

## ZSA Mapping Methodology

### 1. Indicator Selection

#### 1.1. Selection Criteria

The selection of the indicators was based on the following criteria:

**Relevant:** The indicators should capture, or be a proxy for, factors known to be related to an increased risk of suicide or suicidal ideation. This was determined by reviewing relevant published research, shortlisting by the project team, and assessing the strength of the correlation between each indicator and suicide rates at the local authority<sup>1</sup> level across England.

**Recent:** In order to best reflect the current context of local authorities, indicators should capture recent data (i.e. the past five years).

**Actionable:** As this mapping exercise is intended to support policy and decision makers in making changes in their areas that can help to protect against suicide and suicidal ideation, indicators must represent factors which can be influenced by local action.

**Available:** Indicators must be available publicly (i.e. open-access and freely available), comprehensive (i.e. good data quality) and at the appropriate level of granularity (i.e. at the local authority level).

#### 1.2. Selection Process

An initial long list of potential indicators was compiled by a member of the project team. Indicators were drawn from publicly available national data compiled and presented by Public Health England<sup>2</sup> and the What Works Centre for Wellbeing.<sup>3</sup> Indicator sets related to suicide prevention, mental health and wellbeing, perinatal mental health, children and young people's mental health, common mental health problems, substance misuse, crisis care, severe mental illness and wider determinants of health were each reviewed, and all potentially relevant indicators were extracted. Data was considered at the "County and Unitary Authority" level as from a visual scan of the available datasets this appeared to be the level of granularity for which the greatest number of indicators were available.

The long list of indicators was presented to the wider Mental Health Foundation project team (n = 6, composed of individuals with expertise in: public health, mental health, policy, local government, research and lived experience) who rated each indicator in terms of their relevance to suicide and suicidal ideation. All indicators that received at least three of six votes for inclusion were shortlisted.

Shortlisted items were considered against the criteria set out in 1.1. (relevant, recent, actionable, and available) as well as the balance of indicators across sub-domains (to ensure specific subgroups were not overrepresented) and the possibility of overlapping or duplicate indicators (to ensure specific factors were not overrepresented). A final list of items was selected on this basis.

---

1 For the remainder of the document use of "local authority" refers to "County and Unitary Authority (pre 04.2019)"

2 Public Health England. (2019). Public Health Profiles. Retrieved from: <https://fingertips.phe.org.uk/>

3 What Works Wellbeing. (2017). Local Indicators 'Currently Available' Data + Local Authority Scores for England: Data File. Retrieved from: <https://whatworkswellbeing.org/product/indicator-dataset/>

## 2. Final List of Indicators and Domains

Based on the selection process outlined above, eleven indicators across three subdomains were selected for mapping. These are presented in Table 1.

**Table 1.** Final Indicators and Sub-Domains

Sub-Domain	Included Indicators	Indicator Description	Year
Children and Young People	Bullying Prevalence	% of respondents (aged 15) who said they were bullied at least once in the past few months	2014/15
	Children in need due to abuse or neglect	Rate per 10,000 resident population under 18 identified as in need due to abuse or neglect	2018
	Children in Care	Rate of children looked after, per 10,000 population under 18 (including adoption and care leavers)	2018
Mental Health and Substance Misuse	Emergency admissions for intentional self-harm	Directly age-standardised rate of emergency hospital admissions for intentional self-harm (all ages)	2017/18
	Depression Prevalence	% of patients aged 18+ with depression, as recorded on GP practice disease registers	2017/18
	Severe mental illness prevalence	% patients (all ages) with schizophrenia, bipolar affective disorder and other psychoses as recorded on GP practice disease registers	2017/18
	Prevalence of opiate and/or crack cocaine use	Estimated prevalence of opiate and/or crack cocaine users aged 15-64, per 1,000 population	2016/17
	Admissions for alcohol-related conditions	Age-standardised rate per 100,000 population of admissions to hospital where primary diagnosis, or any secondary diagnoses are an alcohol-attributable code	2017/18
Employment and Income	ESA Claimants	% of population aged 16-64 claiming Employment Support Allowance (ESA), Incapacity Benefit (IB), or Severe Disablement Allowance (SDA)	2018
	Job Quality	% of people who are on permanent contracts (or on temporary contracts and not seeking permanent employment) and who earn more than two thirds of the UK median wage and who are not overworked (> 49 hours a week) or underworked (unwillingly working part-time) [Note, is reverse-scored]	2017
	Fuel Poverty	% of households in an area that experience fuel poverty, based on the "low income, high cost" methodology	2016

### 3. Analysis and Mapping

To standardise and combine the indicators, we followed the methodology used to calculate the Thriving Places Index.<sup>4</sup> This method was felt to be appropriate as, like the Thriving Places Index, the current work is intended to be a practical resource for local authorities and their partners to improve outcomes in their area. The methods for the Thriving Places Index were felt to be clear and replicable and result in a figure that can be clearly communicated to the public and lay audiences. A short summary of the approach taken for analysis is outlined below, for full details, please refer to the methodology of the 2019 Thriving Places Index.<sup>4</sup> All analyses were undertaken in R.<sup>5</sup>

#### 3.1. Standardising Raw Values

Each indicator was standardised by transforming to a z-score, so that all indicators have a mean of zero and a standard deviation of one. Where necessary, indicators were reverse-scored so that positive z-scores always indicate greater risk.

Standardising the values allows direct comparison across indicators measured on different scales.

#### 3.2. Calculating the Overall Score and Sub-Domain Scores

To calculate sub-domain scores, z-scores were averaged across indicators in the sub-domain. Where one or more values were missing, the sub-domain score for that area was also recorded as missing.

To calculate the overall score, values for each sub-domain were averaged. Where one or more sub-domain score was missing, the overall score for that area was also recorded as missing.

#### 3.3. Rescaling Scores

To aid interpretation of the data, the overall score (or sub-domain scores if displayed on its own) was rescaled to fall on a positive scale. This was done by transforming the final values to a z-score and adding five, such that five represents the average overall score, and one the standard deviation.

#### 3.4. Categorising Scores

Prior to categorising, values were rounded to the nearest decimal place. Scores were then categorised according to bandings in Table 2. We chose to use a truncated 3-category version of the 5-category banding used for the Thriving Places Index for simplicity of interpretation.

**Table 2.** Bandings for domain and sub-domain scores

Score	Label
Less than 4.5	Low/Some Action Needed
4.5 – 5.4	Average/Urgent Action Needed
5.5 and above	High/Immediate Action Needed

4 Happy City. (2019). Thriving Places Index 2019 Methodology. Retrieved from: <https://www.thrivingplacesindex.org/page/about/methodology>

5 R Core Team. (2013). R: A language and environment for statistical computing. R Foundation for Statistical Computing. Vienna, Austria. <http://www.R-project.org/>

### 3.5. Samples Used

Two different samples were used when creating the sub-domain and overall scores displayed in the mapping. This method was felt to provide a user-friendly overview of broad differences across England, while also allowing for more detailed review of differences within regions.

#### England Map

The upper-level nationwide view is divided by English region. Sub-domain and overall scores were calculated for each region, using the regional-level value for each indicator. Where a regional-level value was not available directly from the data source (i.e. 'job quality') one was created by averaging the values from all local authorities within a region. Regional indicators were then standardised in relation to all other regions in England.

This means the nationwide view displays how each region compares to the average score for all regions of England.

#### Regional Maps

To provide the opportunity for more detailed review of differences within regions, sub-domain and overall scores were calculated for each local authority within an individual region, using the local authority-level value for each indicator. Local authority indicators were then standardised in relation to all other local authorities in the same region.

This means that the regional view displays how each local authority within a region compares to the average score across all local authorities within that same region only.

#### Mental Health Foundation Contributors:

Dr Antonis Kousoulis  
Edward Davie (MSc)  
Dr David Crepaz-Keay  
Lucy Thorpe (MA)  
Victoria Zamperoni (MSc)