

## **Online Resource 1:**

### **Sample search strategy through Ovid MEDLINE(R)**

**Article title:** Ethnic inequalities in the incidence of diagnosis of severe mental illness in England: A systematic review and new meta-analyses for non-affective and affective psychoses

**Journal name:** Social Psychiatry and Psychiatric Epidemiology

**Authors:** Kristoffer Halvorsrud, James Nazroo, Michaela Otis, Eva Brown Hajdukova, Kamaldeep Bhui

**Corresponding author:** Professor Kamaldeep Bhui. Centre for Psychiatry, Wolfson Institute of Preventive Medicine, Barts and the London School of Medicine and Dentistry, Queen Mary University of London, Charterhouse Square, London, EC1M 6BQ, UK. Email: [k.s.bhui@qmul.ac.uk](mailto:k.s.bhui@qmul.ac.uk)

## General search terms

1. exp Mental Disorders/
2. Mentally Ill Persons/
3. Mental Health/
4. ((mental\* or psych\*) adj (health or status\* or ill\* or condition\* or disorder\* or disease\* or problem\*)).ti,ab.
5. "Agoraphobia"/ or "anankastic personality disorder"/ or "Anorexia Nervosa"/ or "Antisocial Personality Disorder"/ or "Attention Deficit and Disruptive Behavior Disorders"/ or "Attention Deficit Disorder with Hyperactivity"/ or "avoidant personality disorder"/ or "Body Dysmorphic Disorders"/ or "Borderline Personality Disorder"/ or "Bulimia Nervosa"/ or "Bulimia"/ or "Catatonia"/ or "Compulsive Behavior"/ or "Compulsive Personality Disorder"/ or "Conduct Disorder"/ or "Conversion Disorder"/ or "Cyclothymic Disorder"/ or "Delirium, Dementia, Amnestic, Cognitive Disorders"/ or "Dependency (Psychology)"/ or "Dependent Personality Disorder"/ or "Depersonalization"/ or "Depressive Disorder, Major"/ or "Dissociative Disorders"/ or "Dysthymic Disorder"/ or "Eating Disorders"/ or "Feeding Behavior"/ or "Hallucinations"/ or "histrionic personality disorder"/ or "Hysteria"/ or "Mental Disorders"/ or "Mood Disorders"/ or "Multiple Personality Disorder"/ or "narcissistic personality disorder"/ or "Neurasthenia"/ or "Neurotic Disorders"/ or "Obsessive Behavior"/ or "obsessive compulsive personality disorder"/ or "Obsessive-Compulsive Disorder"/ or "Panic Disorder"/ or "Panic"/ or "Paranoid Personality Disorder"/ or "passive-aggressive personality disorder"/ or "Personality Disorders"/ or "Phobic Disorders"/ or "Psychophysiologic Disorders"/ or "Rett Syndrome"/ or "Shared Paranoid Disorder"/ or "Social Behavior Disorders"/ or "Somatoform Disorders"/ or "Stress Disorders, Post- Traumatic"/ or "Delusions"/
6. "Adjustment Disorders"/ or exp Amnesia/ or exp "Attention Deficit and Disruptive Behavior Disorders"/ or "Binge-Eating Disorder"/ or exp "Cognition Disorders"/ or exp "Communication Disorders"/ or "Consciousness Disorders"/ or "Coprophagia"/ or "Delirium"/ or "Developmental Disabilities"/ or exp "Dyslexia, Acquired"/ or "Factitious Disorders"/ or "Impulse Control Disorders"/ or "Motor Skills Disorders"/ or "Munchausen Syndrome"/ or "Neurocirculatory Asthenia"/ or exp "Obsessive-Compulsive Disorder"/ or "Pica"/ or "Stereotypic Movement Disorder"/ or exp "Stress Disorders, Traumatic"/ or exp "Child Development Disorders, Pervasive"/ or "Mental Disorders Diagnosed in Childhood"/ or "Depression, Postpartum"/ or "Depressive Disorder, Treatment-Resistant"/ or "Seasonal Affective Disorder"/

7. ("anankastic personalit\*" or "anorexia nervosa" or "antisocial personalit\*" or "attention deficit disorder\*" or "body dysmorphic" or "conduct disorder\*" or "cyclothymic personalit\*" or "endogenous depression" or "folie a deux" or "obsessive compulsive" or "panic disorder" or "panic disorders" or "pervasive developmental" or "post traumatic" or "seasonal affective" or "affective disorder\*" or "avoidant personalit\*" or "behavio?r disorder\*" or "behavio?r problem\*" or "behavioral disorder\*" or "behavioural disorder\*" or "conversion disorder\*" or "eating behavio?r" or "eating adj1 disorder\*" or "overactive disorder\*" or (personality adj3 disorder\*) or agoraphobia or (anankastic adj1 person\*) or (antisocial adj1 person\*) or (asocial adj1 person\*) or Asperger\* or autism or autistic or (avoidant adj1 person\*) or "borderline personalit\*" or bulimia or catatonia or catatonic or compulsion\* or (compulsive adj1 person\*) or (conversion adj1 disorder\*) or cyclothymia or (dependent adj1 personalit\*) or depersonali?ation or dereali?ation or disintegrative or (dissocial adj1 person\*) or dissociation\* or dissociative or dysthym\* or fugue or hallucination\* or hebephreni\* or (histrionic adj1 person\*) or hyperkinetic or hypomania or hysteria or mania\* or manic\* or (narcissistic adj1 person\*) or neurasthenia or neurosis or neurot\* or (obsessive adj1 person\*) or oligophreni\* or paranoia or paranoid or (passive-aggressive adj1 person\*) or phobia\* or phobic or posttraumatic or PTSD or psychopath\* or rett or rett?s or retts or sociopath\* or somati?ation or somatoform).ti,ab.

8. (amnesi\* or hypomania or cyclothymia or dysthymia or delirium or hallucinosis or delusional or (mood adj2 disorder\*) or asthenic or "emotionally labile" or postencephalitic or postconcussion\* or (trance adj1 disorder\*) or (possession adj1 disorder\*) or obsessional or "severe stress" or (adjustment adj1 disorder\*) or dissociate or "multiple personality" or neurasthenia or (psychological adj1 disturbance\*) or (psychologically adj1 disturbed) or suicid\* or parasuicid\* or (self adj1 harm\*) or (self adj1 injur\*) or comorbid\* or "co morbid\*" or multimorbid\* or "multi morbid\*" or bulimi\* or anorexi\* or neuros\* or OCD or "psychological stress" or "psychological distress" or "mental stress" or "adjustment disorder" or "adjustment disorders" or "Psychological Sexual Dysfunction\*" or "Psychosexual Dysfunction\*" or "Psychosexual Disorder\*" or "Sexual Aversion Disorder\*" or "Orgasmic Disorder\*" or "Sexual Arousal Disorder\*" or "Hypoactive Sexual Desire Disorder\*" or "Pathological Gambling" or Trichotillomania or "Sleep Disorder\*" or "Substance Related Disorder\*" or "Impulse Control Disorder\*" or "Explosive Disorder\*" or Kleptomania or "Firesetting Behavio?r\*" or Pyromania\* or "Substance Use Disorder\*").ti,ab.

9. or/1-8

10. "emigrants and immigrants"/ or ethnic groups/ or arabs/ or gypsies/ or jews/ or refugees/ or "transients and migrants"/ or Cross-cultural comparison/ or exp "human migration"/ or "ethnology"/

11. exp continental population groups/ or exp african continental ancestry group/ or exp asian continental ancestry group/ or exp european continental ancestry group/ or exp oceanic ancestry group/

12. (diaspora\* or multicultural or "multi cultural" or (crosscultural or "cross cultural") or (transcultural or "trans cultural") or (multiethnic or "multi ethnic") or (multiracial or "multi racial") or biracial or migrant\* or immigrant\* or refugee\* or "cultural diversity" or "culturally diverse" or "racial diversity" or "racially diverse" or "ethnic diversity" or "ethnically diverse" or superdivers\* or "super divers\*" or "super-divers\*" or (multilingual or "multi lingual") or (traveller\* or Gypsies or Gypsy or Gipsy or Gipsies or Romany or Romanies or Romani or Romanis or Rromani or Rromanis or Roma) or "asylum seeker\*" or "seeking asylum" or "mixed race\*" or ethnocultural or sociocultural or ethnoracial or "ethno cultural" or "socio cultural" or "ethno racial" or "diverse population\*" or "ethnic difference\*" or ethnicity or indigenous or "minority ethnic" or "ethnic data" or "race data" or "ethnic classification" or "race classification" or "ethnic group\*" or "racial group\*" or "ancestry group\*" or "cultur\* difference\*" or ethnic\* or heritage\*).ti,ab.

13. (black\* or "Black African\*" or (Black adj1 British) or "British African\*" or "Afrocaribbean\*" or "Afro caribbean\*" or (Black adj1 caribbean\*) or Caucasian\* or "South American\*" or "Central American\*" or Balkan\* or "Mixed white" or "Mixed black" or Jews or Jewish or "Non white\*" or nonwhite\* or BME or "Black and Minority Ethnic" or "Eastern Europe\*" or Hispanic\* or Latin\*).ti,ab.

14. ((minorit\* adj3 (culture\* or m?n or wom?n or male\* or female\* or adult\* or adolescent\* or teenager\* or "teen ager\*" or child\* or young\* or old\* or elder\* or people\* or person\* or individual\* or member\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\*)) or (ethnic adj3 (culture\* or people\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\* or minorities or minority)) or "ethnic origin\*" or (White adj2 (minorities or minority))).ti,ab.

15. (((black or white) adj3 (culture\* or ethnic\* or m?n or wom?n or male\* or female\* or adult\* or adolescent\* or teenager\* or "teen ager\*" or child\* or young\* or old\* or elder\* or people\* or person\* or individual\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\* or minorities or minority)) or ((displaced or alien) adj2 (people\* or person\* or individual\*)) or (born adj2 overseas) or ((vulnerable or disadvantaged or marginal\* or transient or undocumented) adj1 (people\* or person\* or individual\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\*))).ti,ab.

16. ((arab\* or somali\* or yemini\* or Vietnamese or Chinese or Caribbean\* or Pakistani\* or Bangladeshi\* or Punjabi\* or Somali\* or Gujarati\* or Japanese or Asian\* or Irish or Indian\* or Bengali\* or Afghanistani\* or Turkish or Kurdish or Yemeni\* or Albanian\* or Polish or German\* or African\* or American\* or Jamaican\* or Nigerian\* or Kenyan\* or Zimbabwean\* or Philippin\* or Filipin\* or "Sri Lankan\*" or French or Italian or Chinese or Cantonese or Australia\* or Somalia\* or Portugues\* or Canadian\* or Ghanaian\* or Lithuanian\* or "Hong Kong" or Spanish or Iranian\* or

"New Zealand" or Romania\* or Iraqi\* or Turkish or Cypriot\* or Malaysian\* or Dutch or Ugandan\* or Bulgarian\* or Afghan\* or Brazilian\* or Slovak\* or Mauritan\* or Singapore\* or Nepales\* or Hungarian\* or Latvian\* or Russian\* or Tanzanian\* or Thai\* or Swedish or Greek or Zambia\* or Czech or Egyptia\* or Trinidad\* or Tobago\* or Maltese or Austrian\* or Belgian\* or Libyan\* or Korean\* or Danish or Swiss) adj3 (culture\* or m?n or wom?n or male\* or female\* or adult\* or adolescent\* or teenager\* or "teen ager\*" or child\* or young\* or old\* or elder\* or people\* or person\* or individual\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\* or minorities or minority or ethnic\*)).ti,ab.

17. or/10-16

18. exp United Kingdom/

19. ("United Kingdom" or UK or "U.K." or "Great Britain" or Britain or GB or "G.B.").ti,ab.

20. (England or Scotland or Wales or "Northern Ireland").ti,ab.

21. (British or English or Scottish or Welsh or "Northern Irish").ti,ab.

22. or/18-21

23. 9 and 17 and 22

### **Specific search for prevalence and incidence reviews (combined with general terms above)**

1. Prevalence/ or Incidence/

2. exp Population Surveillance/

3. "Family Characteristics"/ or "population dynamics"/ or exp "sex distribution"/ or "health transition"/ or exp "human migration"/ or "population characteristics"/ or "censuses"/ or "age distribution"/ or "ethnology"/ or "health status disparities"/

4. Demography/

5. Cross-cultural comparison/

6. Health Surveys/

7. Longitudinal Studies/

8. Epidemiology/

9. (prevalen\* or incidence\*).ti,ab.
10. survey\*.ti,ab.
11. ("population stud\*" or "community stud\*" or "household\*" or "community sample\*" or "population sample\*" or "community level" or "population level" or "community comparison\*" or "population comparison\*").ti,ab.
12. epidemiolog\*.ti,ab.
13. or/1-12
14. meta analysis.mp,pt. or review.pt. or search:.tw.
15. 13 and 14
16. limit 15 to (english language and humans)
17. remove duplicates from 16

#### **Updated search for incidence primary studies (2010-2018)**

1. Mentally Ill Persons/ or Mental Disorders/
2. ((mental\* or psych\*) adj (ill\* or disorder\* or disease\* or problem\*)).ti,ab.
3. exp "Borderline Personality Disorder"/ or exp "Hallucinations"/ or exp "Schizophrenia Spectrum and Other Psychotic Disorders"/ or exp "Mood Disorders"/ or exp "Bipolar and Related Disorders"/ or exp "Paranoid Personality Disorder"/ or exp "Delusions"/
4. ((affective adj2 disorder\*) or (non-affective adj2 disorder\*) or (nonaffective adj2 disorder\*) or ("non affective" adj2 disorder\*) or (severe adj mental) or (serious adj mental) or psychotic or psychosis or psychoses or schizo\* or "borderline personalit\*" or hypomania or hysteria or mania\* or manic\* or paranoia or paranoid or hallucinat\* or delusion\* or (mood adj2 disorder\*) or (possession adj1 disorder\*) or (psychological adj1 disturbance\*) or (psychologically adj1 disturbed)).ti,ab.
5. or/1-4
6. exp Incidence/
7. incidence\*.ti,ab.
8. exp Population Surveillance/ or "Family Characteristics"/ or "population dynamics"/ or exp "sex distribution"/ or "health transition"/ or exp "human migration"/ or "population characteristics"/ or

"censuses"/ or "age distribution"/ or "ethnology"/ or "health status disparities"/ or Demography/ or Cross-cultural comparison/ or Health Surveys/ or Longitudinal Studies/ or Epidemiology/

9. (survey\* or "population stud\*" or "community stud\*" or "household\*" or "community sample\*" or "population sample\*" or "community level" or "population level" or "community comparison\*" or "population comparison\*" or epidemiolog\*).ti,ab.

10. or/6-9

11. United Kingdom/ or exp England/ or exp Channel Islands/

12. ("United Kingdom" or UK or "U.K." or "Great Britain" or Britain or GB or "G.B." or England or "Channel Islands" or Guernsey or Jersey).ti,ab.

13. ((British or Birmingham or London or York or "South Holland" or Albans or Aldershot or Ashfield or Barking or Barnet or Barnsley or Bath or Bedfordshire or Bexley or Birkenhead or Blackburn or Blackpool or Bolton or Bournemouth or Bradford or Brent or Bridgend or Brighton or Bristol or Bromley or Bromwich or Buckinghamshire or Burnley or Camberwell or Cambridge or Cambridgeshire or Camden or Canterbury or Carlisle or Chelsea or Chelsea or Cheshire or Chester or Chichester or Cleveland or Colchester or Cornwall or Coventry or Crawley or Croydon or Cumbria or Dagenham or Dartford or Derby or Derbyshire or Devon or Doncaster or Dorset or Dudley or Durham or Ealing or Eastbourne or Ely or Enfield or Essex or Exeter or Farnborough or Fulham or Furness or Galloway or Gateshead or Glamorgan or Glasgow or Gloucester or Gloucestershire or Gravesham or Greenwich or Grimsby or Guildford or Hackney or Hamlets or Hammersmith or Hampshire or Haringey or Haringey or Harrow or Hartlepool or Harwell or Hastings or Havering or Helens or Hereford or Hertfordshire or Highland or Hillingdon or Hounslow or Hounslow or Hove or Huddersfield or Hull or Humber or Ipswich or Islington or Kensington or Kent or Kingston or Kirklees or Knowsley or Lambeth or Lancashire or Lancaster or Leeds or Leicester or Leicestershire or Lewisham or Lichfield or Lincoln or Lincolnshire or Liverpool or Loughborough or Luton or Lynn or Manchester or Mansfield or Merseyside or Merton or Middlesbrough or Midlands or "Milton Keynes" or Newcastle or Newham or Norfolk or Northampton or Northamptonshire or Northumberland or Norwich or Nottingham or Nottinghamshire or Oadby or Oldham or Oxford or Oxfordshire or Peterborough or Plymouth or Poole or Portsmouth or Preston or Reading or Redbridge or Redcar or Richmond or Ripon or Rochdale or Rotherham or Rushmoor or Salford or Salisbury or Sandwell or Scarborough or Scilly or Sheffield or Shropshire or Slough or Solihull or Somerset or Southampton or Southend or Southwark or Staffordshire or Stockport or Stockton or Stoke or Suffolk or Sunderland or Surrey or Sussex or Sutton or Swindon or Teesside or Telford or Thurrock or "Tower Hamlets" or Truro or Tyne or Tyneside or Wakefield or Walsall or Waltham or Wandsworth or Warrington or Warwickshire or Watford or Wells or Westminster or Wigan or Wight or Wigston or Wiltshire or Winchester or Wirral or Woking or Wolverhampton or Worcester or Worcestershire or

Worthing or Yorkshire or (english adj3 adult\*) or (english adj3 population\*) or (english adj3 longitudinal\*) or (english adj3 town\*) or (english adj3 count\*) or (english adj3 city) or (english adj3 cities) or (english adj3 health)) not "New York").ti,ab.

14. or/11-13

15. "emigrants and immigrants"/ or ethnic groups/ or arabs/ or gypsies/ or jews/ or refugees/ or "transients and migrants"/ or Cross-cultural comparison/ or exp "human migration"/ or "ethnology"/

16. exp continental population groups/ or exp african continental ancestry group/ or exp asian continental ancestry group/ or exp european continental ancestry group/ or exp oceanic ancestry group/

17. (diaspora\* or multicultural or "multi cultural" or (crosscultural or "cross cultural") or (transcultural or "trans cultural") or (multiethnic or "multi ethnic") or (multiracial or "multi racial") or biracial or migrant\* or immigrant\* or refugee\* or "cultural diversity" or "culturally diverse" or "racial diversity" or "racially diverse" or "ethnic diversity" or "ethnically diverse" or superdivers\* or "super divers\*" or "super-divers\*" or (multilingual or "multi lingual") or (traveller\* or Gypsies or Gypsy or Gipsy or Gipsies or Romany or Romanies or Romani or Romanis or Rromani or Rromanis or Roma) or "asylum seeker\*" or "seeking asylum" or "mixed race\*" or ethnocultural or sociocultural or ethnoracial or "ethno cultural" or "socio cultural" or "ethno racial" or "diverse population\*" or "ethnic difference\*" or ethnicity or indigenous or "minority ethnic" or "ethnic data" or "race data" or "ethnic classification" or "race classification" or "ethnic group\*" or "racial group\*" or "ancestry group\*" or "cultur\* difference\*" or ethnic\* or heritage).ti,ab.

18. (black\* or "Black African\*" or (Black adj1 British) or "British African\*" or "Afrocaribbean\*" or "Afro caribbean\*" or (Black adj1 caribbean\*) or Caucasian\* or "South American\*" or "Central American\*" or Balkan\* or "Mixed white" or "Mixed black" or Jews or Jewish or "Non white\*" or nonwhite\* or BME or "Black and Minority Ethnic" or "Eastern Europe\*" or Hispanic\* or Latin\*).ti,ab.

19. ((minorit\* adj3 (culture\* or m?n or wom?n or male\* or female\* or adult\* or old\* or elder\* or people\* or person\* or individual\* or member\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\*)) or (ethnic adj3 (culture\* or people\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\* or minorities or minority)) or "ethnic origin\*" or (White adj2 (minorities or minority))).ti,ab.

20. (((black or white) adj3 (culture\* or ethnic\* or m?n or wom?n or male\* or female\* or adult\* or old\* or elder\* or people\* or person\* or individual\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\* or minorities or minority)) or ((displaced or alien) adj2 (people\* or person\* or individual\*)) or (born adj2 overseas) or ((vulnerable or

disadvantaged or marginal\* or transient or undocumented) adj1 (people\* or person\* or individual\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\*)))ti,ab.

21. ((arab\*or somali\* or yemini\* or Vietnamese or Chinese or Caribbean\* or Pakistani\* or Bangladeshi\* or Punjabi\* or Somali\* or Gujarati\* or Japanese or Asian\* or Irish or Indian\* or Bengali\* or Afghanistani\* or Turkish or Kurdish or Yemeni\* or Albanian\* or Polish or German\* or African\* or American\* or Jamaican\* or Nigerian\* or Kenyan\* or Zimbabwean\* or Philippin\* or Filipin\* or "Sri Lankan\*" or French or Italian or Chinese or Cantonese or Australia\* or Somalia\* or Portugues\* or Canadian\* or Ghanaian\* or Lithuanian\* or "Hong Kong" or Spanish or Iranian\* or "New Zealand" or Romania\* or Iraqi\* or Turkish or Cypriot\* or Malaysian\* or Dutch or Ugandan\* or Bulgarian\* or Afghan\* or Brazilian\* or Slovak\* or Mauritan\* or Singapore\* or Nepales\* or Hungarian\* or Latvian\* or Russian\* or Tanzanian\* or Thai\* or Swedish or Greek or Zambia\* or Czech or Egyptia\* or Trinidad\* or Tobago\* or Maltese or Austrian\* or Belgian\* or Libyan\* or Korean\* or Danish or Swiss) adj3 (culture\* or m?n or wom?n or male\* or female\* or adult\* or old\* or elder\* or people\* or person\* or individual\* or population\* or communit\* or neighbourhood\* or neighborhood\* or group\* or area\* or demograph\* or minorities or minority or ethnic\*)))ti,ab.

22. or/15-21

23. 5 and 10 and 14 and 22

24. limit 23 to (english language and humans)

25. remove duplicates from 24

26. limit 25 to yr="2010 -Current"