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Implicit bias towards Aboriginal and Torres Strait Islander patients within Australian Emergency

Departments

Running title: Implicit bias in Australian Emergency Departments

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Keywords: Aboriginal and Torres Strait Islander peoples, Emergency, Implicit bias, Healthcare disparities, Racism

ABSTRACT

Aboriginal and Torres Strait Islander peoples continue to suffer adverse experiences in healthcare, with inequitable care prevalent in emergency settings. Individual, institutional and systemic factors play a significant part in these persisting healthcare disparities, with biases remaining entrenched in healthcare institutions. This includes implicit racial bias which can result in stereotyping of racial minorities and premature diagnostic closure. Furthermore, it may contribute to distrust of medical professionals resulting in higher rates of leave events and hinder racial minorities from seeking care or following treatment recommendations. The aim of this review is to analyse the effect of implicit bias on patient outcomes in the ED in international literature and explore how these studies correlate to an Australian context.

Keywords: Aboriginal and Torres Strait Islander peoples, Emergency, Implicit bias, Healthcare disparities, Racism

INTRODUCTION

The Emergency Department (ED) is often the first interaction that marginalised patient groups have with the healthcare system¹. This includes those with an insecure living situation, poor mental health, substance use issues and racial or ethnic minority groups². In Australia, Aboriginal and Torres Strait Islander people make up 3.3% of the population³ but are over-represented in presentations to the ED,

accounting for 6.7% of presentations in 2018⁴. Historically they have been mistreated by healthcare institutions⁵ with inequitable care prevalent within emergency settings⁶.

Notable cases that highlight this inequity among Aboriginal and Torres Strait Islander people include Naomi Williams⁷, Charlie Gowa⁸ and Ms Dhu⁹. Both Charlie Gowa and Naomi Williams had repeated ED presentations with inadequate care exposed on Coronial investigations. Racial stereotyping was found to be prominent in the case of Naomi Williams, with doctors attributing her unrelenting symptoms to drug use⁷. Similarly, heuristic thinking and ‘premature diagnostic closure’⁹ occurred as a result of preconceived biases in the case of Ms Dhu. These cases illustrate the effects that implicit bias may have on clinical decision-making and healthcare outcomes¹⁰.

Implicit bias may be defined as negative attitudes that “exist outside of conscious awareness”, thus influencing behaviour¹⁰. ED settings are suggested to have greater susceptibility to implicit bias due to a time-pressured environment where doctors may rely on pattern recognition to formulate diagnoses¹. This can result in stereotyping of racial minorities¹¹ leading to misdiagnosis¹² and failure to tailor care to the individual. Furthermore, implicit bias may result in disparities in care¹³ of Indigenous people compared to their non-Indigenous counterpart.

International evidence illustrates how racial and ethnic groups experience disparities in triage scores¹⁴, radiographic assessment¹⁵, coronary angiography¹⁶, surgical waiting times¹⁷ and analgesia recommendations¹⁸. Australian studies have shown that Indigenous Australians have a higher admission rate¹⁹, greater severity of illness¹⁹, and higher burden of cardiometabolic comorbidities²⁰. Additionally, Indigenous Australians have a reduced life expectancy and Australian Indigenous children have twice the

mortality rate of non-Indigenous children²¹. These disparities indicate the ongoing impacts of colonisation and structural racism².

The aim of this review is to analyse the effect of implicit bias on patient outcomes in the ED. Existing literature relates primarily to international examples, but we will explore how these studies correlate to an Australian context.

METHODS

Search Strategy

A structured literature search of PubMed, Medline, CINAHL, Psycinfo, EMBASE and EMCARE was performed (appendix 1). Key words used were 1) “implicit bias” or “unconscious bias” or “unaware bias” 2) ED or emergency 3) racism or race or “covert racism” or “racial bias” or “racial discrimination” or “racial prejudice”.

Inclusion & Exclusion Criteria

Two independent researchers screened the title and abstract of each article for suitability. Eligible studies were those published in English between 2005-2020 that measured implicit racial bias in ED healthcare workers. Additional studies that met the inclusion criteria were those that were based upon an emergency vignette. Other exclusion criteria included those that assessed implicit bias towards doctors rather than patients, editorials, dissertations, letters to the editor and conference proceedings.

RESULTS

Articles Included in Review

As outlined in Figure 1, 412 different articles were identified through a systematic literature search with five additional studies identified via other methods. Nineteen articles were assessed for full-text eligibility with ten articles meeting all criteria. Two articles were systematic reviews which were not included in the quantitative analysis outlined in Table 1. Additionally, two pairs of articles used the same data so were combined in this analysis. Only two datasets included ED doctors in isolation²²⁻²⁴, with the majority of studies including other specialties in their analysis. One dataset only included paediatricians but was included due to the use of emergency clinical vignettes^{25,26}.

Implicit Racial Bias Among Emergency Doctors

All studies used the implicit association test (IAT), a tool developed by Harvard University which requires individuals to sort words into appropriate categories without time to elicit conscious thought¹. It is thought to detect implicit bias if preconceived stereotypes become apparent in the pairing process. For example, in the Race IAT individuals may make associations with darker-skinned faces and negative words as a result of implicit racial bias. This test has been widely utilised^{1,27} and is based on cognitive priming and automatic activation of unconscious thoughts and attitudes²⁸. The IAT is reported to have reliable construct validity in African American groups²⁹, but no validation studies have yet been performed for its use in Indigenous Australians. However, the results from a large Australian study of 11,099 participants assessing implicit bias against Indigenous Australians³⁰ yielded similar IAT results to a large American study of 404,277 participants³¹.

Implicit bias was quantified in all studies using D-scores³². The majority of the studies we analysed found a moderate implicit preference for those with Caucasian appearance on the race-IAT^{22-24,32-34}, with

one dataset finding a minor implicit preference^{25,26}. It should be noted that one study used a novel IAT which used American Indian faces²², however this IAT has not yet been validated.

Some studies performed additional IATs to assess other biases that may be present in the ED. One study found a minor implicit preference to Caucasians in a race cooperativeness IAT and in a race cooperativeness in medical procedures³³. Similarly, another study found a minor implicit preference in a novel race-medical compliance IAT, however this IAT was not validated. Another study found a strong implicit preference for individuals with a higher socio-economic status³². Finally, one study found an increase in IAT scores from 0.50 (95% CI, SD=0.34) to 0.55 (95% CI, SD=0.39) in participants who completed the IAT post-ED shift. This study also reported an increase of 0.09 (95% CI, d=0.24) in those who worked busy or overcrowded shifts and an increase of 0.17 (95% CI, d=0.47) in those who cared for 10 or more patients during their ED shift²³.

Association Between Implicit Bias and Clinical Decision-Making

All studies that sought to seek a relationship between implicit bias and clinical decision-making used clinical vignettes. These required physicians to make judgements that related to acute trauma³² and emergency care including appropriate pain management^{22,25,26,33}, recommendations for thrombolysis³³ and asthma care^{25,26}. For each vignette, a different race was used with one study using validated computer software to create facial expressions of pain³⁴. One study demonstrated a significant association between implicit racial bias and clinical decision-making with higher IAT scores associated with a decreased likelihood to recommend thrombolysis for darker-skinned patients³³. Another study demonstrated that higher IAT scores were associated with a decreased likelihood of prescribing narcotics to African American

patients^{25,26}. The remaining five studies demonstrated no significant association between implicit bias and clinical decision-making.

Study Limitations

There were limitations of the selected studies in regards to sample size as the largest sample included 287 participants³³, and in two datasets there were less than 100 participants²³⁻²⁶. Only two datasets solely included ED healthcare workers²²⁻²⁴ and these populations may not accurately reflect the ED workforce. One paper acknowledged that inexperienced junior medical staff may not be analogous to senior clinicians and this may not accurately represent the clinicians who make treatment decisions³³. Five studies only acquired data from a single site^{23-26,32}. Comparability across studies is difficult due to known confounding variables of clinical education and experience, with only one study adequately controlling for confounding variables³³.

Assessing clinical judgement based on isolated decisions creates an artificial vacuum, making these studies fundamentally flawed and extrapolation to real life clinical decision-making problematic. It fails to recognise individual patient characteristics, dynamic interactions and institutional context factors that may lead a clinician to make certain management decisions. The use of clinical vignettes may not accurately reflect the decisions made in the ED where physician fatigue, patient burden, time pressures and lack of clinical information may result in prejudiced patient management^{2,11}. Clinical vignettes may also be prone to response bias, where participants provide a more socially desirable response than what they would do in clinical practice³². Finally, selection bias is likely in many of the studies in which the participants were self-selected and it is likely those clinicians with stronger implicit or explicit biases were excluded.

DISCUSSION

All the included studies found some degree of implicit racial bias among emergency physicians, with five studies finding a moderate implicit preference towards Caucasians. However, only two studies showed a relationship with clinical decision-making. This data suggests that implicit racial bias exists among emergency doctors, but further interrogation into the effects of this on patient health outcomes including the patient perspective is necessary.

Implicit Bias Leads to Stereotyping and Cognitive Shortcuts

The ED lacks established provider-patient relationships resulting in increased reliance on cognitive shortcuts²², heuristic thinking and premature diagnostic closure. Consequently, automatic activation of racial stereotypes¹³ may occur to a greater degree. Previous studies have linked higher IAT scores with poor patient communication, clinical verbal dominance, non-verbal cues and lower levels of patient centred dialogue^{35,26}. This may lead to absence of patient centred care and discriminatory clinical decision-making.

The Role of Implicit Bias in Racial Disparities

Healthcare disparities among racial and ethnic minorities have been widely documented. A recent scoping review by Owens et al, revealed that minority groups had less acute triage scores, longer waiting times and were less likely to receive analgesia³⁷. Furthermore, there were increased rates of Left Without Being Seen (LWBS) and Leaving Against Medical Advice (LAMA) among Indigenous minority groups globally³⁷. Aboriginal and Torres Strait Islander peoples are two and a half times more likely to have leave events compared to non-Indigenous Australians³⁸. Leave events are associated with frequent representations to ED, delays in receiving adequate medical care and increased morbidity and mortality³⁸.

Negative experiences, distrust of medical professionals, stereotyping and racism are among the factors contributing to leave events for Aboriginal and Torres Strait Islander peoples³⁸.

It is unequivocal that many factors play a role in these persisting healthcare disparities. Exploring all of these factors is out of the scope of this review, however it is important to note that individual, institutional and systemic factors play a significant part. Although generational effects have reduced the magnitude of overt racism, biases remain entrenched in healthcare institutions. This is in the form of institutional racism that involves unjust policies, values and practices which discriminate against racial minorities³⁹. Institutional racism may result in stereotype activation²⁷ and differential treatment of minority groups by healthcare providers³⁶ in the form of interpersonal bias. This may manifest in the form of explicit or implicit bias and has the potential to undermine the provider-patient relationship⁴⁰. The different forms of racism are further defined in table 2.

In the studies we examined there was a lack of investigation into patient perception of quality of care, patient experiences of discrimination⁴¹ and longer-term health outcomes. Perceived discrimination has implications for both physical and psychological health outcomes for racial minorities, with higher rates of psychological distress, mental health diagnoses, early substance use, hypertension and low birth weight⁴². Furthermore, it may contribute to distrust of medical professionals³⁵⁻³⁷ resulting in higher rates of leave events and hinder racial minorities from seeking care or following treatment recommendations³⁶. Vicarious discrimination may also impact the relationship that the individual's family and community have with the healthcare system⁴².

Implicit Bias & Racial Disparities in Australia

Indigenous communities continue to suffer adverse experiences in healthcare, which can be partly attributed to ongoing institutional racism⁵, and reinforced by structural inequities in housing, education, employment and incarceration⁵. Indigenous peoples are less likely to access appropriate care and often receive lower quality care^{2,5}. Although there are currently no existing studies looking at implicit bias of healthcare workers towards Indigenous Australians, one study found most Australians carry an implicit bias towards Aboriginal and Torres Strait Islander peoples³⁰. We chose to discuss the implications that social disadvantage and racism plays in Australia using case-studies in order to provide more meaningful context.

The fatal repercussions of institutionalised racism are shown in the case of Ms Dhu, who received inadequate healthcare and inhumane treatment by police officers⁹. Shortfalls in her medical care included a lower acuity triage score than clinically indicated and ‘premature diagnostic closure’ as a result of pre-conceived assumptions that her pain was ‘exaggerated’ and the product of ‘behavioural gain’⁹. Similarly, racial stereotyping was a prominent feature of the coronial inquest of Naomi Williams, in which doctors presumed her chronic gastrointestinal symptoms were the result of drug use without adequate investigations or appropriate referral to explore other differentials⁷. The lack of escalation of care in Williams repeated presentations was similar to young Charlie Gowa, who presented to the ED on six consecutive days before receiving intensified treatment for melioidosis⁸. Finally, there was poor documentation and lack of timely investigations in all three cases⁷⁻⁹.

These Coronial reports suggest that implicit racial bias may have contributed to the clinical decision-making of the nurses and doctors involved in these cases⁷⁻⁹, with significant racial stereotyping and reliance on pattern-recognition to formulate diagnoses. These cases were all in regional under-resourced communities, with Gowa’s case being the most significant in terms of remoteness⁷⁻⁹. Together with the lack

of clinical information this has been shown to result in implicit racial bias¹¹. Due to the retrospective nature of these cases we are unable to make any accurate conclusions about patient perceptions of discrimination, however it was indicated that Naomi was dissatisfied with her care prior to her death⁷. Similarly, the family of Charlie Gowa were clearly distressed and frustrated with the inadequate care received from Bamaga Hospital⁸.

Addressing Implicit Bias and Racial Disparities

Cultural competency training has already been implemented at various levels of medical training in Australia, however some have criticised that this training fails to recognise and address the structural causes of healthcare inequities^{2,43}. Although addition of implicit bias education could help improve quality of care for racial minorities⁴⁴, these biases are engrained into healthcare institutions and societal structures⁴⁰. Closing the gap of healthcare disparities thus requires a multi-faceted approach consisting of physician education, organisational policy changes that promote equity⁴⁵ and structural changes such as rectification of inadequate housing, access to mental health services² and lack of Indigenous/People of Colour employed in the health sector⁴⁶. Australasian College for Emergency Medicine (ACEM) has a Reconciliation Action Plan (RAP) that includes compulsory online cultural competency training modules and a commitment to recruiting Indigenous trainees and building relationships with the Indigenous community⁴⁷.

Another criticism of cultural competency training in Australia is that it may be tokenistic and one-off training is insufficient^{5,9}. Emergency trainees should be encouraged to complete placements in Aboriginal community-controlled health services where they can obtain a deeper understanding of Indigenous health⁵. Aboriginal community-controlled health services have proven to provide more

equitable, higher-quality care to Indigenous Australians⁶. It would also provide opportunity to establish meaningful patient-provider relationships that challenges any pre-conceived biases or assumptions, both conscious and unconscious, about Aboriginal and Torres Strait Islander people⁴⁸.

Individual physicians are not inherently at fault for their implicit bias, nor should blame be placed against individuals. However, physicians do have a responsibility to be aware of and actively engaged in efforts to reduce racial disparities in healthcare. Mainstream health services should also assume responsibility for these persisting disparities and should not solely place the onus on Aboriginal health services⁵. Healthcare organisations should examine policies and power paradigms that disproportionately disadvantage Indigenous Australians³⁹ and should endeavour to provide equity-orientated healthcare².

Specific strategies proposed to circumvent implicit bias includes bringing attention and awareness to such biases including non-verbal behaviours that may be perceived as discriminatory⁴⁹. Once attention is drawn to these biases, physicians must acknowledge and challenge any discriminatory values, assumptions or stereotypes they possess towards racial minorities². This involves self-reflection in everyday practice to attain a more nuanced understanding of their own racial bias and the potential impacts these may have on their patients⁵. Elimination of stereotyping of Indigenous Australians may be aided by exposure to counter-stereotypes by establishing meaningful relationships^{49,50} and promoting greater intercultural understanding⁵⁰. These approaches should avoid pathologising Aboriginal and Torres Strait Islanders⁴⁸ or placing blame on individuals of this marginalised group.

Literature Gaps & Avenues for Future Research

As we have alluded to, there are significant literature gaps in this research area. Currently there are no studies assessing the impact of implicit bias on actual provider-patient interactions in the ED setting. A comprehensive study that includes different ED personnel from multiple institutions and assesses other measures of quality of care, including patient perceptions of physician bias, would be very valuable. Furthermore, a longitudinal study of implicit bias would be useful to assess longer term health outcomes, including chronic psychological stressors resulting from racial discrimination⁴².

We were unable to find any studies assessing implicit bias of ED doctors towards Aboriginal and Torres Strait Islander people, and our ability to generalise the results from international literature was limited. The Australian cases studies we examined indicate the importance of further research to include an investigation of implicit bias in regional/low resource settings and in cases that may be prone to more clinical ambiguity. Another important area for further literature to explore is implicit bias against Indigenous healthcare workers.

Limitations to our study

We recognise that our review had several limitations. Firstly, it is possible that we inadvertently excluded other studies utilising emergency vignettes or that included a subset of ED doctors in a larger cohort. Secondly, we only included studies that included a formal measurement of implicit bias.

CONCLUSION

It is evident that implicit racial bias exists among ED physicians, however the subsequent effects on patient outcomes has not been interrogated sufficiently in existing literature. Despite this, it is undeniable that interpersonal and institutional racism contributes to persisting healthcare disparities among racial

minorities. This is highlighted through Australian case-studies, whereby racial stereotyping and pre-conceived presumptions contributed to fatal consequences for the Aboriginal and Torres Strait Islander community.

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Table 1: Data Extraction Table

Source	Population	Research question	Intervention	Mean IAT D score*	Association of implicit bias with clinical decision-making	Limitations	Strengths
Green et al., 2007	N = 287 Internal Medicine and EM residents	To assess whether implicit racial bias influenced a physician's decision to recommend thrombolysis	Clinical vignette of patient presenting to ED with features of acute myocardial infarction (AMI)	Race IAT = 0.36 (SD = 0.40, $p < 0.001$) Race cooperativeness = 0.30 (SD = 0.39, $p < 0.001$) Race cooperativeness in medical procedures = 0.22 (SD = 0.40, $p < 0.001$)	Implicit racial bias influenced the decision to recommend thrombolysis for AMI	- May not be representative of the clinicians who would normally make thrombolysis decisions - Clinical vignette may not accurately represent real life clinical decision-making	Results adjusted for confounding variables such as physician race, sex, socioeconomic background, explicit race bias and belief of effectiveness of thrombolysis
Haider et al., 2015	N = 230 attending physicians, fellows and residents from a range of specialties (surgery, anaesthesia, ED, critical care)	To determine whether clinician's unconscious race and/or social class biases correlate with patient management decisions	Eight clinical vignettes relating to acute trauma and surgery	Race IAT = 0.42 (95% CI = 0.37-0.48, $p < 0.05$) Social class IAT = 0.71 (95% CI = 0.65- 0.78, $p < 0.05$)	No significant association between IAT scores and clinical decision-making	- Clinical vignette may not accurately represent real life clinical decision-making - Single site	
Hirsh et al., 2015	N=129 residents and fellows from a range of specialties including ED	To determine whether implicit racial bias affects pain management decisions	Twelve clinical vignettes relating to pain management decisions	Race IAT = 0.5 (SD = 0.42, $p < 0.001$)	No significant association between IAT scores and clinical decision-making	Confounding variables were not controlled (e.g. explicit biases and provider opinion of prescription of opioid vs non-opioid analgesia)	- Validated computer software was used to create facial expressions of pain to better reflect actual clinical scenarios - Took into consideration the effects of clinical ambiguity

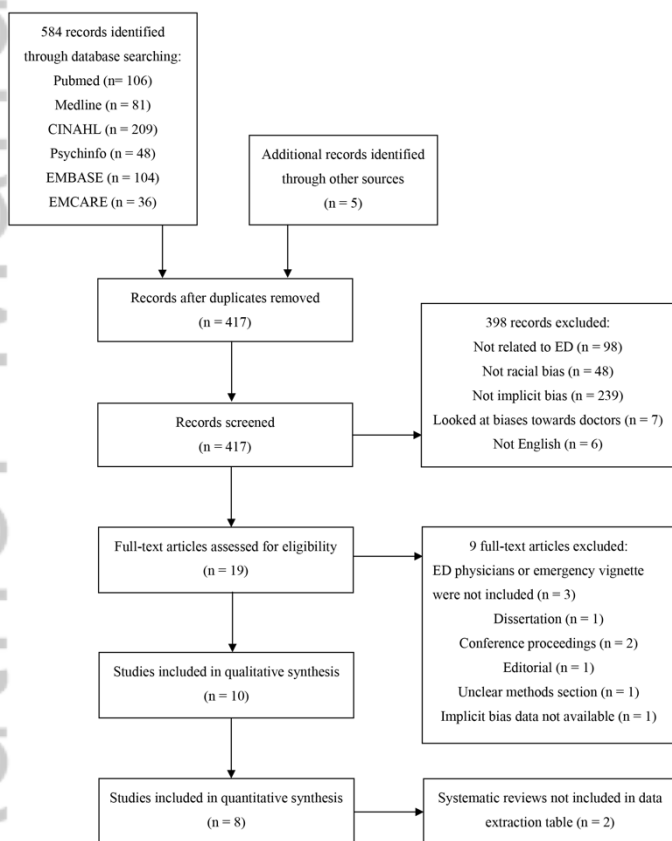
Johnson et al., 2016 & 2017	N=91 residents working in a paediatric ED	To determine whether levels of implicit racial bias are exacerbated post-ED shift Comparison of implicit racial biases towards adults versus children among resident physicians	Race IAT performed pre or post ED shift	Pre-shift race IAT = 0.50 (SD = 0.34, $p < 0.05$) Post-shift race IAT = 0.55 (SD = 0.39, $p < 0.05$) Mean increase of 0.09 (95% CI, $d=0.24$) among those who worked ED shifts that were busy or overcrowded Mean increase of 0.17 (95% CI, $d=0.47$) among those who cared for 10 or more patients during their ED shift	N/A	- Small sample size - Single site - Did not enrol physicians working an overnight ED shift - Participants who completed the IAT pre-shift were not matched with those who completed the IAT post-shift according to race, sex and other important demographics	
Puumala et al., 2016	N=154 physicians, nurses and advanced practice providers working in EDs	To assess both implicit and explicit bias and their relationship with clinical care	Four clinical vignettes relating to asthma care and pain management	Race IAT = 0.53 (95% CI = 0.40-0.66, $p < 0.05$)	No significant association between IAT scores and clinical decision-making	- Confounding variables were not controlled for (e.g. diversity education of physicians, socioeconomic status) - Novel race IAT not validated	Five different EDs used in sample
Sabin et al., 2008 & 2012	N=86 paediatricians	To determine whether there is an association between pro-white attitude, racial stereotypes and treatment recommendations	Four clinical vignettes relating to paediatric management of asthma, UTI, ADHD and pain	Race IAT = 0.18 (SD = 0.44, $p = 0.01$) Race-medical compliance = 0.25 (SD = 0.42, $p = 0.001$)	Prescription of narcotics for African American patients were reduced in those with a pro-white bias on the IAT No significant correlation between implicit bias and treatment recommendations for UTI, ADHD or asthma	- Small sample size - Single site - Medical compliance IAT not validated - Clinical vignettes may not accurately represent real life clinical decision-making	

* D-scores: 7-point scale whereby a score of -0.15 to 0.15 = no preference, 0.16 to 0.34 = minor preference, 0.34-0.64 = moderate preference and a score ≥ 0.65 = strong implicit preference against a stereotyped group³²

Table 2: Forms of Racism

Term	Definition
Interpersonal racism	Unfair treatment or discriminatory interactions between individuals based on race which may manifest as either derogatory or privileging comments, attitudes or behaviours ⁵
Institutional racism	Institutional or organisational policies, values, norms and practices that either disadvantage or advantage members of particular races ³⁹
Structural racism	Societal and government laws, policies, values, norms and practices that create or maintain racial disparities in access to resources, opportunities and power ³⁹

Figure 1: PRISMA diagram



Appendix 1: Search strategy

#	Searches	Results
1	(implicit bias or unconscio?s bias).ab. or implicit bias.ti. or unconscio?s bias.ti. or unaware bias.ti.	576
2	*prejudice/ or exp racism/	15068
x3	*"Attitude of Health Personnel"/eh [Ethnology]	561
4	*Emergencies/	12948
5	exp *Emergency Service, Hospital/	46149
6	(emergency department* or ED).ab. or emergency department*.ti. or ED.ti. or emergency*.ti. or emergency*.ab.	291250
7	racism.ab. or racism.ti. or racial prejudice*.ab. or racial prejudice*.ti. or race.ti. or race.ab. or racial discrimination.ab. or racial discrimination.ti. or covert racism.ti. or covert racism.ab. or racial bias*.ab. or racial bias.ti.	109427
8	1 or 2 or 3	16013
9	4 or 5 or 6	308075
10	2 or 7	121149
11	8 and 9 and 10	115
12	limit 11 to yr="2005 -Current"	82