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Research Article

Assessment and Qualitative Comparative Analysis of English Local Authority Joint Health and Wellbeing Strategies to Improve Health under Austerity Conditions, 2013–2017

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Background. Local government is important for health equity because local policies often affect place-based health, health equity, and their wider social determinants of health. In England, local governments must produce Joint Health and Wellbeing (JH&W) Strategies, outlining local strategies for health improvement. These strategies have been produced concurrently with budget cuts to local governments that are associated with adverse health and mortality outcomes. Using a novel approach, we assessed whether English local governments' strategies for place-based health and equity help explain why some disadvantaged areas have better mortality trends than others. *Methods*. We sampled "Joint Health and Wellbeing" (JH&W) Strategies for 20 disadvantaged localities covering the years 2013–2017. We sampled areas to include some with larger and some with smaller budget cuts. We developed a qualitative appraisal process for scoring the extent to which JH&W strategies focused on (i) place-based social determinants of health and (ii) health equity. Using qualitative comparative analysis, we assessed whether mortality trends might be explained by JH&W scores or wider contextual factors such as budget cuts, population age, and disadvantage. *Results*. JH&W strategies on place-based social determinants of health and equity were often underdeveloped. Only a minority of strategies were highly rated (i.e., scoring >2 out of 3) for addressing social inequalities of health ($n = 6$), and even fewer scored highly for place-based social determinants of health ($n = 3$). Our qualitative comparative analysis found that external and contextual factors (e.g., budget cuts and disadvantages) offer more plausible explanations than JH&W strategies for place variations in life expectancy trends. *Conclusion*. Budget cuts and other contextual factors better explain mortality trends than JH&W strategies. This raises concerns about what such strategies can realistically achieve in the face of structural disadvantage and national policies that restrict local spending.

1. Introduction

Health inequalities are unfair and systemic differences in health status that exist between different social groups and across the population [1]. The persistence of health inequalities in the UK has long been discussed [2], with the 2010 Marmot Review being perhaps the most well-known publication [3] along with more recent updates [3, 4]. In line with earlier public health strategies from the UK and elsewhere [2, 5], Marmot and colleagues advocate for "social determinants" an approach to tackling health inequalities, preventing socioeconomic causes of ill health, and promoting healthy environments.

UK public health policies have been criticised for forsaking strategies to tackle social determinants of population health in favour of encouraging individuals to make healthy lifestyle choices. Healthy lifestyle strategies widen inequalities if attempts to improve public interest, understanding, and adoption of healthy behaviours prove to be more effective amongst relatively advantaged social groups [6, 7].

The place is important to our understanding of social determinants of health inequality: for example, social determinants linked to residential and working environments, services, amenities, and economic resources vary by place. A social determinant approach to improving health and reducing health inequalities is likely to include place-based interventions that holistically address the conditions in which people are born, live, and work, rather than simply focusing on healthy lifestyle choices, or the organisation of health and social care [8]. Local government has a vital role in improving "place." Examples of place-based actions include the following: regulating the sale of certain goods (e.g., food, alcohol, and tobacco); fiscal measures; economic development and job creation; spatial and environmental planning; housing, community safety; and working conditions.

Recently, the English government has advocated for a so-called "levelling-up" strategy aimed at reducing place-based inequalities [9]. How this is best achieved is debated. Interventions and services that exclusively target the most disadvantaged population subgroups provide one means of focusing resources where the need is the greatest. However, Marmot and others have advocated for universalist approaches, within which allocation to need across the social gradient occurs [10, 11]. Marmot and colleagues call this approach "proportionate universalism" [4]. The authors in reference [12] have argued for an equity-sensitive universalism to reduce the stigma associated with targeting and increasing social solidarity [13].

Partly in response to the original Marmot Review, the Health and Social Care Act (2012) transferred many responsibilities for public health from NHS organisations to local government in April 2013. This move was hoped to encourage co-ordinated action between local public health teams and local authority colleagues responsible for services relevant to the social determinants of health. The act also introduced Health and Wellbeing Boards: statutory bodies whose role is to promote integrated working between healthcare and social care providers and reduce health inequalities. The act mandates that boards produce two key documents: a joint strategic needs assessment and a Joint Health and Wellbeing (JH&W) Strategy. The former is an assessment of local health needs. The latter is a strategy for improving local health and wellbeing. Together, these documents are intended to "improve the health and wellbeing of the local community and reduce inequalities for all ages" (Statutory Guidance on Joint Strategic Needs Assessments and JH&W Strategies 2013, 4). Local authorities began publishing JH&W strategies following the 2012 act, although publication timescales varied by local authority. Strategies cover a period of up to 5 years. Contents vary (as this study will demonstrate) but cover issues such as infant and child health, health for different adult populations, encouraging healthy lifestyles, using community assets, integrating services, partnership working, and community empowerment (see Supplementary Table 2).

Since 2010, the English local government also experienced budget cuts of an unprecedented scale [14–16]. Similar retrenchment has occurred across the UK [17, 18] and elsewhere and has been critiqued as driven by an ideological preference for the market over the state [19]. In England, the central government reduced its funding to local government by almost 50%, on average, between 2010 and 2017 [20]. While public health funding was ring-fenced until 2015-2016, the magnitude of cuts meant that local authorities (the term used for local government in England is abbreviated to "LAs") faced difficult decisions regarding how to fulfil their statutory responsibilities and fund services influencing the wider determinants of health [21–23]. Despite announcements proclaiming the end of "austerity" [24], reduced government spending in numerous areas, including central grants to LAs, continues [14].

Improvements in life expectancy, a core indicator of population's health status [1], have stalled, and in some areas declined during this austerity period [25–27]. Unlike periods of greater LA funding, inequalities in life expectancy have widened [28], as LAs with higher area disadvantages experienced greater funding reductions and larger decreases in life expectancy [29]. Austerity measures have contributed to an excess of deaths in the elderly [30, 31]. Reductions in funding have also widened social inequalities in premature mortality [31] and were associated with an estimated 9,600 extra deaths between 2013 and 2017 in England amongst those aged younger than 75 years [29]. Reduced spending on homelessness support has been associated with increased rates of drug mortality [32]. Austerity is linked with child poverty, rising infant mortality [33], and COVID-19 mortality [34].

There is some evidence that changes in life expectancy were not uniform amongst LA experiencing similar levels of deprivation [35]. This raises the possibility that some LAs' approaches to improving health and reducing inequalities, as described in their JH&W strategies, were more effective at supporting public health under austerity conditions than others. The aim of this paper is to examine JH&W strategies in a sample of relatively deprived English LAs in order to assess the extent to which they focused on place-based social determinants of health and health inequality reduction. We then considered whether such a focus can plausibly be hypothesised to explain life expectancy in those areas during the pre-2018 austerity era, and the extent to which other (contextual) factors offer more plausible explanations.

2. Materials and Methods

2.1. Study Design. The study spanned 56 years (2013–17) after the JH&W strategy became mandatory. The year 2017 is the end date for the study period because we utilise data from a previous analysis of LA budget cuts covering the same period [29]. In 2013, it became a mandatory requirement for LAs to produce JH&W strategies. We qualitatively assessed the characteristics of the JH&W strategies and rated them

using a typology we developed for the purpose. Life expectancy data for each area were not viewed until analysis and rating of JH&W strategies so as not to influence these assessments. We then conducted a qualitative comparative analysis (QCA) that considered how the strategies, in combination with other factors, may be hypothesised to influence life expectancy.

2.2. Sampling Strategy. We sampled 20 LAs from the lowest deprivation index quintile of LAs in England, after having excluded those with small populations or boundary changes during the study period. There are different types of LA: the public health function is found in "unitary" and "upper tier" authorities, so we sampled these. LA disadvantage was taken from the income deprivation score of the Index of Multiple Deprivation in 2015 (study midpoint) [36]. As central government cuts in funding were known to be associated with changes in life expectancy, we purposively sampled the 10 LAs that experienced the largest cuts and the 10 LAs that experienced the smallest cuts within this quintile. Funding cuts were assessed via the change in central government funding in pounds per person, calculated as the difference in the sum of the authority's revenue, support grant, and business rate income between 2013 and 2017 using data held in the Place-based Longitudinal Data Resource (pldr.org) [28, 29].

Internet searches were conducted to locate the 20s LAs' JH&W strategies and, if not publicly available, the study team followed up with e-mail/telephone contact with the LA. If the strategy was still not available, the LA was excluded from the study, and the next LA was selected based on their ranked funding change. In cases where LAs did not respond to our request to see previous JH&W strategies, we have no way of confirming whether (a) those strategies existed but we failed to obtain them or (b) those strategies never existed. However, the national government made the production of these strategies mandatory, so we believe the most plausible interpretation is that the strategies were created but we could not obtain them. If multiple JH&W strategies were identified for a single LA, the one spanning the majority of the study period was selected for analysis; if they were of equal duration, the first strategy was selected.

2.3. Outcome Measure. Change in life expectancy at birth was the primary measure used to assess LA performance. Similar to Alexiou et al.'s [29] approach, three-year intervals spanning the study start and end points (2012–2014 and 2016–2018) were used to account for annual fluctuations in mortality in relatively small populations. In this study, an overall measure of change in life expectancy for each LA was calculated using the midyear population estimated by a single year produced by the Office for National Statistics (pop_female and pop_male) [37].

2.4. Sample Characteristics. Based on the binary rural-urban classification [38], LAs were described as rural if their population density was less than 288 people per square kilometre based on mid-2015 population estimates [37].

2.5. Typology Development. The first author (AT) extracted data from the identified JH&W strategies into a template that had been developed inductively and refined following an initial reading of the strategies and identification of themes. This process was carried out in NVivo. Co-authors (EM, CR, RM, and PH) also extracted data for one to 10 strategies each into an Excel spreadsheet following the same template. The two approaches were compared to check that key strategy features had been identified and correctly categorised.

To classify the strategies, a typology was developed based around two related "domains" held to be central in improving public health: (i) addressing social inequalities in health (i.e., differences in health outcomes between different socioeconomic groups) [11] and (ii) tackling social determinants of health through place-based approaches [39, 40]. Approaches to using structured qualitative data to develop composite, ordered categorical measures for scoring public health activities have been developed elsewhere [41]. We adapted and simplified the approach here to assess the JH&W strategies (see Supplementary Table 1).

For each domain, we assessed the following: (i) aims/priority areas (identified from summary diagrams and strategy overviews); (ii) whether indicators were proposed to assess the strategy impact/performance; and (iii) approaches to improving health. Based on explicit references extracted from the strategy text, these were scored at three levels relating to their intensity (low = 0, medium = 0.5, and high = 1). The emerging typology was discussed between AT and ME and refined. A full description of the finalised typology dimensions and their scoring criteria is provided in the Supplementary Material. The total scores for each of the two domains were used to rank the strategies. Cutoffs were then applied to produce an ordered categorical measure which grouped JH&W strategies into classes of lower, medium, and higher intensity for each domain. Higher intensity strategies scored >2 across each domain; lower scoring strategies scored ≤1 across each domain. The others were classed as medium intensity.

The association of the typology scores and changes in life expectancy were visually assessed using scatter plots and the percentage of LAs in each typology category whose life expectancy was maintained or improved was tabulated. The analysis was repeated using a restricted sample of authorities whose strategies covered a minimum of the first three years of the study period (2013–2015) to check if this altered the findings.

3. Qualitative Comparative Analysis

To further investigate the conditions that produced the changes observed in life expectancy at birth between 2013 and 2017, an exploratory QCA was undertaken [42]. This systematic, case-based approach can identify conditions that lead to the emergence of desired health outcomes, in this case, maintained or improved life expectancy, from complex systems [43]. By recognising how combinations of conditions can interact, QCA avoids reductionist perspectives centred on single causes [44–46]. QCA has been previously

deployed to investigate inequalities in addressing premature mortality caused by cancer and cardiovascular disease in English LAs [47].

To complement the typology, we adopted a crisp set approach to QCA and dichotomised our sample of LAs into (i) those whose life expectancy stayed the same or improved between 2013 and 2017 and (ii) those whose life expectancy worsened over the same period.

3.1. Conditions Considered. Following the steps outlined by Marx and Dusa [48], each LA was treated as a "case" and described using binary conditions (variables) (Table 1). Two conditions related to whether the JH&W strategy scored highly (>2) in the domains of social inequalities in health or the place-based social determinants of health.

These were supplemented with conditions describing the LA context. As the number of conditions that could be included was limited by the number of cases being analysed [48], we prioritised factors that have been previously found to influence life expectancy during this period [29–31]. They comprised the following: the central government funding change between 2013 and 2017 (as calculated above); relative deprivation assessed using the mean income domain score of the Index of Multiple Deprivation for the LA (2015) following the approach of Alexiou et al. [29]; and the percentage of the population aged 65 years and over in mid-2015 calculated based on Office of National Statistics data [37].

The case set calibration involved the dichotomisation of these three contextual continuous variables. The LAs in the study population ($n = 30$) were ranked, and those above the median were coded as set members (Table 1). For relative deprivation, this was equivalent to being in the most deprived decile of English LAs as measured using the income domain of the Index of Multiple Deprivation (2015). Following dichotomisation, the data matrix collated the coded conditions for each LA included in the study sample ($n = 20$).

Possible explanatory models were then explored through a process of logical minimisation to work out the necessary and sufficient conditions under which life expectancy was maintained or improved. Hence, in our QCA, the outcomes of interest were either a worsening life expectancy for a local authority's population over the study period (classed here as "0"), or a local authority's life expectancy rate being maintained or improved over the study period (classed here as "1").

We sought to identify "necessary conditions" and "sufficient conditions" that might help to explain outcomes of 0 or 1. In logic, a necessary condition is one that must be present in order for another condition to occur: e.g., a condition *X* must be present for outcome 0 to occur (but note that there may also be cases where *X* is present but outcome 0 does not occur). A sufficient condition is one that guarantees the occurrence of another condition: e.g., whenever a condition *X* is present, outcome 0 occurs (but note that outcome 0 may occur when *X* is not present, because alternative conditions may also lead to that outcome).

We produced a "truth table" (the term conventionally used in QCA) to list all possible combinations of conditions with the cases fulfilling these combinations listed alongside. These were then examined for consistency (whether cases grouped together by the same conditions shared an outcome) and contradiction (cases with the same configurations but different outcomes). For consistent sets of conditions, a pairwise comparison was undertaken. In a pair sharing the same outcome, if a condition was only present in one, this condition could be minimised away. The resulting rules were tested for coverage (the degree to which a configuration accounts for instances of an outcome in the case and the proportion of cases belonging to a particular configuration). The rules produced are reported with Boolean operators (e.g., NOT and AND), as is conventional with QCA.

3.2. Sensitivity. As a form of sensitivity test, we repeated the analysis with a sample restricted to LAs with a JH&W strategy that covered at least the first three years of the study period.

3.3. Ethics and Consent. As this study used publicly available data, research ethics approval was not needed and informed consent procedures were not applicable.

4. Results

4.1. Sample Characteristics. Table 2 describes the included JH&W strategies sampled from English LAs ranked in the highest quintile using the index of deprivation. A JH&W strategy could not be located for one LA in our original sample (Hartlepool). Therefore, it was excluded and the next ranked authority based on the magnitude of cuts was included (Blackpool). Of the 16 LAs that produced multiple strategies during the study period, only one document could be located for six LAs (Sandwell, Blackpool, Oldham, Manchester, Barking and Dagenham, and Newham). Fourteen of the LAs had strategies that covered the first three years or more of the study period.

Six JH&W strategies in our sample were London Boroughs. None of the others in the sample were located in the south of England. All authorities were under Labour Party political control between 2013 and 2017 and were classified as urban based on their population density [38]. Life expectancy at birth improved between 2013 and 2017 for 13 of the 20 (65%) LAs (Table 3). The mean change was +2.0 months (standard deviation: 5.2, range: −5.7 to +12.7, median change: +1.73 months, and interquartile range: −2.00 to +5.35 months).

4.2. Typology Findings. While most JH&W strategies referred to health inequalities and place-based social determinants, references to these themes tend to be brief. Only a minority of strategies were highly rated (i.e., scoring >2 out of 3) for addressing social inequalities of health ($n = 6$, 30.0%), and even fewer scored highly for place-based social determinants of health ($n = 3$, 15.0%) (Table 3). Most

Table 1: Conditions explored by the qualitative comparative analysis.

	Condition	Set membership definition	Threshold
Strategy attributes	Strong focus on addressing inequalities	Typology domain score	>2.0
	Strong focus on place-based social determinants of health	Typology domain score	>2.0
Local context	Largest funding cuts	Reduction in central government funding change between 2013 and 2017 (£ per capita)	>253.75
	Most deprived	Mean local authority score for income domain of the Index of Multiple Deprivation, 2015	>0.220
	Most aged 65 years and older	Estimated population aged 65 years and over, 2015 (%)	>14.68

Table 2: Characteristics of the English local authorities included in the analysis of Joint Health and Wellbeing Strategies ($n = 20$).

Name	Change in central government funding 2013–17 (£ per person)	Funding cuts category*	Strategy coverage of study period				
			2013	2014	2015	2016	2017
Knowsley	−385	Greater	■	■	■	■	
Liverpoo	−362	Greater		■	■	■	■
City of Nottingham	−333	Greater	■	■	■	■	
Middlesbrough	−328	Greater	■	■	■	■	■
Hackney	−318	Greater			■	■	■
South Tyneside	−313	Greater	■	■	■	■	
Sandwell	−305	Greater	■	■	■		
Wolverhampton	−304	Greater	■	■	■	■	■
City of Kingstonupon Hull	−303	Greater	■	■	■	■	
Blackpool	−296	Greater				■	■
Halton	−200	Smaller					■
Haringey	−193	Smaller	■	■	■		
Islington	−188	Smaller	■	■	■	■	
Oldham	−135	Smaller	■	■	■	■	
Salford	−112	Smaller	■	■	■	■	
Rochdale	−105	Smaller	■	■	■		
Enfield	−103	Smaller		■	■	■	■
Manchester	−97	Smaller				■	■
Barking and Dagenham	−91	Smaller			■	■	■
Newham	−24	Smaller	■	■	■	■	■

*Local authorities in the most deprived quintile were ranked by size of government cut per capita. We sampled the 10 LAs with the largest cuts and 10 with the smallest cuts. Grey denotes strategy coverage.

Table 3: Local authority Joint Health and Wellbeing Strategy scores for addressing health inequalities and place-based social determinants of health and change in life expectancy at birth (2013–2017) ($n = 20$).

Name	Typology				Total typology score	Change in life expectancy at birth 2013–17 (months)
	Strategy addresses social inequalities of health		Strategy addresses place-based social determinants of health			
	Score	Classification*	Score	Classification*		
Newham	1.0	Lower	0.5	Lower	1.5	12.68
Hackney	1.0	Lower	0.5	Lower	1.5	11.73
Haringey	2.0	Medium	1.5	Medium	3.5	7.79
Barking and Dagenham	2.5	Higher	2.0	Medium	4.5	6.56
Islington	1.0	Lower	1.0	Lower	2.0	5.39
Enfield	2.5	Higher	1.5	Medium	4.0	5.31
Salford	1.5	Medium	1.0	Lower	2.5	4.01
Oldham	2.5	Higher	1.0	Lower	3.5	2.91
Halton	0.5	Lower	1.0	Lower	1.5	2.56
Manchester	2.0	Medium	1.5	Medium	3.5	1.79
Rochdale	2.5	Higher	1.0	Lower	3.5	1.67
South Tyneside	2.5	Higher	3.0	Higher	5.5	0.16
City of Nottingham	1.5	Medium	1.0	Lower	2.5	0.02
Knowsley	2.0	Medium	1.0	Lower	3.0	−0.94
Sandwell	2.0	Medium	3.0	Higher	5.0	−1.38
Liverpool	3.0	Higher	1.5	Medium	4.5	−2.62
Blackpool	2.0	Medium	3.0	Higher	5.0	−3.79
Wolverhampton	2.0	Medium	2.0	Medium	4.0	−3.79
Middlesbrough	1.5	Medium	1.0	Lower	2.5	−4.18
City of Kingston upon Hull	1.5	Medium	2.0	Medium	3.5	−5.66

*Higher = >2; medium = >1 to 2; lower = ≤1.

strategies scored well on having aims or statements of intent that included health inequality reduction (mean score 0.9 out of a possible score of 1 for typology subcategory 1.1). However, their approaches to reducing such inequalities were often unspecified or poorly specified (mean score 0.4 out of 1 for typology subcategory 1.3). Fewer strategies clearly included an aim to prioritise tackling place-based social determinants of health (mean score 0.5 for subcategory 2.1) and fewer still described approaches to improving social determinants (mean score 0.3 for subcategory 2.3).

More typically, JH&W strategies describe behavioural and lifestyle approaches to health improvement, along with child and maternal health services. Around half referred to partnering with community groups and/or drawing on community assets (see Supplementary Table 2 for a summary of recurring themes).

Both Table 3 and Figure 1 suggest no obvious relationship between the total typology score and change in life expectancy at birth. Figure 1 suggests that LAs with greater budget cuts tended to have poorer life expectancy outcomes, in keeping with previous research [32]. It also illustrates that three LAs with greater cuts maintained or improved life expectancy during the study period. Of those three, two JH&W strategies scored low and one scored high, suggesting no overall pattern.

When the percentage of LAs who maintained or improved their life expectancy was compared with those whose life expectancy declined, no-dose response patterning was observed for either dimension of the typology (Supplementary Table 3). No dose-response effect on change in life expectancy was observed when the ordinal categories of the typology dimensions were cross-tabulated (Supplementary Table 4).

4.3. Qualitative Comparative Analysis. Table 4 and Supplementary Table 5 provide the raw data matrix and set membership, respectively, for the conditions considered by the QCA. Table 4 shows that all cases with a null outcome (declining life expectancy) are set members for having "Greater funding cuts" and being "In the most deprived decile." Therefore, each of these two contextual conditions was individually necessary for the declining life expectancy between 2013 and 2017. However, no condition was independently sufficient for declining life expectancy: i.e., no individual condition only occurs where life expectancy improvement is null.

No necessary conditions were identified for maintained or improved life expectancy. However, all LAs with smaller funding cuts and all LAs that were not in the most deprived decile were set members with maintained or improved life expectancy.

Three LAs overcame greater funding cuts and higher deprivation to maintain or improve life expectancy during the 2013–17 period (Nottingham, Hackney, and South Tyneside, Table 4). We considered whether the conditions based on our JH&W strategy scores could contribute to the hypotheses for why these three LAs overcame their

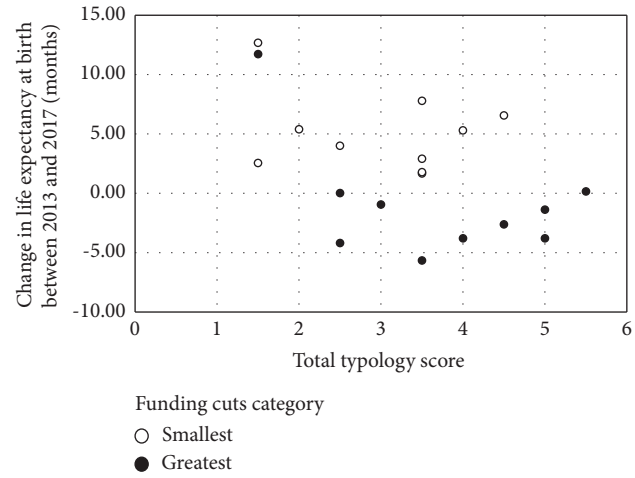

FIGURE 1: Total typology score and the change in life expectancy at birth between 2013 and 2017 (months) for the local authorities included in the Joint Health and Wellbeing Strategy analysis grouped by the magnitude of their change in central government funding 2013–2017 ($n = 20$).

contextual disadvantages. By applying logical minimisation to conditions based on JH&W strategy scores and contextual factors, it was possible to describe rules with sufficient conditions for LAs experiencing greater funding cuts to maintain or improve life expectancy (Figure 2, see also Supplementary Figure 2). The small number of LAs involved ($n = 3$) requires a high level of caution when interpreting these rules. Nottingham and Hackney had low JH&W strategy scores (for both addressing health inequalities and place-based social determinants), but both LAs also had a relatively young population. South Tyneside was unique amongst our 20 LAs because it maintained/improved its life expectancy despite being classed as having greater funding cuts and higher deprivation, and a higher percentage of the population aged ≥65 years. South Tyneside's JH&W strategy was also unique in scoring strongly for both dimensions we assessed: i.e., health inequalities and place-based social determinants. In fact, South Tyneside had the highest overall JH&W score amongst all 20 LAs in our study sample. While this allows us to hypothesise that scoring strongly on both dimensions (rather than just one) could be necessary for JH&W strategies to prevent reductions in life expectancy in the face of multiple contextual disadvantages, it must be stressed that the hypothesis is based on just one example (see Discussion).

4.4. Supplementary Material and Sensitivity Analysis. The supplementary documents available online include more details on JH&W scoring criteria (Supplementary Table 1); themes identified from JH&W reports (Supplementary Table 2); LAs in the JH&W strategy analysis classified by typology dimension and change in life expectancy at birth 2013–2017 (Supplementary Table 3); change in life expectancy at birth for LAs classified by their JH&W scores for social inequalities of health and place-based determinants of health (Supplementary Table 4); local authority data used for

Table 4: Set membership for components considered by the qualitative comparative analysis (1 = meeting set membership condition; 0 = not meeting condition).

Local authority name	JH&W strategy conditions		Local authority conditions			Outcome
	Social inequalities of health	Place-based social determinants of health	Greater funding cuts	In the most deprived decile	Most aged 65 years and over	Maintained/improved life expectancy at birth (2013–17)
Knowsley	0	0	1	1	1	0
Liverpool	1	0	1	1	0	0
City of Nottingham	0	0	1	1	0	1
Middlesbrough	0	0	1	1	1	0
Hackney	0	0	1	1	0	1
South Tyneside	1	1	1	1	1	1
Sandwell	0	1	1	1	1	0
Wolverhampton	0	0	1	1	1	0
City of Kingston upon Hull	0	0	1	1	1	0
Blackpool	0	1	1	1	1	0
Halton	0	0	0	0	1	1
Haringey	0	0	0	0	0	1
Islington	0	0	0	0	0	1
Oldham	1	0	0	0	1	1
Salford	0	0	0	0	0	1
Rochdale	1	0	0	0	1	1
Enfield	1	0	0	0	0	1
Manchester	0	0	0	1	0	1
Barking and Dagenham	1	0	0	1	0	1
Newham	0	0	0	0	0	1
Total	6	3	10	12	10	13

Largest cuts	AND	Lower or medium focus on social inequalities of health	AND	Relatively fewer aged 65 years and over	=	Maintained/ improved life expectancy		City of Nottingham and Hackney Coverage: 2/13 (15%) authorities with this outcome
Largest cuts	AND	Strong focus on social inequalities of health	AND	Strong focus on place based social determinants of health	=	Maintained/ improved life expectancy		South Tyneside Coverage: 1/13 (8%) authority with this outcome

FIGURE 2: Rules developed based on qualitative comparative analysis describing sufficient conditions of the three local authorities that maintained or improved life expectancy at birth (2013–17) whilst receiving the greater central government funding cuts (2013–2017).

qualitative comparative analysis (Supplementary Table 5); QCA findings when all variables are included (Supplementary Table 6); and QCA findings when funding cuts and deprivation are excluded (Supplementary Table 7).

Sensitivity analysis restricted analysis to LAs with strategies that covered at least 2013–2015 ($n = 14$). The sensitivity analysis findings are broadly similar to our main findings and are summarised as follows. Change in life expectancy was lowest in LAs with the greatest funding cuts (Supplementary Figure 1). Supplementary Figure 1 and Supplementary Table 8 suggest no clear relationship between typology score and life expectancy. When the QCA was repeated with this restricted sample (Supplementary Table 9), Hackney was one of the excluded LAs, which further reduced our ability to explore the conditions through which LAs overcame having greater funding cuts (Supplementary Table 10). Echoing the main QCA findings, a rule based on the contextual conditions of having smaller funding cuts and being relatively less deprived identified six of the eight (80%) authorities who maintained or improved their life expectancy (Supplementary Figure 2). This rule produced the greatest coverage of the restricted dataset. South Tyneside remained a unique case for scoring highly for both JH&W strategy dimensions and maintaining/improving life expectancy in spite of contextual disadvantages related to area deprivation scores, budget cuts, and the aging population.

5. Discussion

5.1. Summary of Findings. We analysed the contents of JH&W strategies to investigate if there was a shared set of features that might explain how some of the most deprived LAs in England managed to maintain or improve life expectancy between 2013 and 2017 under lean fiscal conditions. Typically, the strategies' content provided high-level visions of improved health and wellbeing in their areas. Few provided clear action plans of how this would be achieved. However, they drew on generic ideas of prevention, early intervention, and an increasingly self-reliant population taking responsibility for their own health and wellbeing.

Our typology rated a minority of strategies as addressing social inequalities of health or place-based social determinants of health. These typology dimensions had no clear relationship with changes in life expectancy in local authority populations. When the typology findings were contextualised using QCA, having smaller funding cuts or being relatively less deprived were found to be sufficient conditions to maintain or improve life expectancy. Amongst LAs with greater funding cuts, there was no consistent pattern matching JH&W scores with life expectancy. Only one LA (South Tyneside) maintained/improved life expectancy in spite of having greater funding cuts, higher deprivation, and an older population. That LA was also unique for having a JH&W strategy that scored highly for addressing both social inequalities in health and place-based social determinants of health. While this finding is interesting, it is based on a single, outlying example.

Outliers present opportunities to learn how unusual outcomes occur: in this case, possibly shedding light on how some LAs have (apparently) coped with difficult contextual circumstances. However, it is important to recognise that outliers by definition represent a small minority of cases and the possible reasons why they are outliers are likely to extend beyond what can be robustly assessed in a study. The current study is intended to generate hypotheses rather than conclusive answers. We tentatively hypothesise that a strong strategic focus on both health equity and place-based determinants of health may help explain South Tyneside's better than expected life expectancy trend. To move beyond "tentative," we would need to consider a wider range of contextual factors; a longer time frame and time-lagged impacts from earlier periods, how strategies were implemented, and test our hypothesis on similar areas with high-scoring JH&W strategies. That would be a major study that still may not yield clear answers if, for example, there were difficulties identifying enough similar areas with similar JH&W strategy scores.

The main hypothesis generated from the current study is that the content of JH&W strategies does not have an obvious relationship with the life expectancy of local

populations in the face of external and contextual factors such as local government funding cuts and area-level disadvantages. The strategies are a weak tool for overcoming such disadvantages.

No matter how coherent a strategy is, one could hypothesise that its potential to improve the health of local populations is likely to depend on the presence or absence of a range of supporting factors including dedicated finances (as well as other factors such as regulatory powers and actively engaged stakeholders). Budget cuts and JH&W strategies should therefore not be seen as entirely independent explanatory factors. They plausibly interconnect, as reduced budgets may limit the ambition and deliverability of strategies and outputs such as interventions and services. Hence, we further hypothesise that budget cuts dampen the impacts of JH&W strategies.

It is important to note that these hypotheses do not mean that JH&W strategies are inherently ineffective. What they do propose is that adequate local government finances are required to give the strategies a better chance of being effective. Should local government finances improve, then the content of JH&W strategies would, we argue, assume greater importance: because the strategies would influence how the extra resource is invested. This leads us to the issue of who has the power to reverse local authority budget cuts. The cuts were driven by national government policy and their reversal would also require national government support.

The link between LA funding and changes in life expectancy during 2013–17 has been found in epidemiological analyses [29, 49]. Such studies demonstrate that life expectancy is a reasonable outcome for assessing the impact of major changes affecting local government, even in relatively short timescales. In particular, Alexiou et al. [29] had similar timescales to our study. Our study adds to the growing body of evidence regarding the importance of funding to protect public health [25, 30, 31]. Alexiou et al. [29] also identified how the most deprived LAs were disproportionately affected by central funding cuts, an observation replicated in our QCA.

JH&W strategies have been the subject of previous thematic analysis: Beenstock et al. [50] concluded that these strategies could be strengthened by a larger use of evidence regarding the effectiveness of public health interventions. Thematic analysis of JH&W strategies also allows consideration of how health and social inequalities are framed against a backdrop of austerity. While the authors of these documents may often begin by setting out visions of the need to address inequalities and engage with wider determinants of health, most strategies go on to rely on approaches centred on individual-level activities, including individuals and communities taking responsibility for their health and wellbeing. These insights exemplify lifestyle drift [6] and the spin-off concept of citizen drift [1], whereby ideas of agency and responsibility have been shifted to individuals and communities amidst the broad political movement towards neoliberalism. This shift results in structural public health interventions being overlooked in favour of downstream actions, with responsibility being deferred from the state onto the shoulders of its citizens [13, 16, 51].

Learmonth, Henderson, and Hunter [52] worked with stakeholders in the North East of England between 2014 and 16. Their knowledge-to-action approach identified that collaborative working between Health and Wellbeing Boards could strengthen the effectiveness of JH&W strategies in addressing health inequalities, place-shaping, and wider determinants of health and wellbeing. A subsequent interview study also in the North East found that efforts to reduce inequality for children through a commitment to tackling the social determinants of health were hampered by the prevalence of poverty and budget cuts [53]: notably, creating a barrier to joint working amongst local personnel with responsibilities across the wider determinants of health. Perkins et al. [54] in a study of health partnerships between 2015 and 2017 found little impact. These studies add to the growing body of evidence about the limitations of local action, including those relevant to JH&W strategies, in the face of fiscal restraints and poverty.

Holding et al. [53] also call into question the most effective level at which to tackle poverty, identifying limitations to what local actors can achieve. While a handful of strategies we examined did include lobbying the national government, the actions of most were focused at a local level. Mackenzie, Skivington, and Fergie [55] described the "fantasy paradigm" of health practitioners, whereby efforts to reduce health inequalities focus on individual behaviour change. The limited engagement of the JH&W strategies with inequalities and social determinants of health suggests that they might align with this paradigm: reluctant to engage with or challenge political decisions regarding the implementation of austerity measures by the central government.

5.2. Study Strengths and Limitations. Using a combination of methods, we have sought to systematically assess and compare JH&W strategy content and consider contextual factors (something that a more conventional thematic analysis of documents may not have achieved). The study has a number of limitations. The LAs were selected based on the change in their central government funding between 2013 and 2017, with other sources of funding not considered. One unplanned consequence of our sampling was that all included LAs had similar party political leanings (Labour Party-controlled local government).

The focus on JH&W strategies is a limitation, raising the question of whether these documents adequately represent LAs' plans and subsequent actions. We might speculate that the effective action could still follow from vague strategies. Conversely, high-scoring strategies might be poorly implemented, or switch focus (e.g., lifestyle drift) at the implementation stage. Our focus on funding only allows a limited consideration of implementation issues, by providing an indication of the resources available to deliver on strategic aims (our findings suggest reduced resources are important).

Our typology draws on the concept of social determinants of health, an umbrella term which spans, and arguably glosses over the complex, interconnected, and contextualised causes of poor health and its potential

remedies. The use of scoring systems to portray the nuanced social structures and processes required to address health inequalities by LAs has been problematised elsewhere [56]. While QCA begins to explore contextual conditions, the rendering of the social world in binary conditions has its limitations. Alternatively, Raphael, Brassolotto, and Baldeo [57] adopted a critical realist perspective to explore public health unit in action when tackling the social determinants of health (see also [58]). Our analysis, based on the strategy documents, was unable to engage with this level of complexity, for example, how the political project of austerity intersected with the de-politicalisation of the social determinants of health [55]. One might argue that our appraisal criteria ought to have attempted a more nuanced engagement with theories around inequity and social determinants. However, we argue that more nuanced criteria would have added little to our findings as the JH&W strategies tended to address these issues in a way that was brief, nonspecific, and theoretically underdeveloped (for some quoted examples, see Supplementary Table 1). Furthermore, the JH&W strategies identified for some LAs only spanned a minority of the study period (Table 2). However, when the analyses were repeated using a subsample of strategies covering at least 2013–2015, this had little impact on our findings.

We note from above that changes to life expectancy can follow developments in local government in the time frame covered by this study. Nonetheless, time lags in implementation or impact beyond 2013–17 would not be detected. Clearly, the study could have (but did not) looked at other health outcomes and it could have looked at life expectancy for men and women separately. We wanted a single outcome to avoid multiple sets of findings (to prevent "cherry picking" of results), and we wanted to avoid overcomplicating an already complicated results section. We note that although some elements of the strategies had clear gender specificity (e.g., postnatal services), most of the place-based activities referred to were population-wide (although they could still potentially have different impacts on population subgroups).

Regarding the typology, the coding system was used to detect explicit, but typically brief, references in strategies for addressing health inequalities and social determinants of health. This coding approach was adopted to aid transparency and reproducibility. It meant, however, that a more inductive assessment of each strategy document was not undertaken.

The number of contextual conditions that could be included in the exploratory QCAs was limited by the size of the sample [48]. Hence, there may be other important contextual factors we did not consider (e.g., unemployment or environmental characteristics). The analysis was further hampered by the lack of empirical diversity, in particular the low number of authorities whose strategies scored highly in the typology. Future research could adopt a similar approach to study a larger sample of LAs. This larger dataset could provide greater diversity and ability to identify sets of conditions that enable some LAs to maintain or improve life expectancy despite a lean fiscal environment and to confirm or reject the preliminary findings presented here.

6. Conclusion

The UK's political parties regularly debate the need to restrict or increase public spending. This study generated hypotheses for how LAs might have improved or maintained life expectancy in the earlier period of austerity we covered. Many of the cuts from that period are still in place today. Our findings reiterate the impact of area-level disadvantage on life expectancy and the importance of adequate funding to protect public health and reduce inequalities. The findings suggest a need for policies aimed at improving structural disadvantage and reversing funding cuts. The content of JH&W strategies we assessed varied in the extent to which they prioritised health equity and social determinant approaches. If local government was better funded, we would have more opportunity to compare the population health (and health equity) consequences of contrasting strategies to improve local investment in health. Ultimately, local strategic investment in population health requires national, as well as local, government support [59, 60].

Data Availability

The data used to support the findings of this study are available from the corresponding author (Matt Egan) upon request. Data on budget cuts to local authorities are available at the Place-based Longitudinal Data Resource (https://pldr.org/). Data used for local health outcome analysis are available in [37].

Disclosure

The views expressed are those of the authors and not necessarily those of the NIHR or the Department of Health and Social Care.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

Authors' Contributions

All authors planned the study and commented on the manuscript, with AT as the lead author. FOR led data collection supported by EM, CR, RM, PH, and AA. IN led analysis supported by ME, AA, JP, and ML.

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Supplementary Materials

Supplementary Table 1: typology scoring criteria. Supplementary Table 2: a summary of the main, recurring themes from the analysis of the Joint Health and Wellbeing Strategies. Supplementary Table 3: local authorities in the Joint

Health and Wellbeing (JH&W) Strategy analysis classified by typology dimension and change in life expectancy at birth (2013-2017). Supplementary Table 4: the mean (standard deviation) change in life expectancy at birth in months (2013–2017) for local authorities classified by their Joint Health and Wellbeing Strategy engagement with addressing the social inequalities of health and place-based determinants of health. Supplementary Table 5: the raw local authority data used to ascribe set membership for the qualitative comparative analysis. Supplementary Table 6: the data matrix and consistency of outcomes for the local authority's contextual components. Supplementary Table 7: the data matrix and consistency of outcomes when funding cuts and deprivation were excluded from the qualitative comparative analysis. Supplementary Table 8: local authorities included in the Joint Health and Wellbeing Strategy analysis whose strategy covered at least 2013–2015 classified by typology dimension and change in life expectancy at birth 2013–2017. Supplementary Table 9: set membership for components considered by the qualitative comparative analysis for local authorities whose Joint Health and Wellbeing Strategies covered at least 2013–2015. Supplementary Table 10: the data matrix and consistency of outcomes for the local authorities whose Joint Health and Wellbeing Strategies covered at least 2013–2015 when funding cuts were excluded from the qualitative comparative analysis. Supplementary Figure 1: total typology score and the change in life expectancy at birth between 2013 and 2017 (months) for 14 English local authorities included in the Joint Health and Wellbeing Strategy analysis whose strategy covered at least 2013–2015. Supplementary Figure 2: a rule developed based on qualitative comparative analysis describing the conditions of local authorities whose Joint Health and Wellbeing Strategies covered at least 2013–2015 that improved and maintained life expectancy at birth (2013–17). (*Supplementary Materials*)

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