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**Mental health effects of the Universal Credit rollout 2009-2019 on adults with dependent children: Evidence from the UK Household Longitudinal Survey**

Maria Marimpi, Benjamin Barr, Andy Baxter, S. Vittal Katikireddi, Heather Brown, Luke Munford, Matteo Richiardi, Matt Sutton, David Taylor-Robinson, Claire Bambra, Sophie Wickham

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# Mental health effects of the Universal Credit rollout 2009-2019 on adults with dependent children: Evidence from the UK Household Longitudinal Survey

M. Marimpi, PhD,<sup>1</sup> B. Barr, PhD,<sup>1</sup> A. Baxter, PhD,<sup>2</sup> S. V. Katikireddi, PhD,<sup>2</sup> H. Brown, PhD,<sup>3</sup> L. Munford, PhD,<sup>4</sup> M. Richiardi, PhD,<sup>5</sup> M. Sutton, PhD,<sup>4</sup> D. Taylor-Robinson, PhD,<sup>1</sup> C. Bamba, PhD,<sup>6</sup> P. Craig, PhD,<sup>2</sup> S. Wickham, PhD<sup>1</sup>

## ABSTRACT

**Background:** Universal Credit (UC) is the UK's largest recent welfare reform intended to streamline the benefits system and improve work incentives. However, UC features, including sanctions and work-related conditionality, may undermine financial security and harm mental health. These effects may be particularly important for adults with dependent children, who may have less flexibility to increase working hours or change employment. Therefore, we assessed the impact of UC introduction on mental health among families with dependent children.

**Methods:** We employed a Difference-in-Differences design to estimate the causal impact of UC rollout on mental health (SF-12 Mental Component Summary, MCS: SD=10, scores  $\leq 50$  indicate common mental disorder,  $\leq 45$  probable depression) among adults with dependent children using over 77,000 person-year observations (UK Household Longitudinal Study, 2009-2019).

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<sup>1</sup> Department of Public Health, Policy and Systems, Institute of Population Health, University of Liverpool (corresponding author: [maria.marimpi@liverpool.ac.uk](mailto:maria.marimpi@liverpool.ac.uk))

<sup>2</sup> MRC/CSO Social and Public Health Sciences Unit, University of Glasgow

<sup>3</sup> Division of Health Research, Lancaster University

<sup>4</sup> Health Organisation, Policy and Economics, School of Health Sciences, University of Manchester

<sup>5</sup> Centre for Microsimulation and Policy Analysis, University of Essex

<sup>6</sup> Population Health Sciences Institute, Newcastle University

Exploiting the staggered UC rollout across Local Authority districts, determined by administrative schedules and plausibly exogenous to local mental health trends, we compared outcomes in respondents self-reporting UC or legacy benefits to recipients of other state benefits, before and after UC implementation in their area. Subgroup analyses examined family structure, parental age and family size.

**Results:** UC was associated with a 0·94-point decline in MCS (95% CI: -1·69 to -0·19) among eligible adults relative to the comparison group. The prevalence of depression increased by 3·8 percentage points (95% CI: 0·5 to 7·2). Harms were more clearly evidenced among large families, couples, and older parents.

**Conclusion:** Policymakers should consider targeted reforms to mitigate adverse mental health consequences of UC for families, particularly those facing greater financial pressures.

**Keywords:** Universal Credit, mental health, parents, welfare reform, difference-in-differences

## KEY MESSAGES

### What is already known on this topic

Universal Credit (UC), the UK's flagship welfare reform, has been associated with increased psychological distress among both unemployed and employed claimants. However, there is a significant gap in quantitative evidence on how UC affects the mental health of adults with dependent children despite this group comprising over half of all UC claimants and facing distinct caregiving and financial challenges.

### What this study adds

This study provides some of the first quantitative evidence on the mental health effects of UC rollout specifically among adults with dependent children. Using a robust Difference-in-

Differences approach and longitudinal, population-representative data, this study finds that the introduction of UC is associated with deteriorations in mental health, particularly among large families, coupled and older parents.

### **How this study might affect research, practice or policy**

The findings highlight the importance of considering household-specific effects in welfare reform. Policymakers could reduce harm by implementing targeted UC changes, such as easing the benefit cap for larger families, streamlining the claims process, and limiting the use of sanctions.

## **INTRODUCTION**

Universal Credit (UC) is the most extensive reform in the UK since the establishment of its social welfare system. Introduced in 2013, UC was designed to simplify the welfare system by consolidating six benefits (income-based Jobseeker's Allowance, Employment and Support Allowance, Income Support, Child Tax Credit, Working Tax Credit, and Housing Benefit) into a single monthly payment. In practice, the reform introduced a digital claims process, monthly household-level payments and a revised system of work-related conditionality and sanctions intended to encourage labour market participation.[1] Initially rolled out to single jobseekers, UC was gradually extended to other claimant groups, including families with children from 2016 onwards (**Appendix 1**).[2] As of early 2024, over 2.6 million households with children were receiving UC, accounting for more than half of all UC claimants.[3]

International literature has linked contractionary large-scale welfare reforms to deteriorations in population health, including widening health inequalities, particularly among socioeconomically disadvantaged groups.[4] Similarly, quasi-experimental studies have found associations between UC and increased psychological distress, especially among unemployed adults, a broader group of employed claimants and children.[5-9] These findings are supported by qualitative research

highlighting the impact of delayed benefit payments, administrative complexity and sanctions on financial and emotional strain among families on UC.[10-13]

Several UC features may be particularly important for families with dependent children, affecting family dynamics, parent and child outcomes. First, delays and deductions in benefit payments may increase financial insecurity and undermine households' ability to meet essential needs. Stricter work-related conditionality and sanctions may increase stress and uncertainty for parents balancing caregiving and work, who have limited flexibility to change employment or work longer hours. Administrative demands, including maintaining claims and complying with work-related requirements, may create additional time and emotional burdens (see **Appendix 2** for a conceptual framework).

Studying adults with dependent children is important because they represent a substantial claimant group and because of their impact on intergenerational health and economic outcomes. Parental stress, depression and anxiety are associated with children's behavioural problems, lower educational attainment, and poorer social functioning.[20,21] Policies like UC may therefore have long-term consequences not only for parents' wellbeing but also for children's development, potentially perpetuating intergenerational inequalities.[22] Despite the large number of families with dependent children affected, who often experience intersecting vulnerabilities, such as low income, childcare responsibilities, exposure to insecure or part-time work and heightened risk of sanctions [14,15], there is limited quantitative evidence on how UC impacts their mental health. This is a critical omission given the potential of welfare reform to produce long-term consequences for both parents and children.[16,17]

This study addressed this knowledge gap by examining the mental health effects of UC rollout on adults with dependent children using a Difference-in-Differences (DiD) design and population-representative longitudinal data. While previous research exploring heterogeneous effects by family type has focused on unemployed claimants, our research expands the evidence base to a broader cohort that includes both employed and unemployed individuals, reflecting a more representative group claiming UC.[6] In addition to estimating the overall effect of UC rollout, we examined whether effects varied by parental age, family size, and relationship status to explore which family groups, with varying caregiving responsibilities, financial pressures, and

exposure to welfare conditionality, may have been most affected by the wider package of UC-related policy changes. This focus is timely given rising in-work poverty in the UK following welfare retrenchment; by 2024, 65% of children and working-age adults in poverty lived in households with at least one employed adult, up from 56% in 2013.[18,19]

To our knowledge, this is the first national quantitative analysis focused specifically on adults with dependent children eligible for UC, a population that may face distinct challenges related to financial insecurity, caregiving demands and work-related conditionality. Using robust identification strategies and sensitivity analyses, we provide policy-relevant evidence on the public health implications of this major reform. Understanding UC's effect on families is vital for addressing widening mental health inequalities and informing future welfare policy. Our findings contribute to growing evidence on how income support policies shape population health and the potential unintended consequences of welfare reform, an issue of increasing international concern.[17]

## METHODS

### Data and participants

Data were derived from the UK Household Longitudinal Study (UKHLS), gathering information on several domains from a nationally representative sample of 40,000 households.[23] The UKHLS has been carried out annually since 2009. To avoid any mental health effects from the COVID-19 pandemic, we used data collected between 2009 and December 2019 (11 waves).

The sample comprised working age participants (18-64 years) responsible for a dependent child under 16 living in the household who reported receiving state benefits at any point in time. We excluded full-time students, dependent children (e.g. 16-18-year-olds still in education, not married and living with a parent) and retired individuals. We also excluded disabled persons as they were more likely to receive additional benefits affected by concurrent welfare reforms, potentially obscuring the specific effects of UC. Respondents in Northern Ireland were removed

because its welfare system differs from that in Britain. Access to individuals' Local Authority (LA) district of residence was granted through special licensing (UK Data Service).

## Treatment and exposure

Given known underreporting and misclassification of benefit receipt in surveys, UC exposure was defined using both self-reported benefit receipt and administrative data on the staggered rollout of UC across Local Authority (LA) districts.[24] Administrative rollout dates identified the month in which UC eligibility was extended to families with dependent children in each LA, defining area-specific pre- and post-intervention periods. Respondents were classified as treated if they reported receiving UC or one of the six legacy benefits replaced by UC, while those reporting only other state benefits formed the comparison group. This comparison group remained engaged with the welfare system but was not directly affected by UC (see **Appendix 3** for benefit classifications). This approach estimates the effect of UC rollout among individuals eligible to be affected by the reform rather than confirmed UC receipt. As some eligible individuals may not have transitioned to UC at the time of interview, estimates are likely to be conservative.

Monthly LA-level data on UC receipt among families were obtained from the Department for Work and Pensions' Stat-Xplore platform.[25] A binary rollout indicator was coded from the first month UC became available to single and coupled parents with dependent children in each LA. Respondents were linked to their LA of residence at interview, and exposure was defined by interacting treatment-group status with the LA rollout indicator. Identification therefore exploited variation in UC rollout timing across LAs and over time, comparing affected and comparison benefit recipients before and after implementation (**Appendix 4** for an illustration). As rollout was determined administratively rather than by local mental health conditions, this variation is plausibly exogenous. Baseline balance across early- and late-rollout areas further supported this assumption (**Appendix 10, Table 10Q**).

## Outcomes

Our primary outcome measure was the parent's Mental Component Summary (MCS) score from the 12-item Medical Outcomes Study Short Form Health Survey (SF-12). We utilised the continuous MCS score (0-100, SD=10), with higher values indicating better mental health.

Secondary analyses used validated cutoffs to identify probable depression (score  $\leq 45$ ) and common mental disorders (score  $\leq 50$ ).[26,27]

## Confounders and effect modifiers

We controlled for gender, age, age squared, country of residence (England, Scotland, Wales), marital status (single, married/cohabiting), highest educational qualification (degree, A levels/GCSE, other, none), ethnicity (British, non-British), and child developmental stage (0–2, 3–4, 5–11, 12–15). We included a categorical variable for years before and after UC rollout in each LA district to account for temporal variation and examine changes across pre- and post-rollout periods.

## Statistical analysis

We employed difference-in-differences (DiD) methods to compare changes in average mental health outcomes between treatment and comparison groups before and after UC implementation.[28] (see **Appendix 5** for model specification). To assess the validity of the DiD approach, we evaluated the parallel trends assumption by testing for differential pre-intervention mental health trends across groups (e.g. whether the interaction term between treatment status and pre-reform period was significant) and estimating an event-study specification with year-specific interactions and a joint Wald test of pre-intervention coefficients. To examine heterogeneity, we extended the main model with three-way interactions between treatment status, the post-rollout indicator and family characteristics (family structure, size, parental age). Family structure was defined as single versus coupled parents, family size as  $\leq 2$  versus  $> 2$  dependent children and parental age as  $\leq 25$  versus  $> 25$  years (given differential benefit rules for younger UC claimants). All analyses used survey-weighted regression models accounting for household clustering, LA-level stratification, and longitudinal weights to adjust for unequal selection probabilities, non-response and attrition. Standard errors were clustered at the individual level to account for within-person correlation. Linear regression models were used for continuous outcomes, while logistic regression models for binary outcomes were reported as differences in predicted probabilities (percentage-point effects) from post-estimation predictive margins.

## Alternative measures and sensitivity analyses

We examined various mental and physical health outcomes to capture broader health impacts. We replicated the analysis using the General Health Questionnaire (GHQ-12) both as a continuous (0-36) and a caseness measure (0-12), with higher scores reflecting greater distress.[29] We also estimated percentage-point changes in the prevalence of depression (GHQ-12  $\geq 4$ ) and common mental disorders (GHQ-12  $\geq 3$ ).[30,31] Physical health was assessed using the SF-12 Physical Component Summary (PCS), both as a continuous measure (0–100, higher scores indicating better functioning) and a binary outcome ( $\leq 50$  indicating poorer physical health). Given the limited follow-up period, physical health was unlikely to change substantially and was therefore included as a comparator outcome.

Several sensitivity analyses were conducted to assess the robustness of the results. To improve comparability between groups, we restricted the comparison group to lower-income families (below the median equivalised household income, adjusted for inflation and family size using the OECD-modified equivalence scale).[32] To address potential sources of bias, we re-estimated models including only one parent per household to account for within-household correlation, adjusted for longstanding illness to account for underlying health differences, adjusted for subjective financial situation as a measure of financial strain, and we excluded participants who moved between LAs during follow-up to minimise exposure misclassification. We further assessed the robustness of the findings using two-way clustered standard errors (individual and LA levels), linear probability models for binary outcomes, and multiple imputation by chained equations with truncated regression for missing MCS values (**Appendix 10, Table 10J**).[33] Finally, because standard DiD estimators may be biased under staggered treatment adoption, we applied the Callaway and Sant'Anna (2021) estimator, which allows treatment effects to vary across rollout cohorts and time since implementation.[34]

## RESULTS

The final sample comprised 77,632 person-year observations (45,585 and 32,047 in treatment and control groups, respectively) from 20,523 parents with dependent children (61,147

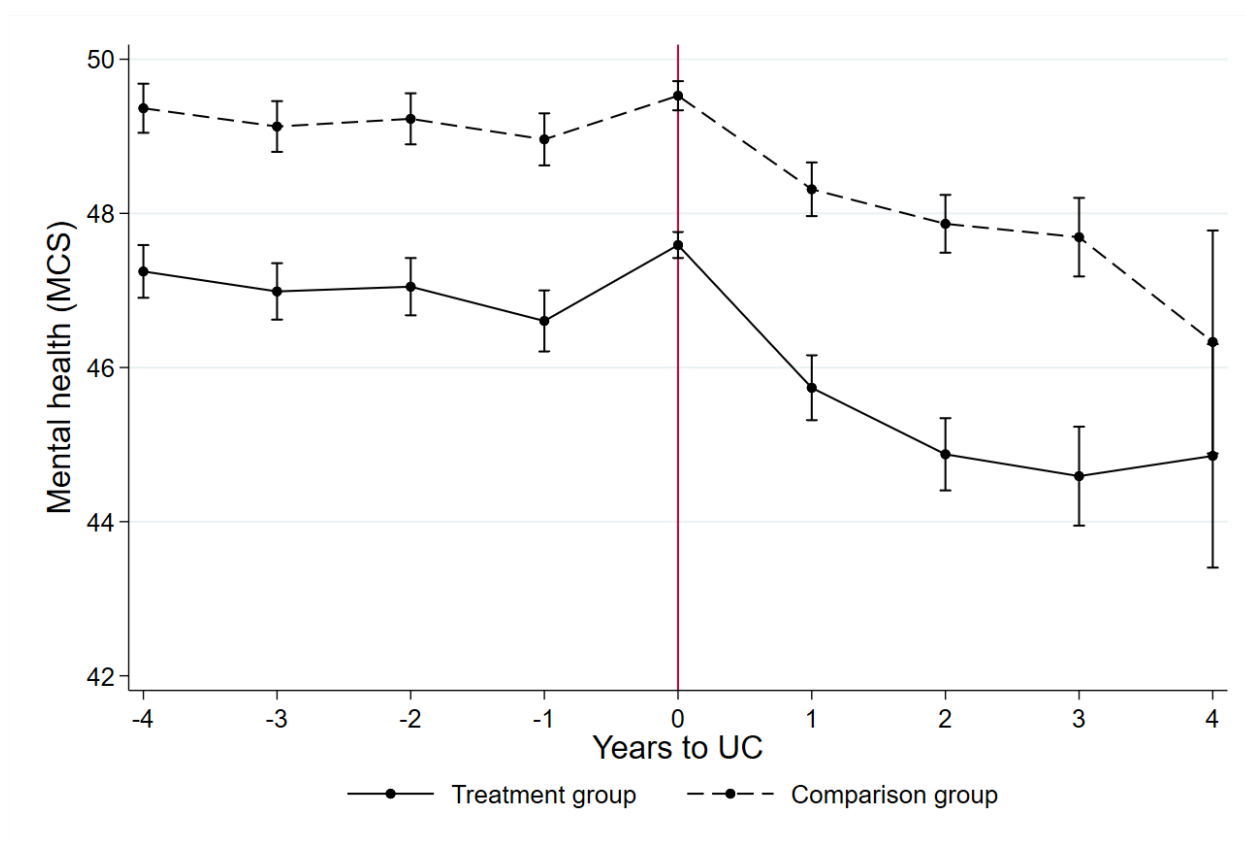
household-year observations) (**Appendix 6**). Missingness was low across covariates (<2%), whereas the primary outcome (MCS) had 8.9% missing observations. Participants contributed between one (28.1%) and 11 (1.3%) survey waves. Attrition analyses showed little variation in baseline mental health by follow-up duration and no evidence of higher attrition in the UC group. (**Appendix 7**).

On average, the treatment group had poorer mental health, was younger, had lower educational attainment and household income, and was more likely to be single parents and non-British, while the proportion of women was similar between groups (**Table 1**). We found the parallel trends assumption to hold (**Figure 1**) ( $p = 0.163$ ). A joint test of pre-treatment coefficients showed no evidence of differential pre-trends ( $F(10, 77,588) = 0.52, p = 0.88$ ), **Appendix 8**).

|                                                      | Treatment group | Comparison group | Standardised mean difference | p value |
|------------------------------------------------------|-----------------|------------------|------------------------------|---------|
| Mental health, Mental Component Summary (MCS)        | 46.6 (10.5)     | 48.9 (9.0)       | -0.23495                     | <0.0001 |
| Prevalence depression ( $MCS \leq 45$ )              | 0.38 (0.48)     | 0.27 (0.44)      | 0.24092                      | <0.0001 |
| Prevalence common mental disorders ( $MCS \leq 50$ ) | 0.56 (0.49)     | 0.46 (0.49)      | 0.20296                      | <0.0001 |
| <i>Demographic characteristics</i>                   |                 |                  |                              |         |
| Age                                                  | 38.6 (8.2)      | 40.5 (7.3)       | -0.24989                     | <0.0001 |
| Female                                               | 0.72 (0.44)     | 0.72 (0.44)      | 0.00639                      | 0.817   |
| Non-British                                          | 0.31 (0.46)     | 0.18 (0.39)      | 0.28315                      | <0.0001 |
| Single parent                                        | 0.28 (0.45)     | 0.04 (0.19)      | 0.71479                      | <0.0001 |
| <i>Child age (binary)</i>                            |                 |                  |                              |         |
| 0-2                                                  | 0.25 (0.43)     | 0.25 (0.43)      | -0.01416                     | 0.609   |
| 3-4                                                  | 0.22 (0.42)     | 0.20 (0.40)      | 0.06504                      | 0.019   |
| 5-11                                                 | 0.64 (0.47)     | 0.54 (0.49)      | 0.19965                      | <0.0001 |
| 12-15                                                | 0.38 (0.48)     | 0.32 (0.46)      | 0.13099                      | <0.0001 |
| <i>Highest educational qualification</i>             |                 |                  |                              |         |
| Degree                                               | 0.30 (0.46)     | 0.59 (0.49)      | -0.59542                     | <0.0001 |
| A levels/GCSE                                        | 0.54 (0.49)     | 0.34 (0.47)      | 0.39316                      | <0.0001 |
| Other qualification                                  | 0.07 (0.26)     | 0.04 (0.19)      | 0.16373                      | <0.0001 |
| No qualification                                     | 0.07 (0.25)     | 0.01 (0.13)      | 0.25790                      | <0.0001 |
| <i>Country of residence</i>                          |                 |                  |                              |         |
| England                                              | 0.86 (0.34)     | 0.82 (0.37)      | 0.10632                      | <0.0001 |
| Wales                                                | 0.06 (0.24)     | 0.07 (0.25)      | -0.02905                     | 0.294   |

|                                                                                                            |                     |                    |          |         |
|------------------------------------------------------------------------------------------------------------|---------------------|--------------------|----------|---------|
| Scotland                                                                                                   | 0·07 (0·25)         | 0·10 (0·30)        | -0·11012 | <0·0001 |
| Household income (based on the OECD-modified equivalence scale and adjusted for inflation and family size) | 14,612<br>(6,529·7) | 22,475<br>(15,024) | 0·67884  | <0·0001 |
| Observations                                                                                               | 2,591               | 2,622              |          |         |

**Table 1:** Baseline characteristics of treatment and comparison groups in the year prior to the introduction of Universal Credit, unweighted (n= 5,213)



**Figure1:** Mean mental health outcomes before and after Universal Credit rollout for treatment and comparison groups

Note: Event-study estimates of Mental Component Summary (MCS) scores relative to the year preceding Universal Credit (UC) rollout (reference period). Estimates for pre-rollout years allow assessment of the parallel trends assumption, while estimates for post-rollout years show how mental health outcomes evolved following UC implementation. Error bars represent 95% confidence intervals. Lower MCS scores indicate poorer mental health relative to the reference period. The numbers of observations in the treatment and comparison groups, respectively,

were 2,901 and 2,183 (−4), 2,808 and 2,409 (−3), 2,681 and 2,553 (−2), 2,591 and 2,622 (−1), 3,553 and 3,737 (0), 2,579 and 2,904 (1), 2,012 and 2,333 (2), 1,074 and 1,140 (3), and 207 and 173 (4).

**Table 2** presents findings from the DiD estimates. The introduction of UC was associated with a decrease of 0·94 units on the MCS scale (95% CI: −1·69 to −0·19) relative to the comparison group. UC rollout was also significantly associated with an increase in the prevalence of depression and mental health disorders, by 3·8 percentage points ( $\leq 45$  cutoff, 95% CI: 0·5 to 7·2), and 3·7 percentage points ( $\leq 50$  cutoff, 95% CI: 0·1 to 7·3), respectively (**Appendix 9**).

Additional analyses supported the robustness of the findings. Using the GHQ-12 as an alternative outcome yielded broadly similar results (GHQ-12: 0·26, 95% CI: 0·02 to 0·49). For physical health, the estimated effect was negative but imprecisely estimated (PCS: −0·44, 95% CI: −1·00 to 0·12), providing less conclusive evidence regarding impacts on physical health.

Sensitivity analyses were consistent with the main findings, including when restricting the comparison group to lower-income families (−0·98, 95% CI −1·85 to −0·11) or one-parent households (−1·15, 95% CI −1·98 to −0·32), adjusting for financial strain (−1·20, 95% CI −1·93 to −0·48), and using multiple imputation (−0·95, 95% CI −1·69 to −0·21). Linear probability models for binary outcomes produced comparable percentage-point estimates (MCS  $\leq 45$ : 4·4, 95% CI: 1·0 to 7·8; MCS  $\leq 50$ : 3·7, 95% CI: 2·0 to 7·3). Excluding participants who moved between LAs during follow-up yielded a negative, although attenuated, estimated effect (−0·67, 95% CI −1·44 to 0·10). Results were also robust to two-way clustering (−0·91, 95% CI −1·45 to −0·36). The staggered DiD estimator further indicated that adverse mental health effects varied across rollout cohorts rather than occurring immediately after implementation (**Appendix 10**).

| Outcome                                                                 | DiD estimate | 95% CI         | P>t   |
|-------------------------------------------------------------------------|--------------|----------------|-------|
| Change in continuous MCS score (0-100)                                  | −0·94        | −1·69 to −0·19 | 0·014 |
| Percentage point change in prevalence of depression ( $\leq 45$ cutoff) | 3·8          | 0·5 to 7·2     | 0·026 |

|                                                                                      |     |            |       |
|--------------------------------------------------------------------------------------|-----|------------|-------|
| Percentage point change in prevalence of Common mental disorders ( $\leq 50$ cutoff) | 3.7 | 0.1 to 7.3 | 0.044 |
|--------------------------------------------------------------------------------------|-----|------------|-------|

**Table 2:** Difference-in-Differences estimates of the mental health impact of Universal Credit rollout among individuals with dependent children, Treatment vs Comparison group

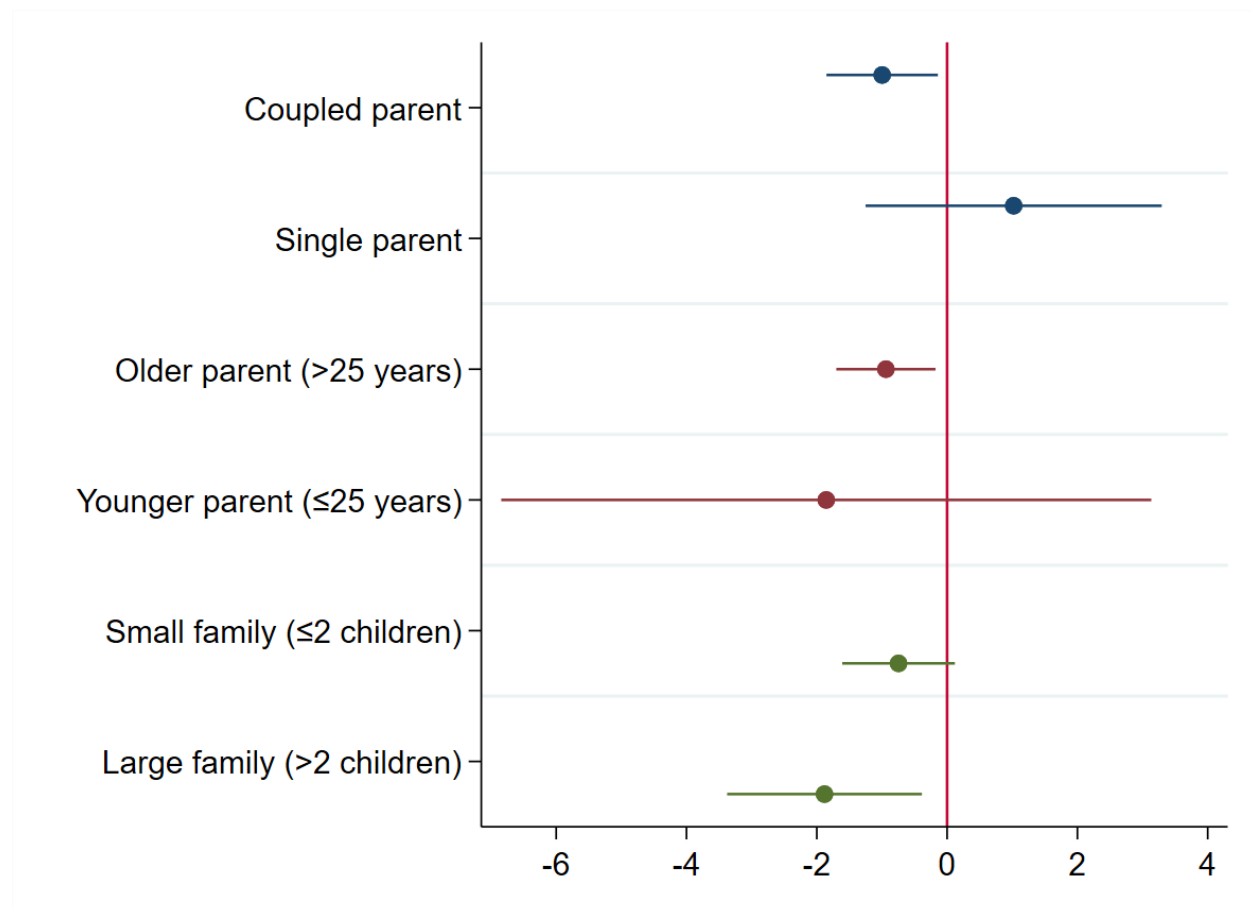
Note: Difference-in-differences (DiD) estimates of the impact of Universal Credit (UC) rollout on population mental health comparing parents with dependent children eligible for moving onto UC (e.g. reported receiving UC or any of six legacy benefits, treatment group) and parents with dependent children who reported receiving alternative benefits (comparison group) before and after the implementation of UC in their area. Mental health is measured based on the continuous Mental Component Summary (MCS), ranging between 0-100 where higher values indicate better health. Total number of person-year observations: 77,632. Full model specifications and coefficients are provided in Appendix 9 of the Supplementary Material.

Exploratory subgroup analyses suggested some variation in the estimated effect of UC rollout on parental mental health across family types (**Table 3; also Figure 2**). Coupled parents experienced a decrease in MCS score ( $-0.99$ ; 95% CI:  $-1.85$  to  $-0.14$ ) similar to older parents ( $-0.93$ ; 95% CI:  $-1.70$  to  $-0.17$ ), while the largest estimated reduction was observed among parents with  $\geq 3$  dependent children ( $-1.88$ ; 95% CI:  $-3.37$  to  $-0.39$ ). Estimates for single parents and young parents were imprecise ( $1.02$ ; 95% CI:  $-1.25$  to  $3.29$  and  $-1.85$ ; 95% CI:  $-6.84$  to  $3.13$ , respectively), while there were modest declines in mental health scores among families with  $\leq 2$  children ( $-0.75$ ; 95% CI:  $-1.61$  to  $0.11$ ). However, formal interaction tests provided no strong evidence that UC effects differed by relationship status ( $p=0.097$ ), parental age ( $p=0.759$ ) or family size ( $p=0.204$ ) (**Appendix 11**).

| Change in continuous MCS score (0-100) | Estimate | 95% CI             |
|----------------------------------------|----------|--------------------|
| Coupled parent (married; cohabiting)   | $-0.99$  | $-1.85$ to $-0.14$ |
| Single parent                          | $1.02$   | $-1.25$ to $3.29$  |
| Young parent ( $\leq 25$ years)        | $-1.85$  | $-6.84$ to $3.13$  |
| Older parent ( $>25$ years)            | $-0.93$  | $-1.70$ to $-0.17$ |
| Small family ( $\leq 2$ children)      | $-0.75$  | $-1.61$ to $0.11$  |
| Large families ( $>2$ children)        | $-1.88$  | $-3.37$ to $-0.39$ |

**Table 3:** Difference-in-differences estimates of the mental health impact of Universal Credit rollout, heterogeneous effects, Treatment vs. Comparison group.

Note: Difference-in-differences estimates of the impact of Universal Credit (UC) rollout on population mental health by marital status, parental age and family size, comparing families with dependent children eligible for moving onto UC (e.g. reported receiving UC or any of six legacy benefits, treatment group) and families with dependent children who reported receiving alternative benefits (comparison group). Mental health is measured based on the continuous Mental Component Summary (MCS), ranging between 0-100 where higher values indicate better health. Total number of person-year observations: 77,632. Full model specifications and coefficients are provided in Appendix 11 of the Supplementary Material.



**Figure 2:** Difference-in-differences estimates of the mental health impact of Universal Credit rollout among eligible families, by marital status, parental age and family size

Note: Subgroup analyses of the association between Universal Credit (UC) rollout and Mental Component Summary (MCS) scores. Error bars represent 95% confidence intervals. Negative estimates indicate poorer mental health (lower MCS scores). The marital status analysis included 63,712 observations from married/cohabiting parents and

13,920 observations from single/separated parents. The age analysis included 73,901 observations from parents aged 25 years and over and 3,731 observations from parents aged under 25 years. The family size analysis included 62,185 observations from families with up to two children and 15,447 observations from families with three or more children.

## DISCUSSION

Our longitudinal study of a nationally representative population provided evidence that the rollout of UC in the UK has had adverse impacts on the mental health of parents with dependent children compared to non-eligible parents. The overall decline in mental health and increased prevalence of depression and common mental disorders highlight significant unintended consequences of this welfare reform.

Although the individual-level effect was modest, the population impact may be substantial given the scale of UC exposure. By December 2019, over one million adults with dependent children were receiving UC.[35] Applying our estimate suggests approximately 40,663 (95% CI 5,350–77,045) additional adults with dependent children experienced depression. This may be a conservative estimation because it reflects potential rather than individual exposure to specific policy features, highlighting the wider implications for family wellbeing, labour market participation and wider social outcomes.

The observed deterioration in mental health is consistent with international evidence showing that welfare reforms characterised by stricter conditionality, sanctions, benefit caps and reduced benefit generosity may increase psychological distress.[4,15–17] For families with dependent children, plausible pathways include financial insecurity arising from payment reductions or suspensions, stress associated with welfare conditionality and the administrative burden of managing benefit claims alongside work and caregiving. These pressures may reduce parental wellbeing by increasing material hardship and reducing families' capacity to manage competing employment and childcare demands.

Our findings further suggest that UC may disproportionately affect families with greater financial demands. Previous research has shown that related policies, including the benefit cap

and the two-child limit restricting support to the first two children, have increased financial hardship and child poverty among larger families.[36–38] While our study does not directly identify the contribution of specific policy components, our findings are consistent with the possibility that greater financial pressures under UC may contribute to poorer mental health for larger families.

Coupled parents and older parents experienced significant declines in mental health, potentially reflecting greater exposure to UC's work-related conditionality through higher employment rates. Qualitative evidence suggests that heightened conditionality, sanctions and payment delays can generate stress and financial insecurity among claimants.[10–12] Estimates for single parents, younger parents and smaller families were less precise, likely reflecting limited statistical power or unobserved heterogeneity rather than the absence of a true effect.

The magnitude of our findings is broadly consistent with previous UC evaluations, although effects vary across claimant groups. The decline in mental health observed was larger than estimates for the overall claimant population, suggesting that families may be particularly vulnerable to welfare reform.[6] However, effect sizes were smaller than those reported among unemployed claimants, who may experience greater exposure to work-related conditionality and financial insecurity.[7] This pattern suggests a gradient of impact, with the greatest effects among unemployed claimants, followed by families with dependent children and the wider claimant population.

Our findings differ from research reporting larger declines among single parents transitioning into employment under UC compared to the legacy system.[8] This may reflect differences in exposure definitions, as our analysis captures overall eligibility rather than employment transitions specifically, as well as differences in sample composition, outcomes and implementation timing. Additionally, some single parents may have experienced less stringent conditionality depending on the youngest child's age. Overall, while coupled and older parents appeared particularly vulnerable, the absence of significant effects in other subgroups should be interpreted cautiously.

Our study has several strengths. First, it is among the first to focus explicitly on individuals with dependent children eligible for UC, addressing a critical gap in the literature. Prior research has

often examined the broader population or specific vulnerable subgroups without isolating the differential effects on families who face unique financial and caregiving challenges. By analysing a large, nationally representative longitudinal dataset with rich individual- and family-level information, this research offers novel insights into the heterogeneous impacts of UC across family types and sizes. Second, we used a DiD approach, which enhances causal inference by comparing changes in mental health outcomes over time between families eligible for UC and a carefully selected comparison group not exposed to the reform. This quasi-experimental design strengthens the validity of our conclusions by accounting for secular trends and time-invariant unobserved confounding. Finally, we conducted extensive sensitivity analyses, all of which supported the consistency of our main results, increasing confidence in the reliability and generalisability of our findings.

Our study has some limitations. Although the DiD design reduces bias from confounding, residual confounding by time-varying factors cannot be entirely ruled out. While various tests supported the parallel trends assumption, the modest improvement in mental health observed immediately before UC introduction in both groups indicates that mental health trajectories were not entirely stable over time, and differential responses to broader secular changes after rollout cannot be completely excluded. Furthermore, uncertainty regarding the exogeneity of UC rollout timing and residual differences between the treatment and comparison groups remain possible despite the robustness of our findings across multiple sensitivity analyses.

Some misclassification of UC exposure may have occurred because treatment assignment combined self-reported benefit receipt with LA rollout dates. However, sensitivity analyses excluding LA movers yielded similar findings. Selection into benefit receipt may have also been influenced by time-varying factors associated with mental health that were not fully captured. Although we adjusted for a range of sociodemographic characteristics, some time-varying covariates may lie on the causal pathway, potentially introducing post-treatment bias. However, fixing these covariates at baseline produced comparable results. Reliance on self-reported outcome measures may also have introduced reporting bias, although validated instruments were used and findings were robust to multiple imputation addressing missing data and attrition.

Finally, as this study was designed to estimate the overall impact of UC, we were unable to investigate potential mediating factors, such as employment transitions, housing insecurity, or changes in informal support networks. Although subgroup analyses suggested potential differences across family characteristics, formal interaction tests did not provide strong evidence of effect modification, and some subgroups may have been underpowered to detect modest but meaningful differences. Longer-term mental health consequences of UC exposure also remain uncertain. Future research should combine extended follow-up with quantitative and qualitative approaches to better understand the mechanisms underlying these effects and how families adapt over time.

Our findings have several important policy implications. First, welfare reforms should be designed with greater consideration of their potential mental health consequences, particularly among families with children. The heterogeneous effects observed across family characteristics and rollout cohorts suggest that a one-size-fits-all approach may overlook groups experiencing greater vulnerability. Policymakers should consider revising the UC payment structure to better support large families, for example, by relaxing the benefit cap or increasing child-related allowances. Reducing delays in payments, simplifying claims processes and expanding personalised support may also alleviate claimant stress. The use of sanctions and strict conditionality should be reconsidered given potential harms to wellbeing.[39-40] Finally, integrating mental health support within welfare services could provide a more holistic response with targeted outreach strategies for most affected subgroups.

Overall, our study suggests that UC exposure is associated with adverse mental health effects among some family types, highlighting the social and psychological consequences of welfare reform. These findings underscore the need for policymakers to consider differential impacts across households and mitigate potential harms among families experiencing greater economic and emotional vulnerability.

## CONTRIBUTORS

PC and CB were joint lead applicants on the NIHR grant and led the development of the study's overall aims and methodological approach. MM was the lead author and carried out the statistical analyses. MM and SW developed the analytical strategy and methods, with input from BB. SW and BB independently checked the analyses. MM prepared the initial manuscript draft, with contributions from SW. AB, SVK, DT-R, BB, and PC were part of the work package team and contributed to methodological decisions, interpretation of findings, and critical revisions of the manuscript. HB, CB, LM, MS, and MR were members of the broader research team and contributed to shaping the research questions, providing specialist input, and reviewing the final manuscript. All authors read and approved the submitted version.

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## COMPETING INTERESTS

None declared. The study's funding bodies had no role in its design, data analysis, interpretation of results, or manuscript preparation.

## DATA AVAILABILITY STATEMENT

Individual-level survey data used in this study are available from the UK Data Service subject to registration and approval under the relevant end-user licence agreements. Researchers can apply for access via the UK Data Service (<https://ukdataservice.ac.uk>). Data on the rollout and implementation of Universal Credit are publicly available from the Department for Work and Pensions (DWP) through Stat-Xplore (<https://stat-xplore.dwp.gov.uk>). The statistical analysis code has also been made publicly available on the study's Open Science Framework (OSF) project page: <https://osf.io/9n82w/>.

## ETHICS STATEMENTS

### Patient consent for publication

Not applicable.

### Ethics approval

This study is based on secondary analysis of data from the UK Household Longitudinal Study (UKHLS) accessed via the UK Data Service under the appropriate end user licence agreements. Ethical approval was obtained from the University of Essex Ethics Committee and the National Health Service Research Ethics Committees at each wave of data collection. All participants

provided informed consent prior to participation. The present study involved analysis of fully anonymised data and did not require additional ethical approval. This study is based on a protocol that has been published in the Open Science Framework (OSF) to ensure transparency: <https://osf.io/9n82w/>.

## REFERENCES

1. Department for Work and Pensions (DWP). Universal Credit: Welfare that works. London: DWP. 2010. Available from: <https://www.gov.uk/government/publications/universal-credit-welfare-that-works>
2. Welfare revolution rolls out to families: Universal Credit to be in a third of Jobcentres by spring [Internet]. GOV.UK. [cited 2025 Jun 12]. Available from: <https://www.gov.uk/government/news/welfare-revolution-rolls-out-to-families-universal-credit-to-be-in-a-third-of-jobcentres-by-spring>
3. Department for Work and Pensions (DWP). Stat-Xplore: Households on Universal Credit by family type and children. 2024. Available from: <https://stat-xplore.dwp.gov.uk>
4. Simpson J, Albani V, Bell Z, et al. Effects of social security policy reforms on mental health and inequalities: A systematic review of observational studies in high-income countries. *Soc Sci Med*. 2021;272:113717.
5. Baxter AJ, Tindall M, Wickham S, Marimpi M, Brown H, Munford L, et al. Impacts of the Universal Credit welfare reform on well-being: a natural experiment study using UK population survey data. *BMJ Public Health*. 2026;4(2):e003762.
6. Marimpi M, Barr B, Baxter A, et al. Estimating population mental health effects of the rollout of Universal Credit in the UK using standard and novel Difference-in-Differences analysis, 2009–2019. *Public Health*. 2025;247:105821.
7. Wickham S, Bentley L, Rose T, et al. Effects on mental health of a UK welfare reform, Universal Credit: a longitudinal controlled study. *Lancet Public Health*. 2020;5(3):e157–e164.
8. Brewer M, Dang T, Tominey E. Universal Credit: welfare reform and mental health. *J Health Econ*. 2024;98:102940.

9. Song H, Zhang A, Barr B, et al. Effect of Universal Credit on young children's mental health: quasi-experimental evidence from Understanding Society. *J Epidemiol Community Health*. 2024;78(12):e222293.
10. Cheetham M, El-Zerbi C, Bidmead E, et al. 'You can see when your parents are struggling': a qualitative study of children and young people's views of Universal Credit. *J Soc Policy*. 2024; Epub Dec 26.
11. Bidmead E, El Zerbi C, Cheetham M, et al. A rapid review of children and young people's views of poverty and welfare in the context of Universal Credit. *Children & Society*. 2023;37(6):2047-2065.
12. Carey M, and Bell S. Universal Credit, Lone Mothers and Poverty: Some Ethical Challenges for Social Work with Children and Families. *Ethics and Social Welfare*. 2022;16(1):3–18.
13. Wood M. Falling between the cracks – the experiences of young parents on Universal Credit. *Journal of Youth Studies*. 2024;27(7):1042–57.
14. McCartney G, Hiam L, Smith KE, et al. UK welfare reforms threaten health of the most vulnerable. *BMJ*. 2025;388:r593.
15. Holcomb S, Hetling A, Yeo V. A multi-country systematic review of research on sanctions and equity in social welfare programs. *Social Policy & Administration*. 2023;57(5):596-609.  
doi:[10.1111/spol.12880](https://doi.org/10.1111/spol.12880)
16. Dore EC, Hamad R, Komro KA, et al. The long-term health effects of welfare reform. *Soc Sci Med*. 2025;371:117878.
17. Lundberg O, Yngwe MÅ, Stjärne MK, et al. The role of welfare state principles and generosity in social policy programmes for public health: An international comparative study. *Lancet*. 2008;372.
18. Bourquin P, Cribb J, Waters T, et al. *Why Has In-Work Poverty Risen in Britain?* IFS Working Papers; 2019. doi:[10.1920/wp.ifs.2019.1219](https://doi.org/10.1920/wp.ifs.2019.1219)
19. The Health Foundation. In-work poverty trends. Accessed September 12, 2025.  
<https://www.health.org.uk/evidence-hub/money-and-resources/poverty/in-work-poverty-trends>
20. Reiss F. Socioeconomic inequalities and mental health problems in children and adolescents: A systematic review. *Social Science & Medicine*. 2013;90:24-31.  
doi:[10.1016/j.socscimed.2013.04.026](https://doi.org/10.1016/j.socscimed.2013.04.026)

21. Goodman SH, Rouse MH, Connell AM, et al. Maternal Depression and Child Psychopathology: A Meta-Analytic Review. *Clin Child Fam Psychol Rev*. 2011;14(1):1-27. doi:[10.1007/s10567-010-0080-1](https://doi.org/10.1007/s10567-010-0080-1)
22. Marmot M. Health equity in England: the Marmot review 10 years on. *BMJ*. 2020;368:m693. doi:[10.1136/bmj.m693](https://doi.org/10.1136/bmj.m693)
23. University of Essex, Institute for Social and Economic Research. (2023). Understanding Society: Waves 1-13, 2009-2022 and Harmonised BHPS: Waves 1-18, 1991-2009. [data collection]. 18th Edition. UK Data Service. SN: 6614, <http://doi.org/10.5255/UKDA-SN-6614-19>
24. Bruckmeier K, Hohmeyer K, Schwarz S. Welfare receipt misreporting in survey data and its consequences for state dependence estimates: new insights from linked administrative and survey data. *J Labour Market Res*. 2018;52(1):16. doi:[10.1186/s12651-018-0250-z](https://doi.org/10.1186/s12651-018-0250-z)
25. Stat-Xplore. Data tables: Households on Universal Credit. Accessed 12 May 2023. <https://stat-xplore.dwp.gov.uk/webapi/jsf/login.xhtml>
26. Ware J, Kosinski M, Keller S. SF-12: How to Score the SF-12 Physical and Mental Health Summary Scales. 1995. 2nd ed. Boston, MA: The Health Institute, New England Medical Center.
27. Bell T, Watson M, Sharp D, et al. Factors associated with being a false positive on the General Health Questionnaire. *Soc Psychiatry Psychiatr Epidemiol*. 2005;40(5):402–7.
28. Imbens GW, Wooldridge JM. Recent Developments in the Econometrics of Program Evaluation. *Journal of Economic Literature*. 2009;47(1):5–86.
29. Williams P, Goldberg DP. A user's guide to the General Health Questionnaire. Berkshire: NFER, Nelson. 1988.
30. Makowska Z, Merecz D, Mościcka-Teske A, et al. The Validity of General Health Questionnaires, GHQ-12 and GHQ-28, in Mental Health Studies of Working People. *Int J Occup Med Environ Health*. 2002;15:353–62.
31. Aalto AM, Elovainio M, Kivimäki M, et al. The Beck Depression Inventory and General Health Questionnaire as measures of depression in the general population: A validation study using the Composite International Diagnostic Interview as the gold standard. *Psychiatry Research*. 2012;197(1–2):163–71.
32. Office for National Statistics (ONS). Chapter 3: Equivalised income - Office for National Statistics. Accessed 22 August 2025. <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/incomeandwealth/compendium/familyspending/2015/chapter3equivalisedincome>

33. White IR, Royston P, Wood AM. Multiple imputation using chained equations: Issues and guidance for practice. *Statistics in Medicine*. 2011;30(4):377–99.
34. Callaway B, Sant’Anna PHC. Difference-in-Differences with multiple time periods. *Journal of Econometrics*. 2021;Themed Issue: Treatment Effect 1225(2):200–30.  
doi:[10.1016/j.jeconom.2020.12.001](https://doi.org/10.1016/j.jeconom.2020.12.001)
35. Stat-Xplore. Data tables: Households on Universal Credit by family type. Accessed 19 June 2026. Available from: <https://stat-xplore.dwp.gov.uk/webapi/jsf/tableView/tableView.xhtml>
36. Kirk-Wade E, Hobson F, Kennedy S. The impact of the two-child limit in Universal Credit. 2025 Dec 6 [cited 2025 Jun 12]; Available from: <https://commonslibrary.parliament.uk/research-briefings/cbp-9301/>
37. Andersen K, Redman J, Stewart K, et al. ‘It’s the kids that suffer’: Exploring how the UK’s benefit cap and two-child limit harm children. *Soc Pol Admin*. 2025;59(1):57–72.
38. Stewart K, Reader M, Aldridge H, et al. How the benefit cap and the two-child limit interact, benefit changes and larger families policy briefing. [Internet]. [cited 2025 Jun 13]. Available from: <https://largerfamilies.study/publications/benefit-cap-two-child-limit-interact>
39. Williams E. Punitive welfare reform and claimant mental health: The impact of benefit sanctions on anxiety and depression. *Soc Pol Admin*. 2021;55(1):157–72.
40. Dwyer PJ. Punitive and ineffective: benefit sanctions within social security. *Journal of Social Security Law*. 2018;142–57.