	--	11.5 (11.3-11.6)	1.4 (1.3-1.4)	14.9 (14.7-15.2)	6.5 (6.3-6.7)	7.4 (7.2-7.6)	11.1 (11.0-11.2)
Ethnic minority	7.28 (6.8-7.7)	7.8 (5.8-9.9)	11.8 (11.3-12.2)	--	--	--	11.9 (11.3-12.4)	2.4 (1.8-2.9)	17.5 (12.4-22.7)	5.6 (4.1-7.1)	9.1 (6.9-11.3)	12.4 (11.7-13.1)
16-24	--	--	--	--	--	--	12.4 (12.0-12.9)	--	--	--	6.9 (-2.1-15.8)	14.0 (13.6-14.3)
25-34	--	--	--	--	--	--	12.1 (11.6-12.6)	--	15.6 (13.7-17.5)	--	9.5 (8.3-11)	11.6 (11.3-11.8)
35-44	--	--	--	--	--	--	12.0 (11.6-12.3)	--	15.4 (14.5-16.3)	--	8.5 (7.5-9.4)	11.0 (10.7-11.3)
45-54	--	--	--	--	--	--	11.9 (11.6-12.2)	1.4 (1.1-1.6)	15.3 (14.6-15.9)	7.1 (6.2-8.1)	8.1 (7.4-8.9)	11.2 (10.9-11.4)
55-64	--	--	--	--	--	--	11.5 (11.2-11.8)	1.5 (1.4-1.7)	16.1 (15.6-16.6)	6.4 (6.1-6.7)	7.9 (7.4-8.4)	10.1 (9.8-10.4)
65-74	--	--	--	--	--	--	10.0 (9.8-10.3)	1.3 (1.2-1.4)	14.1 (13.7-14.5)	5.5 (4.8-6.3)	6.8 (6.5-7.2)	7.8 (7.4 - 8.2)

| 75+ | -- | -- | -- | -- | -- | -- | 9.9 (9.6-10.3) | 1.5 (1.4-1.6) | 12.4 (11.5-13.3) | 5.6 (2.2-8.9) | 7.0 (6.6-7.4) | 6.9 (5.8-8.1) |

Supplementary Table S4. Percentage with high psychological distress scores (and 95% confidence intervals) by socio-demographic characteristics and study

	MCS	ALSPAC G1	NS	BCS 70	NCDS	NSHD	USOC	ELSA	GS	ALSPAC G0	TWINS UK	GLAD
Male	13.3 (9.9-17.7)	16.7 (13.7-20.0)	22.7 (20.4-25.2)	17.5 (14.3-21.2)	9.6 (7.9-11.6)	7.1 (4.3-11.6)	16.4 (15.2-17.8)	9.1 (7.4-11.1)	9.4 (7.7-11.2)	10.7 (7.7-14.7)	2.4 (1.2-5.0)	51.43 (49.3-53.5)
Female	23.5 (20.3-27.1)	27.2 (24.6-30.1)	28.1 (26.2-30.0)	26.1 (23.0-30.0)	16.7 (15.0-18.6)	22.1 (15.3-30.8)	23.5 (22.2-24.8)	16.1 (14.2-18.0)	13.1 (11.7-14.7)	20.9 (18.7-23.4)	6.2 (5.3-7.2)	55.18 (55.0-56.2)
No high education	22.5 (18.1-27.7)	25.2 (22.8-27.8)	27.2 (25.0-29.4)	25.3 (22.0-29.0)	14.6 (12.8-16.5)	16.0 (11.2-22.2)	20.6 (19.3-21.9)	14.1 (12.6-15.8)	12.9 (11.3-14.6)	19.4 (17.1-21.9)	5.6 (4.5-7.0)	63.41 (62.1-64.7)
High education	14.4 (11.8-17.3)	19.0 (15.1-23.6)	25.2 (23.1-27.4)	15.3 (13.4-17.3)	10.9 (9.5-12.5)	11.7 (5.6-22.7)	19.4 (18.1-20.7)	8.5 (6.5-10.9)	10.4 (8.9-12.1)	14.3 (11.9-16.9)	5.9 (4.8-7.2)	48.30 (47.2-49.5)
White	19.2 (16.3-22.3)	23.7 (21.5-25.9)	25.7 (23.9-27.4)	--	--	--	19.7 (18.7-20.7)	11.8 (10.6-13.0)	11.6 (10.5-12.8)	18.4 (16.4-20.5)	5.7 (4.9-6.6)	54.20 (53.3-55.1)
Ethnic minority	15.7 (12.5-19.5)	32.7 (19.9-48.7)	27.8 (24.8-31.0)	--	--	--	24.8 (21.3-28.6)	27.1 (18.6-37.7)	22.7 (7.8-45.4)	13.0 (5.0-29.8)	9.1 (4.4-22.1)	60.95 (56.6-65.1)
16-24	--	--	--	--	--	--	29.9 (26.7-33.4)	--	--	--	12.5 (1.5-57.3)	73.2 (71.0-75.4)
25-34	--	--	--	--	--	--	22.3 (19.3-25.5)	--	16.0 (9.6-24.4)	--	14.6 (8.3-24.7)	58.3 (56.4-60.1)
35-44	--	--	--	--	--	--	22.5 (20.1-25.0)	--	12.6 (8.7-17.3)	--	8.4 (5.2-13.2)	53.5 (51.5-55.5)
45-54	--	--	--	--	--	--	20.9 (18.9-23.0)	12.1 (8.7-16.6)	12.4 (9.7-15.4)	23.7 (17.7-31.0)	9.2 (6.4-13.1)	52.8 (50.9-54.6)

Age												
55-64	--	--	--	--	--	--	19.1 (17.3-21.0)	15.1 (12.3-18.3)	14.2 (12.0-16.7)	17.5 (15.6-19.6)	6.5 (4.8-8.7)	47.1 (44.9-49.4)
65-74	--	--	--	--	--	--	11.7 (10.2-13.5)	10.9 (9.4-12.6)	9.8 (8.3-11.7)	14.0 (1.0-19.5)	4.8 (3.7-6.2)	32.9 (29.6-36.4)
75+	--	--	--	--	--	--	11.8 (9.5-14.4)	12.3 (9.4-12.6)	5.5 (2.4-10.5)	<0.1	3.0 (1.8-4.7)	30.2 (21.3-40.9)

Sources: MCS (Millennium Cohort Study); ALSPAC G1 (Children of the Avon Longitudinal Study of Parents and Children); NS (Next Steps); BCS 70 (1970 British Cohort Study), NCDS (National Child Development Study); NSHD (National Survey of Health and Development); USOC (Understanding Society); ELSA (English Longitudinal Study of Ageing); GS (Generation Scotland: the Scottish Family Health Study); TWINS UK (UK Adult Twin Registry); GLAD (Genetic Links to Anxiety and Depression), ALSPAC G0 (parents of ALSPAC). Weighted data.

Notes: -- (not available/applicable).

Supplementary Table S5. Percent prevalence of any healthcare, economic, and housing disruptions during the pandemic by socio-demographic characteristics and study

	Sex		Ethnicity		Education		Age group						
	Male	Female	White	Ethnic minority	Not high	High	16-24	25-34	35-44	45-54	55-64	65-74	75+
Any healthcare disruption													
MCS	6.6	12.4	10.6	9.6	9.8	10.9	10.4	--	--	--	--	--	--
ALSPAC-G1	12.8	17.5	16.1	9.0	15.8	16.4	--	15.9	--	--	--	--	--
NS	8.0	12.7	11.5	9.3	10.7	11.3	--	11.0	--	--	--	--	--
BCS 70	10.0	15.6	--	--	13.3	13.2	--	--	--	13.2	--	--	--
NCDS	13.9	15.2	--	--	14.2	15.1	--	--	--	--	14.6	--	--
NSHD	17.3	19.3	--	--	18.3	18.4	--	--	--	--	--	18.3	--
USOC	29.4	34.1	32.0	30.0	33.2	29.6	18.5	24.4	24.9	30.8	38.5	43.5	45.3
ELSA	36.4	36.9	36.4	40.4	37.1	36.0	--	--	--	32.6	35.8	36.2	40.5
GS	27.4	27.5	27.4	36.4	29	25.6	--	24.5	22.4	24.1	25	30.6	39
ALSPAC-G0	18.1	20.5	19.9	25.6	20.1	19.4	--	--	--	21.4	19.2	21.6	30.6
TWINSUK	10.3	8.5	8.7	9.1	8.0	9.3	12.5	8.0	14.7	9.6	8.1	9.2	6.0
GLAD	0.8	0.7	0.7	0.5	0.7	0.7	0.7	0.9	0.8	0.5	0.6	0.8	1.3
Any economic disruption													
MCS	45.1	47.3	47.1	43.5	47.4	45.9	46.6	--	--	--	--	--	--
ALSPAC-G1	45.4	52.3	49.3	53.8	50.2	50.3	--	50.2	--	--	--	--	--
NS	41.7	49.6	47.6	44.4	47.3	46.2	--	46.8	--	--	--	--	--
BCS 70	46.9	50.7	--	--	49.0	49.2	--	--	--	49.1	--	--	--
NCDS	42.8	35.7	--	--	40.4	37.4	--	--	--	--	39.0	--	--
NSHD	11.7	9.3	--	--	9.7	12.0	--	--	--	--	--	10.4	--
USOC	50.7	52.4	48.6	50.7	51.6	56.4	52.7	66.9	66.2	66.4	57.5	22.1	9.9
ELSA	33.9	26.9	29.4	41.5	29.1	34.4	--	--	--	51.6	46.7	20.8	8.0
GS	21.8	20.3	20.7	36.4	20.3	21.4	--	23.6	31.9	34.9	27.7	9.0	4.1
ALSPAC-G0	50.7	48.0	48.7	49.5	48.9	47.9	--	--	--	50.2	50.0	38.0	11.8

TWINSUK	35.9	30.4	30.9	29.5	26.3	35.1	50	37.3	44	42.3	40.7	25.2	20
GLAD	34.6	43.4	41.5	51.3	42.8	41.2	65.2	46.9	41.2	39.4	32.9	11.7	12.2
Any housing disruption													
MCS	31.8	34.3	35.1	23.4	26.5	38.9	33.5	--	--	--	--	--	--
ALSPAC-G1	24.3	22.8	23.3	24.0	21.6	30.0	--	23.3	--	--	--	--	--
NS	13.5	14.4	14.2	13.9	13.1	15.1	--	14.1	--	--	--	--	--
BCS 70	11.9	15.0	--	--	13.9	13.4	--	--	--	13.7	--	--	--
NCDS	9.7	12.2	--	--	8.7	13.8	--	--	--	--	11.1	--	--
NSHD	2.4	3.8	--	--	3.5	2.3	--	--	--	--	--	3.1	--
USOC	29.6	33.9	31.9	31.0	31.1	33.1	38.1	38.9	27.8	33.9	33.0	26.1	21.1
ELSA	24.5	24.4	23.5	37.3	22.9	30.1	--	--	--	38.9	32.4	18.2	13.4
GS	5.9	8.7	7.7	9.1	5.8	9.8	--	8.5	5.9	12.6	10.5	4.2	4.8
ALSPAC-G0	10.6	16.8	15.4	4.7	14.6	18.3	--	--	--	17.9	15.1	11.8	0
TWINSUK	4.8	7.1	6.8	9.1	4.2	9.1	25	9.3	11	11.9	9.4	4.5	3.9
GLAD	10.4	12.8	12.2	15.9	13.1	11.8	28.8	12.1	7.2	11.5	9.2	6.9	5.8

Sources: MCS (Millennium Cohort Study); ALSPAC G1 (Children of the Avon Longitudinal Study of Parents and Children); NS (Next Steps); BCS 70 (1970 British Cohort Study), NCDS (National Child Development Study); NSHD (National Survey of Health and Development); USOC (Understanding Society); ELSA (English Longitudinal Study of Ageing); GS (Generation Scotland: the Scottish Family Health Study); TWINS UK (UK Adult Twin Registry); GLAD (Genetic Links to Anxiety and Depression), ALSPAC G0 (parents of ALSPAC). Weighted data. Notes: -- (not available/applicable).

Supplementary Table S6. Meta-regression assessing moderation by time since pre-pandemic mental health measure

	Any Healthcare disruption		Any economic disruption		Any housing disruption	
	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Time since pre-pandemic measure	0.99 (0.93, 1.05)	0.63	1.03 (0.98, 1.08)	0.26	0.99 (0.96, 1.03)	0.84

Supplementary Table S7. Meta-analysed associations between standardised psychological distress and overall healthcare, economic and housing disruptions stratified by sex, education, ethnicity and age.

	Healthcare disruption		Economic disruption		Housing disruption		1 disruption vs none		2+ disruptions vs none	
	OR (95% CI)	I^2	OR (95% CI)	I^2	OR (95% CI)	I^2	OR (95% CI)	I^2	OR (95% CI)	I^2
Female	1.39 (1.28, 1.50)	72.4%	1.04 (0.96, 1.13)	84.8%	0.99 (0.96, 1.03)	0.0%	1.08 (1.02, 1.15)	70.7%	1.22 (1.13, 1.32)	67.7%
Male	1.44 (1.30, 1.60)	52.4%	1.03 (0.94, 1.14)	69.4%	1.01 (0.95, 1.07)	0.0%	1.08 (1.02, 1.14)	17.3%	1.29 (1.18, 1.40)	34.5%
Degree	1.41 (1.26,1.58)	72.0%	1.10 (1.03, 1.19)	66.9%	1.01 (0.97, 1.06)	0.0%	1.06 (0.99, 1.13)	58.8%	0.84 (0.56, 1.25)	97.9%
No degree	1.40 (1.29, 1.51)	63.5%	1.01 (0.92, 1.10)	83.3%	0.99 (0.95, 1.03)	0.0%	1.08 (0.99, 1.17)	82.0%	1.20 (1.10, 1.31)	64.8%
White	1.42 (1.28, 1.57)	82.4%	1.04 (0.93, 1.16)	90.5%	1.00 (0.96, 1.03)	0.0%	1.08 (1.00, 1.17)	80.8%	1.23 (1.12, 1.36)	79.7%
Ethnic minority	1.53 (1.17, 2.00)	54.4%	1.04 (0.85, 1.27)	59.1%	1.13 (0.97, 1.31)	22.0%	1.10 (0.93, 1.30)	32.0%	1.36 (1.12, 1.65)	27.9%
16-24 years	1.42 (1.24, 1.62)	0.0%	1.05 (0.86, 1.29)	82.5%	0.99 (0.85, 1.17)	70.3%	1.00 (0.91, 1.10)	0.0%	1.13 (0.89, 1.44)	78.0%
25-34 years	1.50 (1.16, 1.95)	52.4%	1.11 (1.01, 1.23)	28.7%	1.07 (0.97, 1.18)	0.0%	1.09 (0.94, 1.26)	54.6%	1.29 (1.15, 1.44)	0.0%
35-44 years	1.70 (1.46, 1.98)	0.0%	0.97 (0.73, 1.30)	88.1%	1.17 (0.81, 1.69)	82.3%	0.99 (0.89, 1.10)	21.2%	1.27 (0.96, 1.67)	65.2%
45-54 years	1.53 (1.39, 1.68)	22.0%	0.95 (0.86, 1.04)	58.3%	0.93 (0.87, 0.99)	0.0%	1.05 (0.94, 1.19)	66.7%	1.18 (0.97, 1.42)	77.3%
55-64 years	1.42 (1.22, 1.65)	81.5%	0.96 (0.82, 1.11)	90.3%	0.98 (0.93, 1.04)	0.0%	1.07 (1.00, 1.15)	50.5%	1.17 (1.06, 1.29)	48.1%
65-74 years	1.51 (1.13, 2.03)	91.8%	1.06 (0.90, 1.25)	76.1%	0.99 (0.91, 1.08)	0.0%	1.21 (1.12, 1.31)	18.5%	1.20 (1.03, 1.41)	42.2%
75+ years	1.51 (1.17, 1.96)	44.2%	1.01 (0.78, 1.29)	51.4%	1.02 (0.86, 1.20)	10.2%	1.31 (1.00, 1.70)	71.0%	1.48 (1.01, 2.16)	51.8%
Adjusted for age, sex, ethnicity, education, and UK Nation										

S2.5 References

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