Socio-economic determinants of mental health over time

Evidence from the UK Household Longitudinal Study

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Corso di Laurea Magistrale in Data Science and Economics

20.07.2023

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Mental health as a global burden

Mental illnesses are today recognized as a highly **prevalent** and **disabling** conditions that account for a huge share of the Global Burden of Disease:

- Estimated lifetime prevalence for common mental disorders: 29.2%[1];
- Global prevalence (2015): 4.4% and 3.6% of the world population suffers respectively from depression and anxiety disorders[2];
- Disabling conditions: 7.5% (depression) and 3.4% (anxiety disorders) of all years lived in disability[3].

[1] Steel et al., 2014.
[2] World Health Organization, 2017.
[3] World Health Organization, 2017.

Mental health and Economics: motivations

Why is mental health relevant for Economics?

1. **Socio-economic conditions** play an important role in determining mental health[4]. Targeted and cost-effective policy interventions are required;
2. Mental illnesses **impact** on the society and the **economy**. Huge costs: direct (health care costs[5]), indirect (family members and communities), opportunity costs (increased absenteeism and presenteeism at work[6]).

[4] World Health Organization, 2004.
[5] Layard, 2017.
[6] Bubonya, Cobb-Clark, and Wooden, 2017.

Previous Literature in Economics

- Extensive literature in Happiness Economics and Health Economics about the relationship between **socio-economic variables** (e.g. income) and **happiness** (Easterlin, 1974) or **physical health** (Bhattacharya, Hyde, and Tu, 2018);
- Recently, some papers have focused on the relationships between socio-economic variables and **mental health** outcomes, analyzing the impact on mental health of income (Thomson et al., 2022), employment (Reibling et al., 2017) and education (Cohen et al., 2020);
- Special attention has been paid to **COVID-19** and its impact on psychological distress (Proto and Quintana-Domeque, 2021; Banks and Xu, 2020).

∗ I focus on **determinants of mental health**. However, I do not limit the analysis to associations between mental health outcomes and a single variable, but I include in the regression all the variables that have been found relevant in the literature;

∗ I study how these **associations** changed **over time**, with a special attention to 2020.

Research questions

1. Which socio-economic variables are more relevant in **explaining mental health outcomes**?
2. Did the **role** of these variables **change** over recent years?

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2 Data and methodology

The UK Household Longitudinal Study

2 Data and methodology

I use longitudinal data from the **UK Household Longitudinal Study - Understanding Society** (UKHLS), covering years 2009-2021, and its predecessor, the **British Household Panel Survey** (BHPS), covering years 1991-2009.

Key features of UKHLS:

- Interviews with a yearly frequency more than 40 000 households (including approximately 8 000 from BHPS) composing a sample representative of the UK population;
- Covers a wide variety of topics at the individual level: demographics, employment status, income, ethnicity, familiar relationships and mental health;
- Allows to investigate the conditions of ethnic minorities.

Measuring mental health

2 Data and methodology

Mental health is measured in UKHLS using the **General Health Questionnaire** (GHQ-12):

- **12 items** questionnaire for the evaluation of mental health conditions: the respondent must report on a four point Likert scale (1-4) to which extent she experienced 12 symptoms of psychological distress over the past weeks;
- Scores run from 0 (low distress) to 36 (high distress);
- GHQ-12 is a **validated**[7] and standardized **instrument** to measure mental health conditions of a population.

Limitation(1): Estimates rely on a self-reported measure of mental health, which is therefore subject to stigma and cultural influences.

[7] Goldberg et al., 1997.

Estimated equations

I estimate **regression** models with geographical units (NUTS-1 regions) and time **fixed effects**. Two-fold aim:

- Study cross-sectional associations between mental health outcomes and socio-economic indicators - Equation (1);

$$GHQ_{ist} = \alpha + \beta X_{it} + \lambda_s + \mu_t + \epsilon_{ist} \quad (1)$$

- Analyze how these associations have varied over recent years - Equation (2).

$$GHQ_{ist} = \alpha_t + \beta_t X_{it} + \lambda_s + \mu_t + \epsilon_{ist} \quad (2)$$

where GHQ_{ist} is the individual result of the GHQ-12, while X_{it} is a vector of individual socio-economic variables including: age, gender, income, labour force status, marital status and presence of children in the household.

Limitation(2): The methodology adopted does not allow **causal inferences**, but to measure **associations** between mental health outcomes and socio-economic variables.

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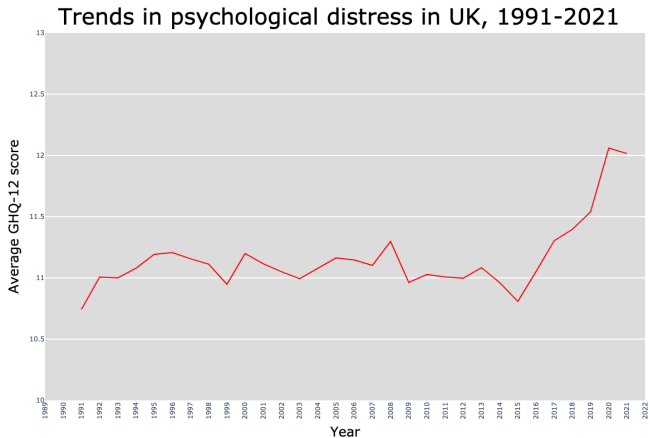
3 Results

Trends in psychological distress in UK, 1991-2021

3 Results

▸ Trends by gender and ethnicity

- Surge in psychological distress in the whole population from 2015;
- 2015-2020: increase of 1.2 points (20% of a SD);
- Small peaks in distress in 2008 and 2020.

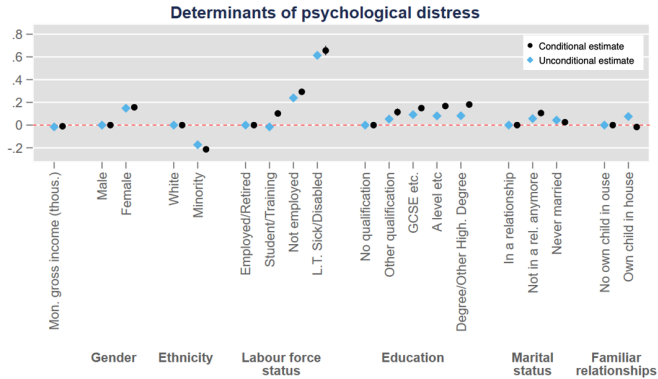


Psychological distress is measured by the GHQ-12 Likert Scale, ranging from 0 (low distress), to 36 (high distress).
Values have been weighted to represent the UK population using cross-sectional weights for each year.

Cross-section estimates

3 Results

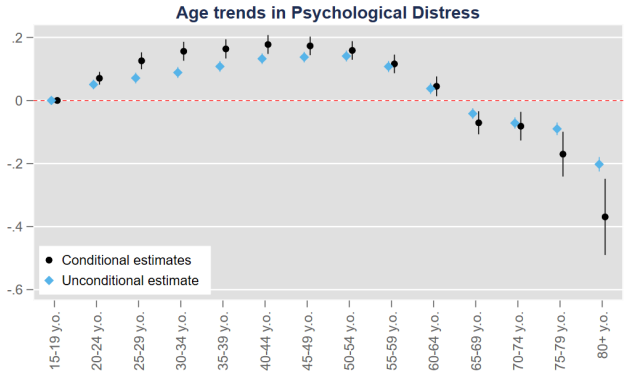
- Gender and ethnic gap in distress - 16.2% and 21% of a SD;
- Positive role of income - small magnitude: a 1k£ increase in income is associated with a decrease of 0.01 SD in distress;
- Gradients in labour force status and education;
- Significant role of social relationships.



Years: 1991-2021. The graph displays conditional and unconditional coefficients for the regression of mental health on socio-economic determinants. Mental health is measured by GHQ-12, with higher values corresponding to higher levels of distress. Results are weighted to represent UK population.

Cross-section estimates: age trends

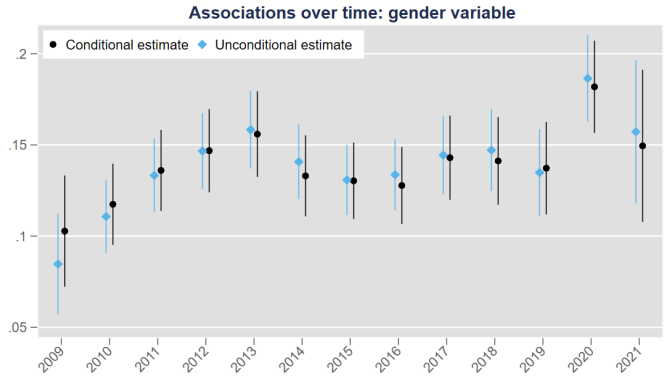
3 Results



Years: 1991-2021
The graph displays the coefficients associated with each age category in the regression of mental health on age. In the uncoditional case, we do not control for other variables, while in the conditional case we control for all the other observables (cfr. Tab.2-Col.7). Mental health is measured by GHQ: higher values represent higher levels of psychological distress.

Associations over time (1)

- Coefficients associated with the gender variable increased in the period 2009-2013, indicating higher increases in distress for females with respect to males;
- Higher increases in distress reported by females in 2020.

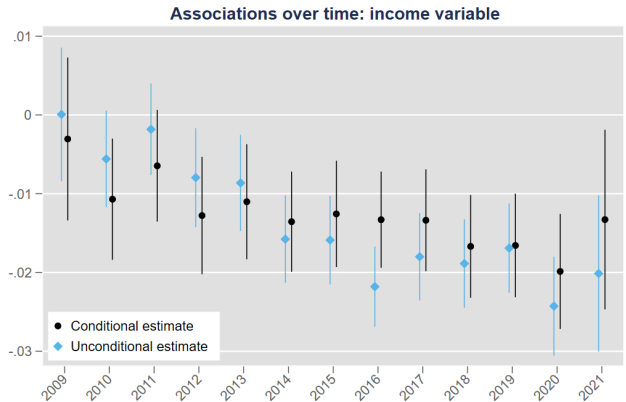


Plotted category: Female
Reference category: Male
Conditional and unconditional coefficients for the interaction between time and gender variable. The outcome is mental health as measured by GHQ-12, where higher values correspond to higher levels of psychological distress.

Associations over time (2)

3 Results

- The income variable becomes progressively more relevant in explaining mental health outcomes;
- From 2012, coefficients become negative and significant, indicating an association between low income and high distress.

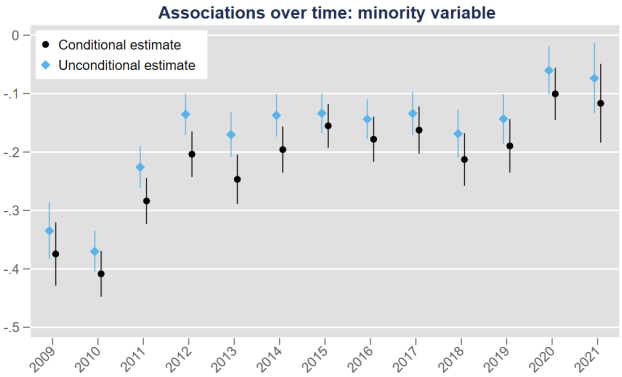


Conditional and unconditional coefficients for the interaction between time and monthly gross income variable. The outcome is mental health as measured by GHQ-12, where higher values correspond to higher levels of psychological distress.

Associations over time (3)

3 Results

- The minority variable become less relevant in explaining distress over time;
- This result may indicate a closing of ethnic gap in mental distress.



Plotted category: Minority
Baseline category: White
Conditional and unconditional coefficients for the interaction between time and minority variable.
The outcome is mental health as measured by GHQ-12, where higher values correspond to higher levels of psychological distress.

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4 Discussion

Main results: summary

4 Discussion

- Further investigations in the dimensions of the GHQ
- Trends in mental distress by gender
- Determinants of life satisfaction and physical health

- **Females** report **higher** levels of **mental distress** with respect to males (16.2% of a SD). This gap widens in the period 2009-2013 and during 2020;
- **Minorities** report **better mental health conditions** with respect to White (21% of a SD), but this gap is closing in recent years;
- Higher **income** is associated with better mental health, and this relationship strengthen over time and in 2020. The magnitude -however- remains relatively small.
- Interesting gradients in age, labour force status and education.

Further results (see Appendix):

- Gender gap in mental health is present across time and dimensions of the GHQ;
- Lower distress reported by minorities may be due to cultural influences in self-reported distress;
- Richer people report also higher life satisfaction and physical health.

Monetary value of life events

4 Discussion

Finally, it is possible to estimate the monetary value of some life events:

- Not being in a relationship anymore corresponds to a worsening in mental health equivalent to a decrease of **10.6k£** in monthly income;
- Marginal distress of females with respect to males is equivalent to a decrease of **15.7k£** in monthly income, analyzing the impact on mental health of income, employment;
- Being long-term sick or disabled corresponds to a gap of **65.6k£**!
- These estimates are large, confirming the fact that the coefficient associated with income is relatively small.

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Thank you for listening!

Any questions?

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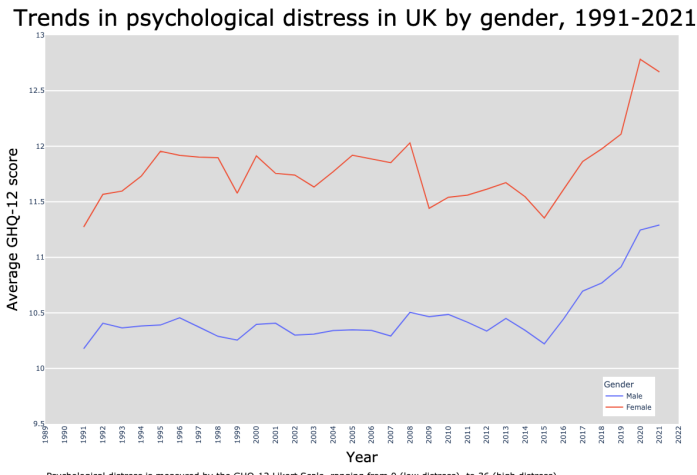
▶ Further results

Trends in psychological distress in UK, 1991-2021 (2)

5 Further results

- Females report higher levels of distress in the overall period;
- Mean difference of 1.3 points (23.7% of a SD)

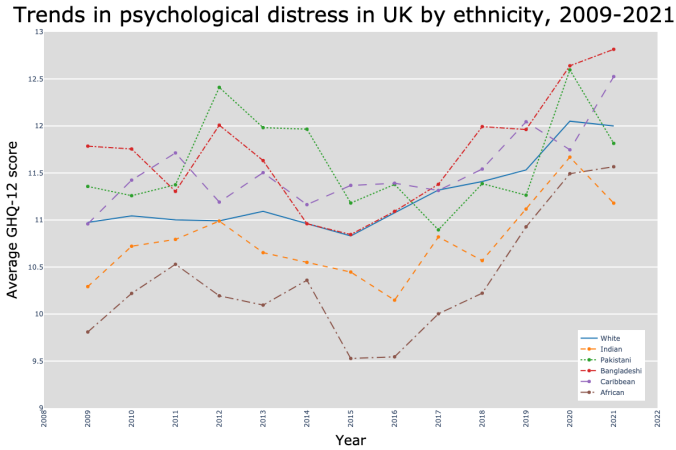


Trends in psychological distress in UK, 1991-2021 (3)

5 Further results

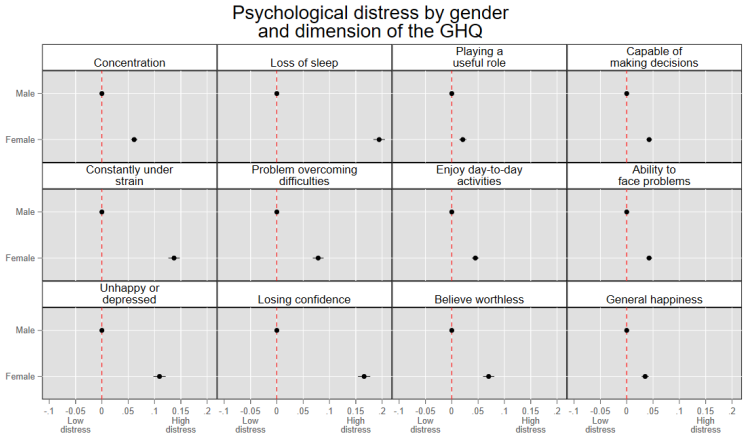
Return

- Pakistani, Bangladeshi, and Caribbean groups report higher distress (w.r.t. White group);
- Indian and African groups report lower mental distress;
- General deterioration in mental health from 2015.



Investigations in the dimensions of the GHQ(1)

5 Further results



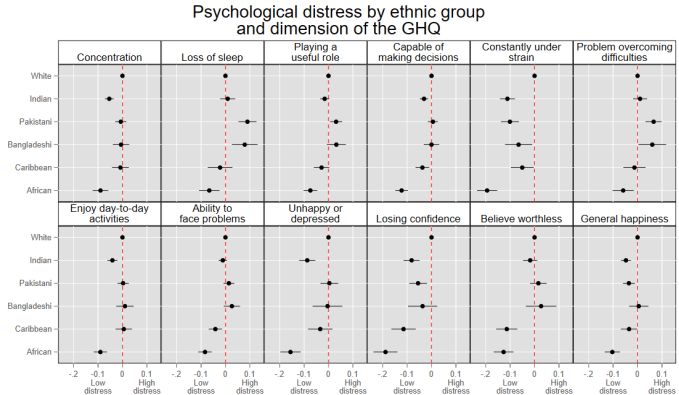
Years: 2009-2021
The graph reports the coefficients associated with gender in a regression for each of the components of the GHQ.
In all the components, higher scores represent higher levels of psychological distress.
Regressions have been run using weights to represent UK population.

Investigations in the dimensions of the GHQ(2)

5 Further results

Return

- Pakistani and Bangladeshi groups report higher distress in dimensions that are arguably more objective (e.g. ”Loss of sleep”, ”Problem overcoming difficulties”);
- For more subjective questions (e.g. ”Losing confidence”, ”Unhappy or depressed”), these groups report lower levels of distress.



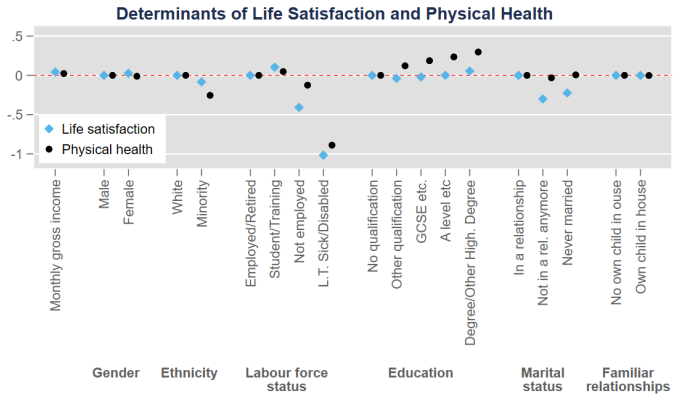
Years: 2009-2021

The graph reports the coefficients associated with each ethnic minority group in a regression for each of the components of the GHQ. In all the components, higher scores represent higher levels of psychological distress. Regressions have been run using weights to represent UK population.

Determinants of physical health and life satisfaction

5 Further results

Return

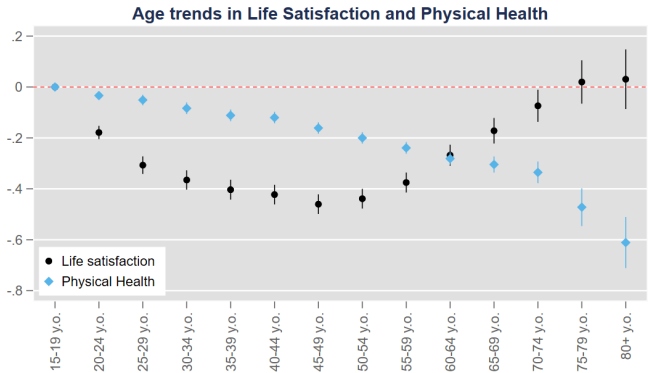


Years: 1991-2021. The graph displays conditional coefficients for the regression of life satisfaction and physical health (measured by SF-12) on socio-economic determinants. Higher scores represent higher levels of life satisfaction and higher physical health functioning. Results are weighted to represent UK population.

Age trends in physical health and well-being

5 Further results

Return



Years: 1991-2021
The graph displays the coefficients associated with each age category in the regression of physical health (measured by SF-12) and life satisfaction on age, controlling for all the other observables. Higher scores represent higher levels of life satisfaction and higher physical health functioning. Results are weighted to represent UK population.