

Ethnic differences in compulsory admissions for psychiatric disorders in the UK: a systematic review and meta-analysis

ORIGINAL RESEARCH

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ABSTRACT

It is postulated by Mann et al. that some ethnic minorities in the United Kingdom (such as Asian and Black patients) experience more difficulty in being conventionally admitted for psychiatric conditions, and therefore present later with severe symptoms necessitating compulsory admission. (1) This systematic review evaluates whether compulsory admission rates differ between ethnicities in the UK and whether patients are accessing psychiatric healthcare through conventional systems (i.e. referral from primary care).

In our meta-analysis of 10 studies, ethnic minorities were more likely to be compulsorily admitted. Non-white patients were 2.38 times (95% CI: 1.55 – 3.65) more likely to be compulsorily admitted than White patients. Black patients were 2.77 times (95% CI: 1.84 – 4.18) more likely to be compulsorily admitted than White patients. Interestingly, there was no significant difference in compulsory admittance rate between Asian patients and White patients, with Asian patients being 0.96 times (95% CI: 0.78 – 1.17) more likely to be compulsorily admitted than White patients. Although admission rates differed between races, there was no clear consensus on an increased prevalence of psychiatric disorders amongst minorities based on 32 studies in the United Kingdom.

The systematic review discusses possible causes for the greater likelihood for compulsory admissions in Black patients compared to White patients, as well as the non-significant result in Asian patients compared to White patients. The possible causes encompass social stigma associated with psychiatric disorders, and cultural and language barriers to conventional psychiatric healthcare in ethnic minorities.

Introduction

Compulsory admission is the authorised admission of a patient in the UK to hospital after a formal mental health assessment under the UK's Mental Health Act 1983, (2) which encompasses any psychiatric disorder except for learning disabilities. Criteria for detention, for either assessment or treatment purposes, include: if the patient is at risk of harming themselves or the public; if the nature and severity of the psychiatric disorder necessitate the detention; or to ensure that the patient receives the appropriate treatment if they lack capacity to consent. (3)

Black patients in the UK have been shown to have higher rates of compulsory admission compared to White patients. (1) The higher detention rates have been suggested as a manifestation of racial discrimination and institutional racism within a healthcare system. (4) Lewis G et al. conducted a study where 220 British psychiatrists were given a questionnaire regarding a case vignette of a patient, whose sex and race were changed when given to each psychiatrist. (5) This study showed that psychiatrists, of which 79% were educated in the UK, view Black male patients as more violent compared to their White counterparts, implying the presence of an inherent prejudice towards Black patients. Other factors leading to higher compulsory admission rates amongst BME (Black and Minority Ethnic) groups include the lack of access for help through a conventional route, as one study found that African-Caribbean families were more likely to access help through the criminal system instead of through the medical system. (6) Furthermore, according to the 2011 National Census for English Proficiency, 7.3% of minorities consisting of non-Whites could not speak English or could not speak English well, compared to only 0.7% in the White population, (7) this could potentially lead to language barriers should they require mental health services. (8) All of the above factors collectively contribute to patients presenting later with more severe symptoms and necessitating compulsory admission.

The primary aim of this systematic review was to investigate the relationship between compulsory admission and ethnicity, amongst the minority groups of Blacks and Asians, regardless of clinical presentation. There was a secondary focus on the ethnic disposition to certain psychiatric illnesses, and hence the prevalence of psychiatric illnesses within each ethnic group. From the results obtained, we discuss the underlying social determinants within the field of mental health, and the need for improvement to deliver equal treatment regardless of ethnicity in the UK. In addition to the literature review, the study also aimed to conduct a meta-analysis using data from the studies that meet our inclusion criteria.

Method

Literature search

Search strategies for the systematic review focused on this primary

question: *is there variation between ethnic groups in terms of compulsory hospital admission rate?* The data for meta-analysis was also generated from this question. There was a secondary question: *is there an increased prevalence of psychiatric disorders amongst ethnic minorities?*

The search was confined to studies published between 1983 to 2016, due to the establishment of the Mental Health Act in 1983. The primary bibliographic database was PubMed and Medical Subject Headings (MeSH) terms were grouped as search terms, which included: (a) GREAT BRITAIN, HOSPITALISATION, ETHNIC GROUPS; (b) MENTAL HEALTH, ETHNIC GROUPS, GREAT BRITAIN; (c) COMMITMENT OF MENTALLY ILL, GREAT BRITAIN, ETHNIC GROUPS; (d) GREAT BRITAIN, HOSPITALISATION, ETHNIC GROUPS, PSYCHIATRY; (e) GREAT BRITAIN, INDIGENOUS GROUPS, HOSPITALISATION; (f) COMMITMENT OF MENTALLY ILL, (ETHNICITY or ETHNIC GROUPS or MINORITIES), (GREAT BRITAIN or UNITED KINGDOM). [Figure 1]

Our inclusion criteria for the systematic review were studies looking at: (i) psychiatric compulsory admission (ii) comparison between ethnicities including Whites v non-Whites, Whites v Blacks, or Whites v Asians, and (iii) studies looking at the prevalence of psychiatric disorders within different ethnic groups.

Our exclusion criteria were: (i) topics unrelated to psychiatric compulsory admissions to hospitals, (ii) lack of access to full article, (iii) non-primary data, (iv) studies based outside the UK and (v) lack of comparison to a control White group. The PRISMA diagram (Figure 1) demonstrates the papers included. In addition to these criteria, only papers which had quantitative data involving odds ratios between comparison groups were included in the meta-analysis.

Quality ratings

The quality of published studies was assessed using the criteria from Bhui et al. that evaluated ethnic variation in pathways to specialist care (Table 1). (9) The criteria focused on three domains: sample source and size, adjustment for confounding variables and quality of method of ethnic group classification.

Studies were rated on the size of the sample (0-3), adjustment for confounding factors (0-5) and appropriate classification of ethnic groups (0-3). Studies were then categorised into high-rated (8-11), medium rated (4-7) and low rated (0-3). Each published study was independently evaluated by two reviewers in order to improve the reliability of inclusion and data-extraction. Where differences existed, consensus was achieved by means of discussion. (Table 1)

Data analysis

Meta-analysis and figures were generated using Review Manager (v5.3, The Cochrane Collaboration, London) to pool odds-ratio for

compulsory admission. Studies included in the meta-analysis did not adjust odds ratio for confounding factors, with analysis being based on uncorrected data.

Random-effects model was used when heterogeneity (I²) was found to be greater than 0.5. Fixed-effects model was used when heterogeneity (I²) was less than 0.5.

Ethical approval

Ethical approval was not necessary as there was no intervention conducted for this study.

Results

Identifying and rating primary studies

Preliminary search terms returned 294 potentially relevant titles, of which 215 were unique articles. After evaluating abstracts and data, we found that 32 studies met the inclusion and exclusion criteria. These papers were subsequently rated (summarised in Table 2).

Compulsory admissions

From the selected 15 studies that involved comparisons of compulsory admission rates with ethnicity (5 high-rated, (6,10–13), 9 medium-rated (9,14–20) and 1 low-rated (21)), all studies found that Black patients are more likely to be compulsorily admitted. From these 15 studies, 7 studies included odds ratios, and were thus included in our meta-analysis. Black patients are 2.77 times (95% CI: 1.84 – 4.18) more likely to be compulsorily admitted than White patients (Figure 3).

Our meta-analysis of 2 studies that compared compulsory admissions of non-White patients compared to White patients suggested non-White patients are 2.38 times (95% CI: 1.55 – 3.65) as likely as White patients to be compulsorily admitted (Figure 2).

Most studies suggest Asian patients are less likely to be admitted compared to White patients (2 high-rated (10,11), 2 moderately-rated (14,18)), while 1 moderately-rated study (22) found that Asian patients are more likely to be compulsorily admitted. From these 5 studies, 3 studies included odds ratios, and were thus included in our meta-analysis. Our meta-analysis (Figure 4) of odds ratio in compulsory admission of Asian patients against White patients was inconclusive (95% CI: 0.78 – 1.17) and therefore no significant difference was observed.

One primary study (23) found that ethnic minorities (Asian and Black patients) experience difficulties going through conventional admission pathways for psychiatric conditions. The study proposed that it could potentially deter patients from seeking help earlier, thereby resulting in untreated psychiatric disorders.

Prevalence of psychiatric disorders

When comparing regular GP admissions and prescription

data, studies varied on whether psychotic conditions are more or less prevalent amongst minority groups in the UK. 3 high-rated (6,24,25) and 1 medium-rated study (22) concluded that psychotic-based admissions or prescription rates in minorities were not different to the White population. Contrastingly, 4 low-rated (19,26–28) and 2 medium-rated studies (14,29) found that psychotic conditions were more frequent among the Black population. Therefore, it appears that the prevalence of psychotic disorders is inconclusive.

Similarly, there was no consensus on whether the prevalence of psychotic conditions in the Asian minority is different to the White population. Among the medium-rated studies, 1 found decreased prevalence of psychotic conditions within the Asian population, (30) 1 found that prevalence differences amongst Asians and Whites were non-significant (22) and 3 found prevalence to be higher amongst Asians. (14,29,31) (Table 2)

Discussion

The inequality in compulsory admissions rates in different ethnicities could be attributed to a variety of reasons. Firstly, stigma within certain ethnic groups against psychiatric disorders can lead to individuals avoiding treatment and refraining from discussing their symptoms. Secondly, greater compulsory admission rates could also reflect a greater prevalence of severe psychiatric disorders in particular ethnic groups. Thirdly, minorities also encounter barriers due to cultural and language differences which impede obtaining a diagnosis or treatment plan from their clinician.

Stigma

Social stigma within ethnic groups against psychiatric disorders may affect the number of compulsory admissions observed. Anglin et al. (42) suggested that this may be the case for Black patients, who have a higher odds-ratio than other ethnic groups for compulsory admissions. This can be attributed to the lack of understanding of psychiatric disorders, and cultural beliefs within their group, that those with psychiatric disorders can cause harm to themselves or inflict harm on those around them through violence. (42) Such perceptions within the Black group can lead to people with psychiatric problems refraining from voluntarily seeking help, in order to avoid labelling, prejudice and segregation. (43,44)

In addition, reduced help-seeking behaviour may exacerbate an individual's psychiatric disorders and increase the likelihood of an event triggering compulsory admission. (5) Valmaggia et al. found that a longer duration of untreated psychosis (DUP), defined to be the time between the onset of the first psychotic symptom and the initiation of treatment, may have an association with worse prognosis and may also decrease the likelihood of remission from psychosis. (45) Furthermore, engagement of health services for psychosis in the prodromal phase may result in improved short-

term prognosis, decreasing the likelihood of an event which would require compulsory admission. (46)

Similarly, in Asian cultures, individuals with psychiatric health disorders are perceived to be dangerous; (47) however, the rate of compulsory admissions was found to be similar to the White population. This suggests that stigma may not necessarily have a consistent effect of increasing compulsory admission rates in different ethnic groups, suggesting the involvement of other sociological factors, which will be addressed below.

Ethnic disposition to compulsory admissions-related conditions

Inherent differences in prevalence between ethnicities could contribute to the varying rates of compulsory admissions observed between ethnicities. In this study, compulsory admission rates were not normalised to prevalence rates of psychiatric conditions, as it was inconclusive from our systematic review whether non-White individuals were more predisposed to psychiatric disorders compared to White individuals. We suggest further validation of our findings by adjusting compulsory admission rates to respective prevalence rates of psychiatric conditions.

The aetiology of schizophrenia and the difference in its prevalence in Black and White populations is widely reported. Members of the Black group in the UK were reported in studies carried out in the past decades to have higher rates of schizophrenia than White members. (48–50) A study looking at the family history of affected patients has found there was a seven-fold increase in risk for schizophrenia in second-generation African-Caribbean siblings of affected individuals compared to their White counterparts. This result suggests non-genetic factors, such as the environment, and a complex epigenetic interaction between environmental and genetic factors selectively affecting second generation Black patient groups. (51) Burnett et al. found that a greater proportion of Black patients with psychosis live alone, are unemployed and live in public housing compared to White and Asian patients. (23) It is possible that such social factors are associated with increased risk of developing or aggravating psychiatric illnesses. (52–54) However, more definite evidence is required to determine the significance of the associative roles of these social factors in development of psychiatric disorders amongst Black patients.

No significant difference was found between compulsory admission rates for Asian patients compared to White patients. Despite Asians being a minority group, our findings could be explained by under-utilisation of healthcare services by Asians. For example, language barriers and cultural differences in referral networks and traditional treatment methods, may lead to under-utilisation of healthcare services. (55) Moreover, Saint et al. reported that Asian patients with psychological disorders, such as depression, tend to report more somatic symptoms than White patients, which could lead to

misdiagnosis of conditions and contribute to the lower number of psychiatric admissions. (56) Therefore, the lack of detection of psychiatric disorders and the failure to meet the compulsory admission criteria for Asian groups may have led to no observable difference in compulsory admission rates between Asians and Whites.

Furthermore, a limitation of our study is that Asian patients are often under-represented in mental disorder prevalence studies, as the sample sizes are relatively small compared to other ethnicities. (30,34) In addition, many studies have not categorised Asians into subgroups despite significant cultural differences within the racial group. (10,11,14,18,27,33) Therefore, no conclusions can be drawn from a generalised grouping of all Asian patients, providing a possible direction for future investigations. (30)

Ethnic stereotypes and compulsory admissions

In the past, young Black men and adolescents in the UK have often been associated with violent crimes (57) and being ‘troublemakers’ (58) by the media. Singh et al. (13) suggested that such stereotyping of the Black population has an effect on emergency decision-making in psychiatric wards, perhaps leading to more patients being compulsorily admitted. (5) It is not certain whether Black patients are themselves more violent in nature, with conflicting data on the matter, (41,59) whilst others suggest that it is the stereotyping of Black adolescents affecting the judgement of psychiatrists, resulting in greater risk of detainment. (5)

Boundaries leading to unmet needs

Under-utilisation of mental health support services at an earlier stage may cause patients to present with a more severe form of their condition which necessitates compulsory admissions. Mclean et al. suggest that the under-utilisation in the Black group could be attributed to the expectation of discrimination in the form of misdiagnosis, mistreatment and over-prescription which could deter them from using these services. (60) Therefore, as mentioned previously, institutionalised prejudice may not only lead to misdiagnosis, but the perception of such discrimination may also act as a barrier preventing early access to mental health services, aggravating their existing mental conditions.

Additionally, ethnic minorities may have subtly different presentations of psychiatric health conditions due to cultural variation, which can be missed by culturally unaware clinicians. (61) For example, psychiatrists in Chinese settings found some patients to report somatic symptoms in the place of dysphoria when presenting with depression. (62) Furthermore, Fabrega et al. suggest that criteria for psychiatric conditions such as the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) have a Western bias and assume that psychiatric conditions present universally. (63)

Sentell et al. found poor English proficiency to be a significant contributing factor towards missed diagnoses and unmet healthcare needs in the US. This was particularly apparent during consultations and treatment, which rely heavily on verbal communication, leading to a significant difference in outcome found between English-speaking minorities, and minorities with limited English proficiency (LEP). (64) Furthermore, patients with LEP without interpreters may incompletely disclose their true presenting symptoms and hence limit the efficacy of diagnosis and subsequent treatment. (65) In the United Kingdom, this may be a bigger issue within the Asian population, as a government census from 2011 found that 2.6% of the Black population could not speak English or could not speak English well, whereas 10.5% of the Asian population could not speak English at all or well. (7)

However, the result of our meta-analysis showed fewer compulsory admission rates within the Asian population, suggesting that there is a complex interaction of language proficiency with other factors. A detailed re-examination of the inadequacy in the mental health system, culturally conscious training and the use of interpreters during consultation for patients with LEP could be useful to tackle the unmet needs among ethnic minorities. (64)

Limitations arising from Classification

The statistical conclusions on racial disparities were influenced greatly by the data collection methods. This study used the racial categories WHITES, BLACKS (African-Caribbean), and ASIANS to enable a statistical comparison of different ethnic groups. However, inclusion and exclusion to each category vary widely in different studies, hence masking heterogeneity within the groups. (61) In addition, such categories evolve from social constructs, which are inconsistent and based largely on subjective classification constructed on geopolitical divides.

Self-identification and its influence on data

All studies in this meta-analysis rely on self-identification of ethnicity by the individual. While this approach is a conventional and safe approach in social demographic analyses, the overall identification of ethnicity in genetic analyses stems from an individual's ancestry informative markers, which are based on genomic data. Mersha et al. show that self-reporting African Americans can have drastically varying African and European ancestries. Since a similar deviation may be prevalent in the UK, associations between data and genetic disposition are limited. (66)

Scope of Study Selection

The studies used in this analysis were obtained from PubMed®, which includes the MEDLINE® database. 4 studies were included in the meta-analysis between Whites and non-Whites (Figure 2). 2 studies were included in the meta-analysis between Asians and Whites (Figure 4). This can contribute to the distortion of data.

Therefore, additional search terms and databases should be utilised to obtain further relevant studies.

Follow-up studies could analyse additional databases such as EMBASE (medical and pharmacologic database by Elsevier publishing), CINAHL (cumulative index to nursing and allied health literature), CANCELRLIT (cancer literature research database), and the Cochrane Collaborative, allowing for a wider net of studies to add to the present body of evidence.

Conclusion

This meta-analysis determined that the likelihood of compulsory admission is greater in Black compared to White populations and inconclusive in White compared to Asian populations in the UK. This systematic review suggested that Asian and Black patients have difficulties accessing conventional admission pathways for psychiatric conditions due to poor cultural awareness and the existence of social stigma within these ethnic groups. Stigma towards psychiatric disorders may also reduce help-seeking behaviour and lead to under-utilisation of mental health facilities. Possible reasons preventing ethnic minorities from receiving adequate treatment include language barriers in consultations, cultural variations in the presentation of psychiatric conditions, and institutionalised discrimination leading to mistreatment and misdiagnosis.

This study shows a clear presence of ethnic differences in unmet needs and a complex interplay of factors affecting compulsory admission rates for psychiatric disorders. Based on our findings, we suggest improving consultations through culturally conscious training for clinicians with interpreters for patients with LEP, as well as increasing awareness of psychiatric disorders within the ethnic groups. It was unclear whether the difference in compulsory admission rates between ethnic minorities and the White population was due to discrimination against ethnic minorities and psychiatric conditions.

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Figures

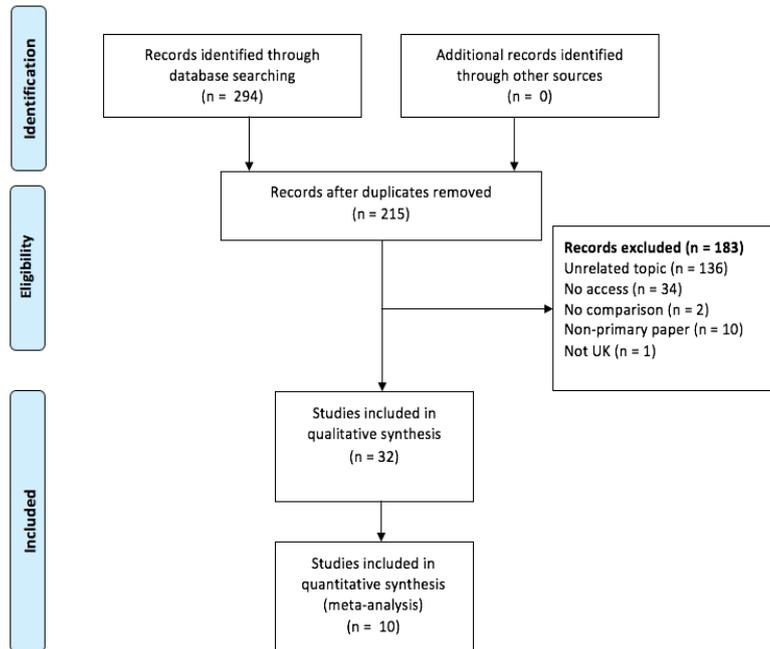


Figure 1 The Flow diagram of our systematic review

Source of sample and sample size	Score	Adjustment for confounding variables	Score	Ethnicity categorisation			
				Quality	Score	Use in analysis	Score
Routine data (e.g. health authority, GP list data)	0	None	0	Third-party report (e.g. ward staff categorisation, name-based methods, skin colour methods)	0	Inappropriate ethnic groups combined for major study	0
Project specific data: <30 cases in ethnic groups for major outcomes	1	Age and/or sex	1	Self-reported ethnicity or use of census categories	1	reasonable amalgamation of groups collected by census/self-report method	1
Project specific data: <30 cases in ethnic groups for major outcomes	2	Diagnosis or the severity of disease Give 1 point if this sample is selected by diagnosis	1			All analysis done on ethnic groups without combination, and self-report/ census categories for categorisation	2
Project specific data and total sample size >500	3	Comorbidity and risk factors for outcome of interest	1-3				
Maximum possible score	3		5		1		2

Table 1 presents the rating system used. Papers are categorized into high-rated (8-11), moderate-rated (4-7) and low-rated (0-3)

Author	Title	Rating
(Chang, Steeg, & Kapur, 2015) (30)	Self-harm amongst people of Chinese origin vs White people living in England: a cohort study	Moderate
(Singh, Burns, Tyrer, & Islam, 2014) (10)	Ethnicity as a predictor of detention under the Mental Health Act	High
(Corrigall & Bhugra, 2013) (14)	The role of ethnicity and diagnosis in rates of adolescent psychiatric admission and compulsory detention: a longitudinal case-note study.	Moderate
(Lawlor, Johnson, & Cole, 2012) (32)	Ethnic variations in pathways to acute care and compulsory detention for women experiencing a mental health crisis	Moderate
(Connolly, Taylor, & Sparshatt, 2011) (24)	Antipsychotic prescribing in Black and White hospitalised patients.	High
(Borschmann, Gillard, & Turner, 2010) (15)	Demographic and referral patterns of people detained under Section 136 of the Mental Health Act (1983) in a south London Mental Health Trust from 2005 to 2008.	Moderate
(Bennewith, Amos, Lewis, & Katsakou, 2010) (11)	Ethnicity and coercion among involuntarily detained psychiatric in-patients.	High
(Tulloch, Fearon, & David, 2008) (33)	The determinants and outcomes of long-stay psychiatric admissions: a case-control study.	Low
(Ali, Dearman, & McWilliam, 2007) (34)	Are Asians at greater risk of compulsory psychiatric admission than Caucasians in the acute general adult setting?	Moderate

(Morgan, Mallett, Hutchinson, & Bagalkote, 2005) (12)	Pathways to care and ethnicity. 2: Source of referral and help-seeking.	High
(Morgan, Mallett, Hutchinson, & Bagalkote, 2005a) (6)	Pathways to care and ethnicity. 1: Sample characteristics and compulsory admission.	High
(Chowdhury, Whittle, & McCarthy, 2005) (26)	Ethnicity and its relevance in a seven-year admission cohort to an English national adolescent medium secure health service unit.	Low
(Tolmac & Hodes, 2004) (27)	Ethnic variation among adolescent psychiatric in-patients with psychotic disorders.	Low
(Gudjonsson, Rabe-Hesketh, & Szumkler, 2004) (35)	Management of psychiatric in-patient violence: patient ethnicity and use of medication, restraint and seclusion	Moderate
(Webber & Huxley, 2004) (36)	Social exclusion and risk of emergency compulsory admission, A case-control study	High
(Riordan, Donaldson, & Humphreys, 2004) (37)	The imposition of restricted hospital orders: potential effects of ethnic origin.	Low
(Oluwatayo & Gater, 2004) (38)	The role of engagement with services in compulsory admission of African/Caribbean patients	Moderate
(Commander, Odell, & Surtees, 2003) (39)	Characteristics of patients and patterns of psychiatric service use in ethnic minorities	Moderate
(Audini & Lelliott, 2002) (40)	Age, gender and ethnicity of those detained under Part II of the Mental Health Act 1983	Moderate

(Simmons & Hoar, 2001) (17)	Section 136 use in the London borough of Haringey	Moderate
(Coid, Kahtan, Gault, & Jarman, 2000) (18)	Ethnic differences in admissions to secure forensic psychiatry services	Moderate
(Burnett, Mallett, & Bhugra, 1999) (23)	The first contact of patients with schizophrenia with psychiatric services: social factors and pathways to care in a multi-ethnic population	Moderate
(Suhail & Cochrane, 1998) (28)	Seasonal variations in hospital admissions for affective disorders by gender and ethnicity.	Low
(Singh, Croudace, Beck, & Harrison, 1997) (13)	Perceived ethnicity and the risk of compulsory admission.	High
(Koffman J, 1997) (19)	Ethnicity and use of acute psychiatric beds: one-day survey in north and south Thames regions.	Low
(Davies, Thornicroft, Leese, & Higgingbotham, 1996) (21)	Ethnic differences in risk of compulsory psychiatric admission among representative cases of psychosis in London	Low
(Callan, 1996) (25)	Schizophrenia in Afro-Caribbean immigrants	High
(Thomas, Stone, Osborn, & Thomas, 1993) (29)	Psychiatric morbidity and compulsory admission among UK-born Europeans, Afro-Caribbeans and Asians in central Manchester.	Moderate
(Glover, 1991) (31)	The use of inpatient psychiatric care by immigrants in a London Borough	Moderate
(Dunn & Fahy, 1990) (41)	Police admissions to a psychiatric hospital. Demographic and clinical differences between ethnic groups.	Moderate

(McGovern & Cope, 1991) (20)	Second generation Afro-Caribbeans and young whites with a first admission diagnosis of schizophrenia	Moderate
(Ineichen, Harrison, & Morgan, 1984) (22)	Psychiatric hospital admissions in Bristol. I. Geographical and ethnic factors.	Moderate

Table 2 shows the papers we included in our systematic review

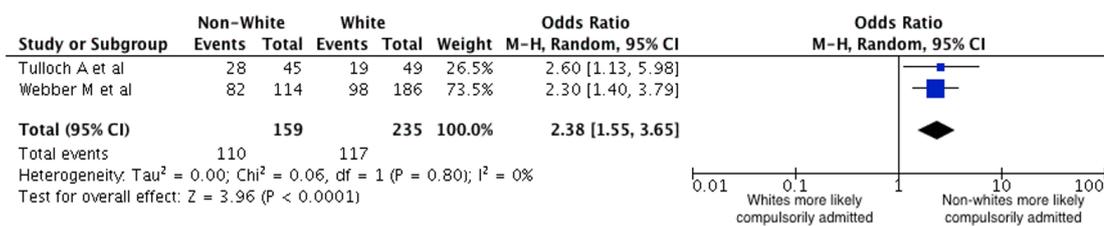


Figure 2: Whites v non-Whites. Heterogeneity = 0%. Pooled results suggest non-White patients are 2.38 (1.55-3.65) times more likely to be compulsorily admitted compare to White patients.

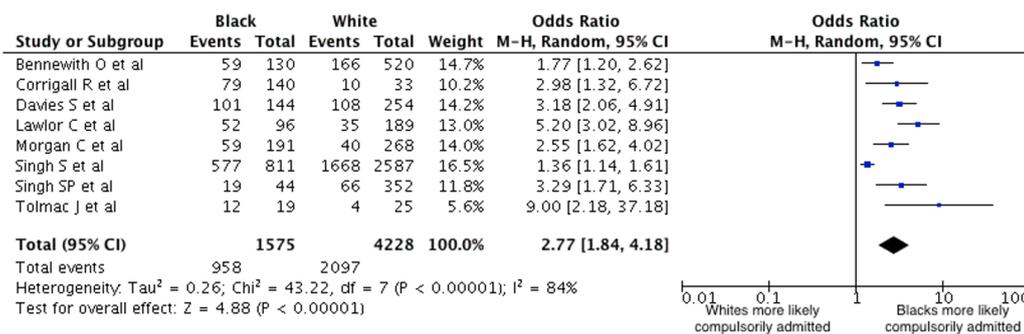


Figure 3: Whites v Blacks. Heterogeneity = 84%. Pooled results suggest Black patients are 2.77 (1.84-4.18) times more likely to be compulsorily admitted compare to White patients.

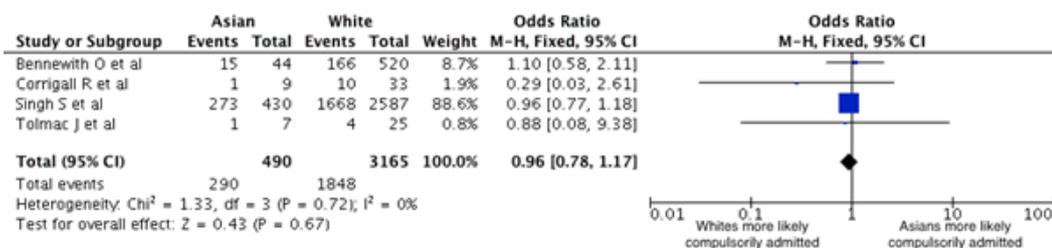


Figure 4: Whites v Asians. Heterogeneity = 0%. Pooled results suggest Asian patients are 0.96 (0.78-1.17) times more likely to be compulsorily admitted compare to White patients.



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