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# Neighbourhood belonging, social cohesion, and mental wellbeing of children and parents in an ethnically diverse community sample in England

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## Abstract

**Background** Neighbourhood cohesion is considered an important and modifiable determinant of mental health that interacts with factors such as deprivation and ethnicity in complex ways. UK studies adequately representing ethnic minority groups are however scarce. We examined associations between neighbourhood belonging, social cohesion, and mental wellbeing of children and parents in an ethnically diverse community sample in England.

**Methods** We analysed cross-sectional baseline data from the TOGETHER study, a randomised controlled trial testing the effectiveness of the 'Strengthening Families, Strengthening Communities' parenting programme developed to reach ethnic minority and other marginalised families living in England (ISRCTN: 15194500). Outcomes were parental mental wellbeing (Warwick-Edinburgh Mental Well-Being Scale, WEMWBS) and child socio-emotional difficulties (Strengths and Difficulties Questionnaire, SDQ). Neighbourhood belonging and social cohesion were assessed using the adapted Buckner scale. Multiple linear regression models were run, adjusted for sociodemographic factors including age, gender and ethnicity of the parent (for WEMWBS) or child (for SDQ); family socio-economic position; and family structure. Models assessing child socio-emotional difficulties additionally adjusted for parental mental wellbeing.

**Results** The analysis sample included 638 participants with complete data, of whom 62% were from an ethnic minority background. Higher neighbourhood belonging and social cohesion were associated with higher parental mental wellbeing (higher WEMWBS scores) in fully adjusted models (β for neighbourhood belonging = 0.28, 95% CI: 0.17 to 0.40, $p < 0.001$; β for social cohesion = 0.49, 95% CI: 0.37 to 0.61, $p < 0.001$). Associations with WEMWBS were not moderated by ethnic group. Neighbourhood belonging was unrelated to child socio-emotional difficulties after adjustment for child and family characteristics. Higher social cohesion was associated with lower child socio-

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emotional difficulties after adjustment for covariates (β = -0.10, 95% CI: -0.20 to -0.01, $p < 0.033$), this association was fully attenuated after additional adjustment for parental mental wellbeing (β = 0.02, 95% CI: -0.07 to 0.12, $p = 0.612$).

**Conclusions** In this diverse community sample, neighbourhood belonging and social cohesion were strongly related to parental mental health. Controlling for parental mental health explained the association between social cohesion and child socio-emotional difficulties. Fostering neighbourhood belonging and social cohesion may hold promise for efforts to improve both parent and child mental wellbeing.

**Keywords** Social cohesion, Neighbourhood belonging, Mental health, Parental wellbeing, Child well-being, Child socio-emotional difficulties, Health inequalities, Social inequalities, Ethnic inequalities, Parenting programme

## Introduction

The mental health of children and young people is a major public health concern. In England, 20% of children aged 8 to 16 years had a probable mental disorder in 2023, a sharp rise since 2017 when the estimated prevalence was 13% [1]. Apart from the immediate impact on children and families, socioemotional difficulties in childhood are linked to lower educational attainment and poorer adult mental health, with consequences for later life chances [2–6]. Childhood socioemotional difficulties are influenced by a range of interrelated factors including socioeconomic disadvantage and parental mental wellbeing [7]. They are subject to persistent inequalities, disproportionally affecting children who grow up in socially disadvantaged households [1, 8, 9]. Inequalities in socioemotional wellbeing are also apparent between ethnic groups, partly explained by differential exposure to socioeconomic disadvantage and racism [10, 11].

Social relationships are a fundamental determinant of physical and mental health, acting through behavioural, psychosocial, and physiological pathways [12, 13]. The WHO framework on the social determinants of health postulates social cohesion as one of the potential mechanisms linking structural drivers of inequality and population health [14]. While there is a lack of consensus on a single definition, social cohesion can be described as a community-level characteristic that refers to "the extent of connectedness and solidarity among groups in society" [15]. Its measurement commonly refers to a geographically defined area and includes cognitive aspects such as identification, sense of belonging, shared values and orientation towards the common good, as well as indicators of social interaction such as participation and social support [16–18].

Social cohesion might influence children's mental health directly, or indirectly through the mental wellbeing of their parents. Research has demonstrated that neighbourhood social cohesion is a protective factor for adult mental health [18, 19] and may buffer the detrimental impact of neighbourhood deprivation [20]. Studies focusing on children and adolescents have also shown that social aspects of the neighbourhood predict mental health outcomes [21–23]. In a systematic review of neighbourhood effects on children and young people's mental health and well-being, eight out of nine studies that assessed the neighbourhood social environment reported associations with well-being as well as internalising and externalising behaviours in the expected directions, with some evidence for mediation through family processes such as parental mental health, family functioning, and parenting behaviours [22]. For example, parental psychological distress, acting through family conflict and parenting, was shown to mediate links between perceived neighbourhood quality and child externalising behaviours in longitudinal research from the US [24].

Similarly, a rapid review of the impact of neighbourhood cohesion on depression and anxiety among young people aged 14–24 years concluded that indicators of cohesion such as safety, trust, and positive social connections were associated with fewer depressive symptoms in prospective longitudinal studies [23]. In the UK, research using the Avon Longitudinal Study of Parents and Children found that exposure to low levels of neighbourhood cohesion during childhood was associated with increased odds of depressive symptoms at age 18 years [25].

Experiences of social cohesion and its impact on health can differ depending on social and structural conditions [26], with previous research suggesting a complex interplay between neighbourhood deprivation, ethnicity, social cohesion, and mental health. Ethnic minority groups are more likely to reside in more deprived areas [27], which are often characterised by greater financial strain, inadequate services, and higher crime rates – factors that can negatively affect mental wellbeing [22, 28]. On the other hand, these same areas may also offer protective aspects such as stronger informal support networks and cultural connectedness, as demonstrated by studies on the positive effects of ethnic density on the health of ethnic minorities [29, 30]. A recent UK study suggested that the strength of the association between social cohesion and mental wellbeing might vary by ethnicity, with the authors hypothesising that neighbourhood cohesion may be a more important resource for ethnic groups holding more collectivist values [31]. However, most existing research on social cohesion and

health has been carried out with predominantly White population samples, underrepresenting ethnic minority groups or treating them as homogenous categories, thereby overlooking important differences in lived experience and structural disadvantage. There is therefore limited UK relevant evidence on the links between neighbourhood social cohesion and the mental wellbeing of children and parents from minoritised ethnic families and those living in disadvantaged communities.

The current study addresses this gap by analysing baseline data from the UK Together study, a Randomised Controlled Trial assessing the effectiveness of the 'Strengthening Families, Strengthening Communities' parenting programme, which has been specifically developed by the UK Race Equality Foundation to meet the needs of Black, Asian and minority ethnic groups, and other under-served families [32]. We aimed to examine associations between neighbourhood cohesion (measured as neighbourhood belonging and social cohesion), and the mental wellbeing of parents and children among an ethnically diverse community sample in England, and to test whether associations with child socio-emotional wellbeing are partly explained by parental mental health. In addition, we wished to test whether associations between neighbourhood cohesion and parental mental health might vary by ethnic background. We hypothesised that parents reporting higher levels of neighbourhood cohesion also report better mental health, and that associations between neighbourhood cohesion and child socio-emotional wellbeing are attenuated after controlling for parental mental wellbeing.

## Methods

### Data

We analysed baseline data from the Together study, a randomised controlled trial (ISRCTN: 15194500) evaluating the effectiveness of the 'Strengthening Families, Strengthening Communities' (SFSC) parenting programme [32]. SFSC is an inclusive, group-based programme designed by the Race Equality Foundation to reach families from a wide range of backgrounds including marginalised communities in England [33]. Participants for the Together study were recruited from families who had been referred or self-referred to SFSC programmes across six urban areas in England, and included an ethnically and socially diverse sample of parents and their children aged between 3 and 18 years who were accessing parenting support [32]. Baseline data were collected over a period of 3 years from August 2019 to December 2022.

Ethical approval for the Together trial was granted by the UCL Research Ethics Committee (reference 1538/002). All participants provided informed written consent. Further details about the Together study can be found in Lodder et al. 2021 (open access) [32].

### Measures

#### *Child and parent mental wellbeing*

Child socio-emotional well-being was measured using the Total Difficulties Scale of the parent-reported Strengths and Difficulties Questionnaire (SDQ), a widely used and validated measure to assess socio-emotional wellbeing and behavioural difficulties [34]. The SDQ consists of five scales including prosocial behaviour, emotional problems, peer relationship problems, conduct problems, and hyperactivity/inattention. The Total Difficulties score is derived by summing the four problem scales excluding prosocial behaviour [35]. Each scale consists of five items with three answer options (not true, somewhat true, certainly true; with positive items reverse-coded), resulting in a possible range from zero (no difficulties in any area) to 40 (respondent reports that the child certainly has difficulties in all areas). The Total Difficulties Scale was used as a continuous variable.

Parental mental wellbeing was assessed using the validated and robust 14-item version of the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) [36]. The scale measures aspects of mental wellbeing including positive affect, life satisfaction, satisfying interpersonal relationships and positive functioning. Each item has 5 response options ranging from "none of the time" to "all of the time" and is scored positively. Total scores are calculated by summing the scores for all 14 items, giving a range from 14 to 70 with higher values indicating better mental wellbeing [36]. The WEMWBS had high internal consistency (Cronbach's alpha = 0.92) and was used as a continuous variable.

#### *Neighbourhood belonging and social cohesion*

Neighbourhood cohesion was assessed using the adapted Buckner scale [37], a measure that has been validated and used in diverse contexts and samples, including North America [38, 39], the UK [19, 37], and Asia [40, 41]. The scale consists of 15 items measuring neighbourhood belonging (7 items on the degree of attachment people feel towards their neighbourhood, e.g. "I feel like I belong to this neighbourhood") and social cohesion (8 items on how people interact with their neighbours, e.g. "I borrow things and exchange favours with my neighbours"). Responses are given on a 5-point Likert scale ranging from "strongly agree" to "strongly disagree", resulting in a possible range from 7 to 35 for neighbourhood belonging and 8–40 for social cohesion (see supplementary Table S1 for a full list of items). Higher values indicate higher community cohesion. Both scales were used as continuous variables in regression models. For descriptive purposes only, categories were derived based on tertiles. The instrument had very good internal consistency (Cronbach's alpha = 0.90 for both scales).

### *Covariates*

Based on the available literature, a wide range of covariates were considered as potential confounders. Child characteristics included gender; age in years (used as a continuous variable in regression models); and ethnicity. Parent characteristics were gender; age in years (continuous); ethnicity; whether English was first language; employment status; and highest level of education. At household level, variables included a subjective measure of how well the family managed financially; housing type; family structure; and the total number of children in the household. Categories for all covariates are presented in Table 1 and were used in regression models as shown, except for child and parental age, which were entered as continuous variables.

### Analytical approach

Descriptive analyses examined means and frequency distributions of all variables included in the analyses. Correlations between outcome and exposure variables were inspected using Pearson correlation coefficients, and mean scores of outcomes and exposures cross-tabulated against covariates.

Multiple linear regression was used to assess associations between exposures and outcomes based on complete cases. Models were run separately for each exposure and outcome pair. As the Together study included community settings across urban areas in England (including the cities of London, Luton, Leeds, Calderdale, Hull, and Kirklees), study site was included in all regression models to account for the geographical clustering of the data.

For parental mental wellbeing, a sequence of 3 models was estimated (Table 2), with the fully adjusted model including the exposure (neighbourhood belonging or social cohesion), study site, respondent characteristics (age, gender, ethnicity, whether English was first language, education, employment) and household characteristics (how well managing financially, housing type, family structure, number of children in the household). To test whether associations were moderated by ethnic group, interaction terms between respondents' ethnic group and neighbourhood belonging/social cohesion were included in the final model, and the likelihood ratio test (LRT) was used to ascertain whether including the interaction improved model fit. For child socio-emotional wellbeing, the sequence included 5 models (Table 3), with the final model adjusting for exposure (neighbourhood belonging or social cohesion), study site, child characteristics (age, gender, ethnicity), parent characteristics (age, gender, whether English was first language, education, employment), household characteristics (how well managing financially, housing type, family structure, number of children in the household), and (added in a separate step) parental mental wellbeing.

All analyses were carried out in Stata version 18.5 using two-tailed tests [42]. Statistical significance was defined at the 0.05 level.

## Results

Figure 1 presents the number of those eligible for inclusion in the Together trial, participants recruited at baseline and numbers analysed in the current study. The Together baseline sample consisted of 674 caregivers, 638 of whom (95%) had complete data on all variables of interest and were included in the current analysis. The distribution of all study variables, including the extent of missing data, is shown in supplementary Table S2. Overall, missingness was low (the highest proportion of missing data was observed for the WEMWBS scale at 2.1%).

Participants in the analytical sample had a mean age of 38.3 years (SD = 7.55), and 95% were women. The mean age of the index children was 8.7 years (SD = 3.75), 56% of them were boys. 62% of respondents were from an ethnic minority background, with the largest groups being Black African (14%) and Arab (12%) parents. A large proportion of the sample was experiencing financial difficulties – on the question how well they were managing financially, only 14% of respondents said they were 'living comfortably', 40% said they were 'doing alright', 27% stated they were 'just getting by' and 19% reported 'finding it quite difficult' or 'very difficult'. Most participants lived in either council (34%) or privately (25%) rented accommodation, while only 18% were owner occupiers.

The mean scores for the outcome measures were 49.04 (SD = 10.53) for the parental mental wellbeing (WEMWBS) scale and 15.56 (SD = 7.56) for the child mental wellbeing (SDQ Total difficulties) scale. The two outcome measures were moderately correlated ($r$= −0.44; supplementary Table S3). The mean scores for the exposures were 25.4 (SD = 6.68) for the neighbourhood belonging scale and 28.6 (SD = 6.07) for the social cohesion scale.

Table 1 presents mean values and standard deviations for the outcome measures (child and parental mental well-being) by neighbourhood belonging, social cohesion, and covariates. Respondents who reported higher levels of neighbourhood belonging and community cohesion also reported better mental wellbeing, and fewer socio-emotional difficulties for their children. Both outcome measures followed a social gradient by subjectively reported financial resources, however there were no gradients by respondents' level of education. Outcomes also varied by ethnic group – mean WEMWBS scores were highest among Black African and Arab respondents and lowest among White respondents, while mean total difficulties scores were lowest for Black African and highest for White and African Caribbean children (Table 1). A cross-tabulation of the exposures (neighbourhood belonging and social cohesion) by covariates is provided

**Table 1** Outcomes (child and parental mental well-being), by exposures and covariates, complete case sample ($N=638$)

| | *n* | Child total difficulties score (SDQ)[1] | Respondent mental wellbeing score (WEMWBS)[2] |
|---|---|---|---|
| | | Mean (SD) | Mean (SD) |
| **Neighbourhood cohesion (exposures)** | | | |
| Neighbourhood belonging (tertiles) | | | |
| Lowest | 214 | 16.7 (7.44) | 45.5 (10.54) |
| Middle | 238 | 15.5 (7.42) | 49.3 (9.68) |
| Highest | 186 | 14.4 (7.72) | 52.7 (10.28) |
| Social cohesion (tertiles) | | | |
| Lowest | 215 | 17.4 (7.70) | 44.6 (10.49) |
| Middle | 221 | 14.7 (7.38) | 50.5 (9.38) |
| Highest | 202 | 14.5 (7.25) | 52.1 (10.27) |
| **Child characteristics** | | | |
| Gender | | | |
| Girl | 278 | 14.5 (7.60) | 49.0 (10.24) |
| Boy | 360 | 16.4 (7.43) | 49.1 (10.76) |
| Age (years, grouped) | | | |
| 3–5 | 159 | 14.4 (7.22) | 48.5 (10.68) |
| 6–10 | 260 | 15.5 (7.43) | 49.5 (10.59) |
| 11–14 | 170 | 16.7 (7.70) | 48.5 (10.13) |
| 15–18 | 49 | 15.6 (8.39) | 49.8 (11.20) |
| Ethnicity | | | |
| White | 226 | 17.9 (7.98) | |
| Black Caribbean | 18 | 17.2 (5.54) | |
| Black African | 83 | 12.1 (6.80) | |
| Indian | 11 | 12.9 (6.83) | |
| Pakistani | 41 | 15.6 (6.89) | |
| Bangladeshi | 41 | 14.2 (7.18) | |
| Other Asian | 25 | 14.0 (6.44) | |
| Arab | 80 | 13.6 (6.86) | |
| Mixed | 71 | 16.3 (6.79) | |
| Any other ethnic group | 42 | 14.7 (7.67) | |
| **Respondent characteristics** | | | |
| Gender | | | |
| Woman | 608 | 15.5 (7.63) | 49.2 (10.57) |
| Man | 30 | 16.5 (6.01) | 46.1 (9.32) |
| Age at baseline | | | |
| 20–29 | 62 | 16.3 (8.13) | 45.0 (10.52) |
| 30–39 | 317 | 15.5 (7.67) | 49.5 (10.23) |
| 40–49 | 215 | 15.3 (7.34) | 49.6 (10.52) |
| 50 and older | 44 | 16.1 (7.12) | 48.3 (11.74) |
| Ethnicity | | | |
| White | 240 | | 45.9 (10.69) |
| Black Caribbean | 24 | | 46.0 (8.02) |
| Black African | 83 | | 54.3 (9.39) |
| Indian | 15 | | 47.4 (5.19) |
| Pakistani | 44 | | 48.5 (10.69) |
| Bangladeshi | 41 | | 50.7 (9.08) |
| Other Asian | 22 | | 46.0 (12.34) |
| Arab | 77 | | 53.6 (8.37) |
| Mixed | 43 | | 50.4 (10.71) |
| Any other ethnic group | 49 | | 48.9 (10.98) |
| English first language | | | |
| Yes | 321 | 17.3 (7.70) | 45.2 (10.38) |

**Table 1** (continued)

| | *n* | Child total difficulties score (SDQ)[1] | Respondent mental wellbeing score (WEMWBS)[2] |
|---|---|---|---|
| | | Mean (SD) | Mean (SD) |
| No | 317 | 13.8 (6.98) | 52.9 (9.20) |
| Employment status | | | |
| Employed | 171 | 15.2 (7.17) | 49.6 (8.80) |
| Student | 33 | 12.2 (7.12) | 53.6 (9.89) |
| Housewife/husband | 202 | 14.7 (6.98) | 51.4 (9.46) |
| Unemployed | 190 | 16.7 (8.03) | 45.4 (11.77) |
| Other (including retired) | 42 | 19.0 (8.74) | 48.2 (11.89) |
| Highest level of education[3] | | | |
| College degree or higher, or NVQ 4–5 | 342 | 14.8 (7.27) | 49.3 (9.97) |
| Secondary school (18 years) or NVQ 1–3 | 188 | 15.9 (7.77) | 48.6 (10.95) |
| Secondary school (16 years) | 87 | 17.8 (7.72) | 48.3 (11.21) |
| Primary school or none | 21 | 15.8 (7.96) | 51.6 (12.71) |
| **Household characteristics** | | | |
| How well managing financially | | | |
| Living comfortably | 88 | 14.6 (7.68) | 52.3 (8.93) |
| Doing alright | 257 | 14.9 (7.36) | 50.2 (10.08) |
| Just about getting by | 172 | 15.6 (7.95) | 48.5 (10.52) |
| Finding it quite difficult/very difficult | 121 | 17.5 (7.01) | 45.0 (11.35) |
| Housing type | | | |
| Owner occupier | 113 | 16.3 (7.67) | 47.9 (9.51) |
| Council rented | 218 | 16.2 (7.69) | 49.3 (10.77) |
| Housing association | 108 | 14.1 (7.87) | 49.8 (11.67) |
| Privately rented | 158 | 15.5 (7.23) | 48.9 (10.84) |
| Other | 41 | 14.5 (6.53) | 49.3 (7.21) |
| Family structure | | | |
| Two parents | 366 | 14.5 (7.33) | 50.8 (10.05) |
| Single parent | 247 | 16.9 (7.53) | 46.3 (10.67) |
| Other (incl. step/foster/grandparent) | 25 | 18.0 (8.69) | 49.5 (10.23) |
| Number of children in household | | | |
| 0 | 13 | 17.8 (8.96) | 47.8 (8.01) |
| 1 | 125 | 14.6 (6.55) | 47.8 (10.79) |
| 2 | 251 | 15.6 (7.52) | 49.0 (10.03) |
| 3 | 148 | 16.3 (8.31) | 47.8 (10.45) |
| 4 or more | 101 | 15.4 (7.42) | 52.8 (11.10) |

[1]Total difficulties score: possible range 0–40; lower is better

[2] WEMWBS score: possible range 14–70; higher is better

[3] NVQ = National Vocational Qualifications (UK practical, work-based qualifications)

in supplementary Table S4. Both neighbourhood belonging and social cohesion were socially graded and highest among those who reported to be financially comfortable. In relation to ethnic group, the highest neighbourhood belonging scores were reported by Black African and Pakistani respondents and the lowest by Black Caribbean respondents. For social cohesion, Bangladeshi and Black African respondents reported the highest and Black Caribbean respondents the lowest scores.

Results from multiple regression models predicting parental mental wellbeing (WEMWBS scores) are shown in Table 2. Both higher neighbourhood belonging and social cohesion were associated with better mental wellbeing in the fully adjusted models, with larger effect sizes for the social cohesion scale. We found no evidence for moderation by ethnic group – interaction terms between neighbourhood belonging and ethnic group or social cohesion and ethnic group were not statistically significant and their inclusion did not improve model fit (LRT test: $p > 0.05$).

Table 3 shows the results for parent-reported child socio-emotional well-being (SDQ total difficulties scores). Higher neighbourhood belonging was associated with lower total difficulties scores, but not after adjustment for family sociodemographic characteristics. The association appeared to be fully explained after further

**Table 2** Linear regression models predicting parental mental wellbeing (WEMWBS score), *N* = 638

| | Coefficient (95% CI) | | |
|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** |
| **Series 1** | | | |
| Neighbourhood belonging | 0.37 (0.26, 0.49) | 0.31 (0.19, 0.42) | 0.28 (0.17, 0.40) |
| *p-value* | *< 0.001* | *< 0.001* | *< 0.001* |
| **Series 2** | | | |
| Social cohesion | 0.56 (0.44, 0.69) | 0.52 (0.40, 0.64) | 0.49 (0.37, 0.61) |
| *p-value* | *< 0.001* | *< 0.001* | *< 0.001* |

Model 1: exposure, adjusted for site

Model 2: Model 1 + respondent characteristics (age, gender, ethnicity, English first language, education, employment)

Model 3: Model 2 + household characteristics (how well managing financially, housing type, family structure, number of children in household)

**Table 3** Linear regression models predicting child socio-emotional well-being (SDQ total difficulties score), *N* = 638

| | Coefficient (95% CI) | | | | |
|---|---|---|---|---|---|
| | **Model 1** | **Model 2** | **Model 3** | **Model 4** | **Model 5** |
| **Series 1** | | | | | |
| Neighbourhood belonging | −0.10 (−0.18, −0.01) | −0.09 (−0.17, −0.00) | −0.07 (−0.16, 0.01) | −0.07 (−0.16, 0.02) | 0.00 (−0.08, 0.09) |
| *p-value* | *0.025* | *0.048* | *0.096* | *0.110* | *0.941* |
| **Series 2** | | | | | |
| Social cohesion | −0.15 (−0.24, −0.54) | −0.14 (−0.23, −0.04) | −0.12 (−0.22, −0.02) | −0.10 (−0.20, −0.01) | 0.02 (−0.07, 0.12) |
| *p-value* | *0.002* | *0.004* | *0.014* | *0.033* | *0.612* |

Model 1: exposure, adjusted for site

Model 2: Model 1 + child characteristics (age, gender, ethnicity)

Model 3: Model 2 + respondent characteristics (age, gender, English first language, education, employment)

Model 4: Model 3 + household characteristics (how well managing financially, housing type, family structure, number of children in household)

Model 5: Model 4 + respondent mental wellbeing (WEMWBS)

adjustment for parental mental wellbeing. Although effect sizes were small, higher social cohesion was associated with lower total difficulties even after controlling for respondent and household characteristics. The estimate was substantially attenuated after the inclusion of parental mental wellbeing.

## Discussion

The current study demonstrated that in a socially and ethnically diverse community sample of parents accessing parenting support, both social cohesion and neighbourhood belonging were associated with respondents' mental wellbeing, corroborating previous research among adult populations [18–20]. Associations appeared somewhat stronger for social cohesion, which captured concrete interactions and acts of social support between neighbours, than for neighbourhood sense of belonging.

Links between neighbourhood cohesion and child mental wellbeing were overall weaker than associations with parental mental wellbeing. We found some support for our hypothesis that neighbourhood cohesion might affect child wellbeing through the mental health of parents, as controlling for parental mental wellbeing fully explained the association between social cohesion and socio-emotional difficulties. This interpretation is supported by extant research showing that parent and child mental wellbeing are strongly linked across the life course, including evidence for bidirectional effects [7, 43–46]. It is also possible that neighbourhood characteristics such as social cohesion become more important for children's wellbeing as they transition into young adulthood and engage with their neighbourhoods more directly. However, we were unable to test this as our sample did not include a large enough number of older children.

As the respondents included in our sample were part of a trial evaluating a parenting intervention, the average socio-emotional difficulties scores reported for the children were substantially higher than what has been reported for the UK general population. In our sample with a mean child age of 9 years, the mean total difficulties score was 15.4, higher than the mean of 9.3 reported for 5–16-year-olds by the Mental Health of Children and Young People in England 2020 survey [47]. Similarly, the average mental wellbeing (WEMWBS) score reported by the parents was 49.0, which is slightly below the population mean of 51 [36]. It is also possible that our outcome variables were influenced by COVID-19, as baseline data for the Together trial were collected during the initial phase of the pandemic.

Social inequalities in mental wellbeing have been consistently reported for both adults and children [48–50]. We also found clear social gradients in both parental and child mental wellbeing as well as neighbourhood belonging and social cohesion, suggesting that people who are more economically advantaged have not only better mental health but also more access to neighbourhood-level sources of support and belonging. While the outcomes and exposure examined in this study also varied by ethnic background, the strength of the associations between neighbourhood cohesion and parental mental wellbeing was similar across ethnic groups. This finding is in contrast to previous UK research reporting stronger longitudinal associations between neighbourhood cohesion and mental health (using the General Health Questionnaire) for people from some ethnic groups including those from Bangladeshi, mixed, Indian, Pakistani, and any other Asian backgrounds [31]. One possible explanation for

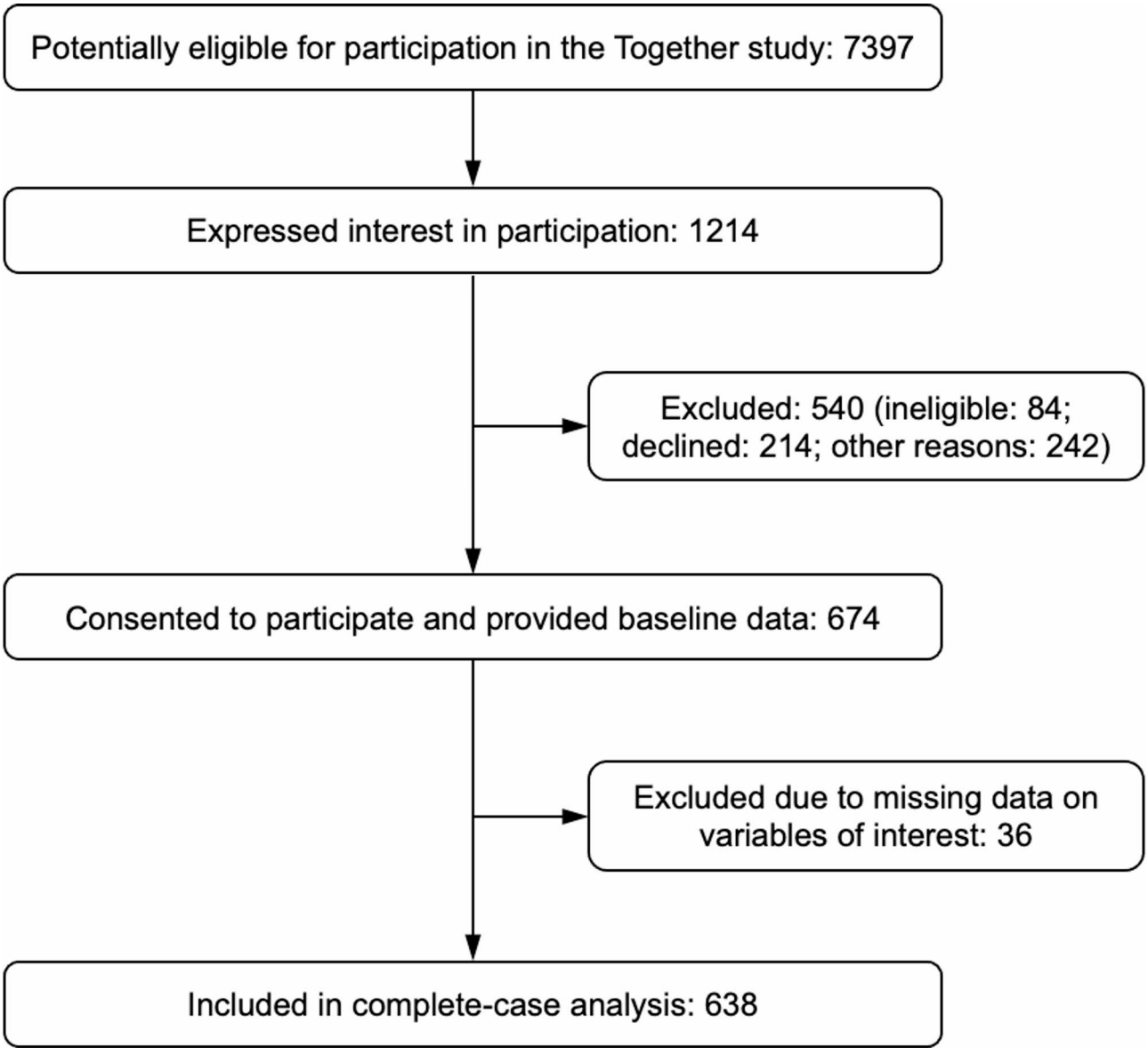


**Fig. 1** Flowchart of study participants

this discrepancy is that our sample was relatively homogeneous in terms of socio-economic disadvantage, potentially limiting variation in how cohesion is experienced across ethnic groups, which might be better understood through differences in structural inequalities and lived experience rather than fixed group characteristics. Our findings indicate a need to interpret ethnic differences not as intrinsic to particular groups but as shaped by intersecting structural inequalities, including racism, poverty, and differential access to resources. Structural racism, which can be defined as the "norms embedded in culture, systems, policies, and practices that routinely disadvantage racially minoritised groups" [51], perpetuates inequity and can impact on both social cohesion and mental wellbeing through mechanisms that include lack of political power and denied opportunities, economic disadvantage, and limited access to health-promoting resources [52]. Future research should continue to explore how lived experiences and broader socio-structural conditions shape the health benefits of neighbourhood cohesion in diverse populations.

The current study has important strengths. We analysed data from a socially and ethnically diverse community sample that included population groups who are often underrepresented in national surveys. We employed a more granular classification of ethnicity, while neighbourhood exposures and both parental and child mental wellbeing were measured using widely used and validated instruments. The Together study collected baseline data on a wide range of sociodemographic and economic

characteristics, allowing adjustment for relevant covariates known to be correlated with our exposures and outcomes. However, we also acknowledge the limitations of our study. The data are cross-sectional, precluding the assessment of temporality, and our analysis does not lend itself to causal interpretations. As our sample were predominantly mothers, we could not ascertain whether our findings equally apply to fathers. We were unable to account for ethnic density and residential mobility, as we did not have information on neighbourhood composition and length of residence at the current address. As exposures and outcomes were self-reported, it is possible that respondents' mental wellbeing influenced their perception of neighbourhood cohesion, as well as their reporting of socioemotional difficulties for their child, leading to same-source bias. However, previous research has demonstrated good external validity for the adapted Buckner scale, our measure of neighbourhood cohesion [31, 37, 53]. Residual confounding is a general concern in analyses of observational data. To minimise this problem, we adjusted for a wide range of demographic characteristics including different aspects of socio-economic position. The modest attenuation of estimates across model specifications in analyses of parental mental wellbeing suggests that residual confounding is unlikely to explain our results. Further research is however needed using longitudinal designs and different informants to measure neighbourhood characteristics, as well as studies including older children and fathers.

Our findings have implications for policies aimed at improving population mental health. Apart from its intrinsic value, strengthening neighbourhood cohesion may be a promising route towards better mental wellbeing of children and families in the UK. Evidence from intervention studies suggest that initiatives enhancing social cohesion and collective control can lead to improvements in a range of health outcomes including mental health, however the potential for such interventions to increase health inequalities must be carefully considered [54, 55]. Theoretical frameworks of community empowerment emphasise the importance of establishing structures and opportunities for collective decisions and actions such as community spaces and participatory forms of leadership, while building on existing strengths and capacities and recognising local norms, resources, and needs [56]. Opportunities for community involvement and connection can be built around common interests and priorities. Examples are community initiatives such as volunteering, sports groups, creative activities, and regeneration projects, and also parenting programmes such as SFSC [23].

## Conclusion

In this socially and ethnically diverse community sample, social cohesion and neighbourhood belonging were strongly associated with parental mental wellbeing. Social cohesion appeared to be more important than neighbourhood belonging and might influence child wellbeing through parental mental health. Fostering opportunities to develop social cohesion may have potential to improve parent and child mental wellbeing.

### Abbreviations

| | |
|---|---|
| CI | Confidence Interval |
| NVQ | National Vocational Qualifications |
| SFSC | Strengthening Families, Strengthening Communities |
| SD | Standard Deviation |
| SDQ | Strengths and Difficulties Questionnaire |
| WEMWBS | Warwick–Edinburgh Mental Well–Being Scale |
| WHO | World Health Organization |

## Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12889-025-25433-x.

Supplementary Material 1.

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### Authors' contributions

RGW and AH conceived the idea for the study. All authors contributed to the study design. AH analysed the data and drafted the manuscript. AB and ZH provided statistical support. All authors contributed to the interpretation of the results and critically revised the manuscript. All authors read and approved the final manuscript, and agree to be accountable for all aspects of the work ensuring integrity and accuracy.

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### Data availability

Anonymised data supporting the conclusions of this article and statistical code are available on request to the corresponding author. A data sharing agreement will require a commitment to using the data only for specified research purposes, to securing the data appropriately, and to destroying the data after a nominated period.

## Declarations

### Ethics approval and consent to participate

Ethical approval for the Together trial was granted by the University College London Research Ethics Committee (reference 1538/002) in accordance with the Declaration of Helsinki. All participants provided informed written consent.

### Consent for publication

Not applicable.

### Competing interests

The authors declare no competing interests.

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**References**

1. Newlove-Delgado T, Marcheselli F, Williams T, Mandalia D, Dennes M, McManus S et al. Mental Health of Children and Young People in England Leeds: NHS England; 2023 [Available from: https://digital
2. Kessler RC, Foster CL, Saunders WB, Stang PE. Social consequences of psychiatric disorders, I: educational attainment. Am J Psychiatry. 1995;152(7):1026–32.
3. Dalsgaard S, McGrath J, Østergaard SD, Wray NR, Pedersen CB, Mortensen PB, et al. Association of mental disorder in childhood and adolescence with subsequent educational achievement. JAMA Psychiatr. 2020;77(8):797–805.
4. Hale DR, Viner RM. How adolescent health influences education and employment: investigating longitudinal associations and mechanisms. J Epidemiol Community Health. 2018;72(6):465–70.
5. Goodman A, Joyce R, Smith JP. The long shadow cast by childhood physical and mental problems on adult life. Proc Natl Acad Sci U S A. 2011;108(15):6032–7.
6. Mulraney M, Coghill D, Bishop C, Mehmed Y, Sciberras E, Sawyer M, et al. A systematic review of the persistence of childhood mental health problems into adulthood. Neurosci Biobehav Rev. 2021;129:182–205.
7. Goodman SH, Rouse MH, Connell AM, Broth MR, Hall CM, Heyward D. Maternal depression and child psychopathology: a meta-analytic review. Clin Child Fam Psychol Rev. 2011;14(1):1–27.
8. Collishaw S, Furzer E, Thapar AK, Sellers R. Brief report: a comparison of child mental health inequalities in three UK population cohorts. Eur Child Adolesc Psychiatry. 2019;28(11):1547–9.
9. Ball WP, Black C, Gordon S, Ostrovska B, Paranjothy S, Rasalam A, et al. Inequalities in children's mental health care: analysis of routinely collected data on prescribing and referrals to secondary care. BMC Psychiatry. 2023;23(1):22.
10. Zilanawala A, Sacker A, Nazroo J, Kelly Y. Ethnic differences in children's socioemotional difficulties: findings from the millennium cohort study. Soc Sci Med. 2015;134:95–106.
11. Bécares L, Nazroo J, Kelly Y. A longitudinal examination of maternal, family, and area-level experiences of racism on children's socioemotional development: patterns and possible explanations. Soc Sci Med. 2015;142:128–35.
12. Umberson D, Montez JK. Social relationships and health: a flashpoint for health policy. J Health Soc Behav. 2010;51(SupplSuppl):S54-66.
13. Kawachi I, Berkman L. Social ties and mental health. J Urban Health. 2001;78(3):458–67.
14. Solar O, Irwin A. A conceptual framework for action on the social determinants of health. Geneva: World Health Organization; 2010.
15. Manca AR. Social cohesion. In: Michalos AC, editor. Encyclopedia of quality of life and Well-Being research. Dordrecht: Springer Netherlands; 2014. pp. 6026–8.
16. Fonseca X, Stephan L, Brazier F. Social cohesion revisited: a new definition and how to characterize it. Innov Eur J Soc Sci Res. 2019;32(2):231–53.
17. Schiefer D, van der Noll J. The essentials of social cohesion: a literature review. Soc Indic Res. 2017;132(2):579–603.
18. Pérez E, Braën C, Boyer G, Mercille G, Rehany É, Deslauriers V, et al. Neighbourhood community life and health: a systematic review of reviews. Health Place. 2020;61:102238.
19. Williams AJ, Maguire K, Morrissey K, Taylor T, Wyatt K. Social cohesion, mental wellbeing and health-related quality of life among a cohort of social housing residents in Cornwall: a cross sectional study. BMC Public Health. 2020;20(1):985.
20. Fone D, White J, Farewell D, Kelly M, John G, Lloyd K, et al. Effect of neighbourhood deprivation and social cohesion on mental health inequality: a multilevel population-based longitudinal study. Psychol Med. 2014;44(11):2449–60.
21. World Health Organization. Social cohesion for mental well-being among adolescents Copenhagen: World Health Organization. Regional Office for Europe. 2008 [updated 2008. Available from: https://iris.who.int/handle/10665/345359
22. Visser K, Bolt G, Finkenauer C, Jonker M, Weinberg D, Stevens G. Neighbourhood deprivation effects on young people's mental health and well-being: a systematic review of the literature. Soc Sci Med. 2021;270:113542.
23. Breedvelt JJF, Tiemeier H, Sharples E, Galea S, Niedzwiedz C, Elliott I, et al. The effects of neighbourhood social cohesion on preventing depression and anxiety among adolescents and young adults: rapid review. BJPsych Open. 2022;8(4):e97.
24. Li M, Johnson SB, Musci RJ, Riley AW. Perceived neighborhood quality, family processes, and trajectories of child and adolescent externalizing behaviors in the United States. Soc Sci Med. 2017;192:152–61.
25. Solmi F, Colman I, Weeks M, Lewis G, Kirkbride JB. Trajectories of neighborhood cohesion in childhood, and psychotic and depressive symptoms at age 13 and 18 years. J Am Acad Child Adolesc Psychiatry. 2017;56(7):570–7.
26. Campbell C, Pearlman J, Verdery AM, England K. Community lost? Changes and stratification in perceived neighborhood social cohesion among families with children. Socius Sociol Res Dyn World. 2022;8:23780231221079997.
27. Jivraj S, Khan O, Jivraj S, Simpson L. Ethnic identity and inequalities in britain: the dynamics of diversity. Thirteen: how likely are people from minority ethnic groups to live in deprived neighbourhoods? Policy; 2015. pp. 199–214.
28. Jivraj S, Murray ET, Norman P, Nicholas O. The impact of life course exposures to neighbourhood deprivation on health and well-being: a review of the long-term neighbourhood effects literature. Eur J Public Health. 2020;30(5):922–8.
29. Bécares L, Nazroo J, Stafford M. The buffering effects of ethnic density on experienced racism and health. Health Place. 2009;15(3):700–8.
30. Bécares L, Dewey ME, Das-Munshi J. Ethnic density effects for adult mental health: systematic review and meta-analysis of international studies. Psychol Med. 2018;48(12):2054–72.
31. Chum A, Teo C, Azra KK. Does the longitudinal association between neighbourhood cohesion and mental health differ by ethnicity? Results from the UK household longitudinal survey. Soc Psychiatry Psychiatr Epidemiol. 2022;57(4):859–72.
32. Lodder A, Mehay A, Pavlickova H, Hoare Z, Box L, Butt J, et al. Evaluating the effectiveness and cost effectiveness of the 'strengthening families, strengthening communities' group-based parenting programme: study protocol and initial insights. BMC Public Health. 2021;21(1):1887.
33. Race Equality Foundation. Strengthening Families, Strengthening Communities 2025 [Available from: https://raceequalityfoundation
34. Goodman R. Psychometric properties of the strengths and difficulties questionnaire. J Am Acad Child Adolesc Psychiatry. 2001;40(11):1337–45.
35. Youthinmind. SDQ Information for researchers and professionals about the Strengths & Difficulties Questionnaires: Youthinmind Ltd; 2022 [Available from: https://sdqinfo
36. Tennant R, Hiller L, Fishwick R, Platt S, Joseph S, Weich S, et al. The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. Health Qual Life Outcomes. 2007;5(1):63.
37. Fone DL, Farewell DM, Dunstan FD. An ecometric analysis of neighbourhood cohesion. Popul Health Metrics. 2006;4(1):17.
38. Villodas ML, Nebbitt VE, Lombe M, Yu M, Foell A, McCoy H, et al. Assessing the modified neighborhood cohesion index among African American adolescents living in public housing: an exploratory and confirmatory factor analysis. J Soc Social Work Res. 2023;14(2):291–312.
39. Ross A, Searle M. Conceptualization and validation of the neighbourhood cohesion index using exploratory structural equation modelling. Community Dev J. 2020;56(3):408–31.
40. Yu R, Cheung O, Leung J, Tong C, Lau K, Cheung J, et al. Is neighbourhood social cohesion associated with subjective well-being for older Chinese people? The neighbourhood social cohesion study. BMJ Open. 2019;9(5):e023332.

41. Humble S, Sharma A, Rangaraju B, Dixon P, Pennington M. Associations between neighbourhood social cohesion and subjective well-being in two different informal settlement types in Delhi, India: a quantitative cross-sectional study. BMJ Open. 2023;13(4):e067680.
42. Statacorp. Stata statistical software: release 18. College Station, TX: StataCorp LLC. TX: StataCorp LLC: College Station, TX;; 2023.
43. Rogers A, Obst S, Teague SJ, Rossen L, Spry EA, Macdonald JA, et al. Association between maternal perinatal depression and anxiety and child and adolescent development: a meta-analysis. JAMA Pediatr. 2020;174(11):1082–92.
44. Elgar FJ, Curtis LJ, McGrath PJ, Waschbusch DA, Stewart SH. Antecedent-consequence conditions in maternal mood and child adjustment: a four-year cross-lagged study. J Clin Child Adolesc Psychol. 2003;32(3):362–74.
45. Meadows SO, McLanahan SS, Brooks-Gunn J. Parental depression and anxiety and early childhood behavior problems across family types. J Marriage Fam. 2007;69(5):1162–77.
46. Ramchandani P, Stein A, Evans J, O'Connor TG. Paternal depression in the postnatal period and child development: a prospective population study. Lancet. 2005;365(9478):2201–5.
47. NHS Digital. Mental Health of Children and Young People in England. 2020: Wave 1 follow up to the 2017 survey: Health and Social Care Information Centre; 2020 [Available from: https://digital
48. Kirkbride JB, Anglin DM, Colman I, Dykxhoorn J, Jones PB, Patalay P, et al. The social determinants of mental health and disorder: evidence, prevention and recommendations. World Psychiatry. 2024;23(1):58–90.
49. World Health Organization. World mental health report: transforming mental health for all. Geneva; 2022.
50. Pickett KE, Wilkinson RG, Editorial. Socio-economic inequality and child and adolescent mental health. Child Adolesc Mental Health. 2024;29(3):308–10.
51. Chew M, Das P, Aujla M, Horton R. Advancing racial and ethnic equity in science, medicine, and health: a call for papers. Lancet. 2021;398(10308):1287–9.
52. Braveman PA, Arkin E, Proctor D, Kauh T, Holm N. Systemic and structural racism: definitions, examples, health damages, and approaches to dismantling. Health Aff Millwood. 2022;41(2):171–8.
53. Buckner JC. The development of an instrument to measure neighborhood cohesion. Am J Community Psychol. 1988;16(6):771–91.
54. Akhter N, McGowan VJ, Halliday E, Popay J, Kasim A, Bambra C. Community empowerment and mental wellbeing: longitudinal findings from a survey of people actively involved in the big local place-based initiative in England. J Public Health. 2022;45(2):423–31.
55. Castillo EG, Ijadi-Maghsoodi R, Shadravan S, Moore E, Mensah MO 3rd, Docherty M, et al. Community interventions to promote mental health and social equity. Curr Psychiatry Rep. 2019;21(5):35.
56. Popay J, Whitehead M, Ponsford R, Egan M, Mead R. Power, control, communities and health inequalities I: theories, concepts and analytical frameworks. Health Promot Int. 2020;36(5):1253–63.

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