Indicator specification:

PLDR collection of population health indicators

Experimental Measures – Small Area Mental Health Index (SAMHI_21_01)

Version: 4.00
Date: July 2022
Authors: Konstantinos Daras & Benjamin Barr

Overview

Indicator title
Experimental Measures – Small Area Mental Health Index (SAMHI_21_01).

Indicator family name
Experimental Measures.

Summary
The SAMHI is a composite annual measure of population mental health for each Lower Super Output Area (LSOA) in England. The SAMHI combines data on mental health from multiple sources (NHS-Mental health related hospital attendances, Prescribing data – Antidepressants, QOF - depression, and DWP - Incapacity benefit and Employment support allowance for mental illness) into a single index.

Technical description
Each indicator was individually standardised by rescaling data to have a mean of 0 and standard deviation of 1 (z-scores). Maximum likelihood factor analysis is used as a method for combining indicators (by finding appropriate weights) into a single score based on the inter-correlations between all the indicators.

Unique Identifier
SAMHI_21_01

Construction

This section provides numerator & denominator details and sources for each of the 4 indicators included in the SAMHI Index. This index has been based on data for the period of 2011 - 2019 at the LSOA level. For the missing data of the QOF – Depression indicator in 2018 and 2019 (46 LSOAs) and the IBESA indicator in 2011-2018 (4 LSOAs) measures have been imputed using the average measures of neighboured LSOAs with known values.

Data sources
• Mental health related hospital attendances
Numerator: Count of all emergency and elective admissions X60*–X84*, Y10*–Y34*, F00-F99, E244, F10, G312, G621, G721, I426, K292, K70, K852, K860, Q860, R780, T510, T511, T519, X45, X65, Y15, Y90, Y91 but excluding Y33.9*, and Y87*. PLUS: A count of all A&E attendances for self-harm - where AEPATGROUP==30 and DIAG_NN: 141-144, 35, 37 (Safeguarded data provided by NHS digital).

Denominator: Mid-year population estimates for England, provided by the Office for National Statistics (ONS). Population estimates are released in the summer following year end.

• Prescribing data – Antidepressants
Numerator: The average daily quantity (ADQ) of antidepressants that are prescribed on a quarterly basis by all practices in England at the LSOA level (NHS Digital, longitudinal source: PLDR, https://pldr.org).
Denominator: Mid-year population estimates for England, provided by the Office for National Statistics (ONS). Population estimates are released in the summer following year end.

• QOF - Depression
Numerator: Estimated number of patients with a diagnosis of depression (QOF data from here: www.gp-patient.co.uk).
Denominator: Total number of registered patients per LSOA and year, provided by NHS Digital.

• DWP - Incapacity benefit and Employment support allowance for mental illness
Numerator: Estimated number of people claiming Incapacity benefit and Employment support allowance for mental illness.
Denominator: Mid-year population estimates for England, provided by the Office for National Statistics (ONS). Estimated total number of people aged 16–64 years.

Presentation
Breakdowns

Time period
Yearly data: 2011 – 2019

Demographic
Person

Geographic
Lower Super Output Areas (LSOA) level in England

Disclosure control
This indicator has been produced using a combination of safeguarded and publicly available datasets.

Output: samhi_21_01_2011_2019_LSOA.csv

Column name	Description
lsoa11	LSOA 2011 code
samhi_index.2011	Index scores (2011)
samhi_dec.2011	Deciles (2011)
samhi_index.2012	Index scores (2012)
samhi_dec.2012	Deciles (2012)
samhi_index.2013	Index scores (2013)
samhi_dec.2013	Deciles (2013)
samhi_index.2014	Index scores (2014)
samhi_dec.2014	Deciles (2014)
samhi_index.2015	Index scores (2015)
samhi_dec.2015	Deciles (2015)
samhi_index.2016	Index scores (2016)
samhi_dec.2016	Deciles (2016)
samhi_index.2017	Index scores (2017)
samhi_dec.2017	Deciles (2017)
samhi_index.2018	Index scores (2018)
samhi_dec.2018	Deciles (2018)
samhi_index.2019	Index scores (2019)
samhi_dec.2019	Deciles (2019)

Output: samhi_21_01_2011_2019_LSOA_tall.csv - Long file format

Column name	Description
lsoa11	LSOA 2011 code
year	Year
prop_ibesa	IBESA (%)
est_qof_dep	QOF – Depression (%)
antidep_rate	ADQ of antidepressants per person
z_mh_rate	Hospital admissions (z-scores)
samhi_index	Index scores
samhi_dec	Deciles

Revision history

Version	Date	Summary of changes
1.00	Jan 2020	First release
2.00	Dec 2020	Change of standardization method: The ranking method used for the ver1.0 SAMHI index replaced by the z-score method for improving the index quality.
3.00	Sept 2021	SAMHI index and indicators have been updated for 2019.
3.01	Oct 2021	Missing values of 'samhi_index' and 'samhi_dec' variables for 51 LSOAs have been updated for years 2011,2012 and 2013.
4.00	July 2022	Change of Factor Analysis approach: 2 factors have been used in the Factor analysis to balance the weights of each indicator. Previous SAMHI (v3.01) has been developed using a single factor where the Prescribing data – Antidepressants and QOF – depression indicators received a higher weighting in the index (~0.8) . Missing values of Antidepressant Prescribing data in 2011-2013 (for about 1,172 LSOAs) have been updated.