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Ethnicity-related stereotypes and their impacts on medical students: A critical narrative review of health professions education literature

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ABSTRACT

Background: Stereotypes are oversimplified beliefs about groups of people. Social psychology concepts and theories describing ethnicity-related stereotypes are well reported in non-medical educational settings. In contrast, the full impact of stereotyping on medical students, and the extent to which they were represented in health professions education (HPE) is less well-described. Using the lens of social psychological theory, this review aimed to describe ethnicity-related stereotypes about medical students portrayed in HPE literature and the impacts of those stereotypes.

Methods: A critical narrative approach was undertaken. Social psychology concepts and theories were used as a framework through which to review the impacts of ethnicity-related stereotypes on medical students as described in HPE literature. A database search of Ovid MEDLINE, JSTOR, Project Muse, and PsychINFO was conducted to identify both theoretical and empirical articles relating to this topic in the HPE literature. Data was synthesised using thematic analysis, giving particular care to appraise the evidence from perspectives in social psychology.

Findings: In HPE, the experiences and impact of stereotyping on learners from minority ethnic groups was explained by social psychology concepts such as stereotype threat, stereotype reactance, attributional ambiguity, self-fulfilling prophecy, stereotype boost, stereotype lift, and stereotype masking. Stereotype boost and stereotype lift were particularly described among students who identified as White, whereas stereotype threat was described more commonly among students from minority ethnics groups. The impact of stereotyping is not just on assessment, but may be across all teaching and learning activities at medical school.

Interpretation: Social psychology concepts and theories can be used to describe the experience and impact of ethnicity-related stereotypes in HPE. Educators can better support learners from minority ethnic groups by self-reflecting over assumptions about individuals from minority ethnic groups, as well as minimise the impact of stereotyping and bias to create more inclusive learning environments.

KEYWORDS
Medical education research; change; student support; medicine; teaching & learning

Introduction

Assumptions are made about patients from minority ethnic backgrounds based on stereotyped opinions rather than evidence-based medicine (Van Ryn and Burke 2000; Lim et al. 2021). There is a growing recognition that a similar phenomenon is likely happening in medical education to minority ethnic students (Woolf et al. 2013). Minority ethnic students here refers to students from a different ethnic group to the dominant ethnic group in the country in which they live, for the example individuals who are White British form the dominant ethnic group in the United Kingdom (UK) (Bravata et al. 2020). Aside from stereotyping affecting the lived experience of these students, there is evidence that stereotyping may be contributing to the achievement or attainment gap in medical education as

well (Woolf et al. 2013). Stereotypes are oversimplified beliefs that homogenise all persons in a group into a single characteristic or descriptor (Mcgarty et al. 2002). Given stereotypes are socially constructed and operate on an intergroup level (Haslam et al. 2009), insights about their nature can be gained from integrating perspectives from social psychology and cognitive science.

Data suggest stereotypes function to emphasise a person's similarities with others in their 'in'-group and accentuate differences of those who are not (Haslam et al. 2009). This social impact of stereotyping may be better understood in relation to cognitive processes, specifically those related to unconscious information-processing (McGarty et al. 2009). Humans instinctively stereotype and categorise individuals on the basis of demographic characteristics (Jacoby et al. 1992; Bargh and Chartrand 1999; Wheeler

Practice points

- The impact of stereotyping on medical students can be explained by several well-described phenomena in social psychology research: stereotype threat, stereotype reactance, attributional ambiguity, self-fulfilling prophecy, stereotype boost, stereotype lift and stereotype masking.
- Stereotypes that group individuals that are highly heterogeneous based on one shared ethnic characteristic inevitably leads to stereotypes that neglect individual values that are critical for effective medical education and the development of clinical reasoning skills.
- Stereotypes do not exist solely for one specific group in health professions education literature.
- Positive stereotypes may in their own way be contributing to the differential attainment among students of various ethnicities at medical school.
- There are strategies that can reduce the adverse impacts from stereotypes on medical students.

and Fiske 2005) since these provide the mental shortcuts (heuristics) that help individuals manage the significant cognitive effort and time required to assimilate and process constant streams of information around them (Macrae et al. 1994). Whilst heuristics can be helpful for reducing the complexity of that information, stereotypes about individuals prioritise generalisation over individualisation (Wheeler and Fiske 2005), and therefore can lead to bias.

There has been research into bias, stereotypes, and prejudice in the field of social psychology (Watson et al. 2011; Hall et al. 2015; Charlesworth and Banaji 2019), particularly investigating the impact of these phenomena on minority ethnic groups (Watson et al. 2011; Hall et al. 2015). For instance, when students who self-identified as African American were given a task framed as an intelligence test, they performed worse than individuals who self-identified as White (C. M. Steele and Aronson 1995). However, when the same task was framed as non-diagnostic of intelligence, no difference in performance was observed between individuals from different ethnic groups (C. M. Steele and Aronson 1995). In other words, performance was negatively impacted by a stereotyped identity (e.g., intelligence) being activated prior to a test being touted to measure something linked to said stereotype. Such phenomena may exist in medical education (Burgess et al. 2010), and could play a role in the differential attainment among students of various ethnicities at medical school (Woolf et al. 2013). Even before arriving at university, bias is demonstrable and an explanatory variable for the differential admission of minority ethnic candidates into medical school (Esmail et al. 1995; McManus et al. 1995).

However, it was unclear as to whether social psychological concepts and theories developed in other educational settings are transferrable to explain lived experiences in medical education (Given 2012), and if so, the extent to which they were represented in health professions education (HPE) literature. To fill this gap, we conducted a critical narrative review that primarily aimed to describe the ethnicity-related stereotypes about medical students that were portrayed in HPE literature and the impacts that those stereotypes were described to have on individuals. This review aimed to make sense of these impacts through the lens of various social psychological theories. Given medical educators have a social responsibility to ensure inclusive learning environments (Razack and Philibert 2019), this review facilitates this by raising awareness of ethnicity-related stereotypes, their impacts on medical students, and gaps in the extant literature.

Methods

Organisational framework

Given the interpretivist nature of this research, and limited number of empirical studies within healthcare professions that have drawn on social psychology concepts for investigating in this area, a critical narrative approach was used to explore ethnicity-related stereotypes about medical students in HPE literature and the impacts of those stereotypes. In completing our critical narrative review, we followed the frameworks laid out by Grant and Booth (2009) and Dixon-Woods et al. (2005) This involved identifying a selection of relevant articles on this topic, evaluating them according to their judged contributions (i.e., an article detailing the impact of an ethnicity related stereotype on medical students) – rather than their methodological quality –, and offering a reflexive interpretation of their content. This inductive approach to analysing the results of the knowledge synthesis enabled a social psychological lens to be used to evaluate the impact of ethnicity-related stereotypes on medicals students.

Stereotype threat (Steele and Aronson 1995), stereotype reactance (Kray et al. 2001), attributive ambiguity (Crocker et al. 1991), identity threat (Derks et al. 2016), self-stereotyping (Kaldis 2013), self-fulfilling prophecy (Kaldis 2013), stereotype boost (Shih et al. 2012), and stereotype lift (Walton and Cohen 2003) are well-described social psychological theories that occur secondary to stereotypes. These social psychological concepts and theories were used as a framework through which to review the impacts of ethnicity-related stereotypes on medical students as described in HPE literature. It should be noted that while each phenomenon is mentioned as a discrete concept in this review, they are generally linked and should ideally be viewed as overlapping in practice. To better learning environments, it is critical that the impacts of a stereotype on individuals are considered.

Given the focus of the review was on ethnicity related stereotypes, it was also essential that the significant heterogeneity in the terms used to describe medical students of various ethnicities was addressed before the review was conducted. The fact that the term 'African American' is used in the United States of America (USA), whilst terms such as BME (Black or Minority Ethnic) or BAME (Black, Asian, and Minority Ethnic) are more prevalent in the UK likely derive from the social histories of these countries (Eligon 2020). Devising new categorisations that truly represented the geographical, behavioural, social, and cultural diversity of individuals would not only be challenging but could lead to misclassification and mischaracterisation.

Therefore, for the purposes of this review the choice was made to continue using the terms cited in the original article when describing ethnicity-related stereotypes and their impacts, also allowing for a more granular description of the demographic group affected by a stereotype.

Selection and search criteria

There were no restrictions on language or article type. Articles were included if they described [1] an ethnicity-related stereotype on medical students AND its impact, OR [2] a social psychological theory that explained the impact of an ethnicity-related stereotype on medical students. Although culture, ethnicity, and race are not merely synonyms for one another – they point to vastly different dimensions of social order –, there is extensive evidence that researchers often use the terms interchangeably (Hamer et al. 2020). Therefore, articles describing stereotypes attributed to race and culture were included too. Articles that were not related to HPE were excluded. Prior to the commencement of this study, all reviewers attended an online training and support session to ensure an accurate and standardised approach to the overall methodological process. The search strategy, data synthesis and synthesis of results described below were formulated based on frameworks for conducting critical narrative reviews (Dixon-Woods et al. 2005; Eva 2008; Grant and Booth 2009; Norman and Eva 2018).

Two parallel searches of academic bibliographic databases and grey literature were undertaken. This ensured the search returns were large enough to be a representative sample of the health professions education (HPE) literature.

Bibliographic search: the search strategy for this review was executed in Ovid MEDLINE, JSTOR, Project Muse, and PsychINFO, covering the period from each database inception to November 26th, 2020. The search strategy used variants and combinations of search terms related to *stereotypes*, *ethnicity*, *education*, and *health professions*. A sample database search strategy is provided in Supplementary Appendix S1. The retrieved studies were exported, and duplicate articles were discarded. Three reviewers (three of CTB, YGB, AC, AA, HK, or NB) independently screened the titles and abstracts of identified records based on the inclusion and exclusion criteria listed above. The full texts of the remaining articles were retrieved and screened by two reviewers independently (SB and one of CTB, YGB, AC, AA, or HK). Disagreements were resolved by mutual agreement. The reference lists of all included articles and previously excluded review articles were scrutinised to locate additional relevant publications not identified during the database searches. The reviewers also consulted with senior medical educators and social psychologists to identify additional publications.

Grey literature search: a grey literature search was performed to include additional sources that described either [1] an ethnicity-related stereotype on medical students AND its impact, OR [2] a social psychological theory that explained the impact of an ethnicity-related stereotype on medical students. These sources included articles not indexed in the databases searched above, educational reports, and books. Snowball searching using a web-based search engine (Google) was used to find these additional sources. A pragmatic approach was taken for the grey literature search, where only results from the first 3 pages of hits were definitively examined. The reference list of all included documents identified through the grey literature search was examined to identify any further relevant documents missed through the above search strategy, until a saturation point was reached where no new sources were identified.

All searches were completed in duplicate by two reviewers independently. A third reviewer validated these searches and resolved any disparities when they arose.

Data extraction

Data extraction was completed in duplicate by two reviewers independently (SB and one of CTB, YGB, AC, AA, or HK). A third reviewer validated the data extracted and resolved any disagreements. Several data points were extracted, including publication characteristics, article type, ethnicity-related stereotypes about medical students, and the impacts that those stereotypes were described to have.

Synthesis of results

The ethnicity-related stereotypes about medical students that were reported to have an impact were descriptively presented. Thematic synthesis was used to explain the impact of an ethnicity-related stereotype on medical students through the lens of a social psychological theory, as this allowed for common elements from the different articles to be brought together via an inductive process. Thematic synthesis is a pragmatic approach to qualitative analysis that involves searching for patterns or themes across an entire dataset. Critically for the purposes of this review, thematic analysis facilitates both inductive and deductive strategies (Braun and Clarke 2006), enabling the analysis of HPE literature to be explicitly informed by pre-existing theories in social psychology.

During the inductive process of coding the data points and generating themes, priority was given to fairly representing all the different perspectives about the phenomena under investigation to produce a respectful and balanced judgment of the assumptions and the associated evidence reported in the included studies. To appraise the evidence from multiple perspectives, the research team consisted of individuals that represented a spectrum of social psychology thought, from biopsychosocial to social-learning to social-cognitive to humanistic. The research team consisted of authors from a wide spectrum of ethnicities that were representative of the groups being discussed. Regular team discussions were had to discuss divergent opinions and refine the synthesis of the results.

Results

Ethnicity-related stereotypes are portrayed in HPE literature

Following the process described above, 14 articles were included for the purposes of this review (Figure 1). There were several unique stereotypes specific to minority ethnic
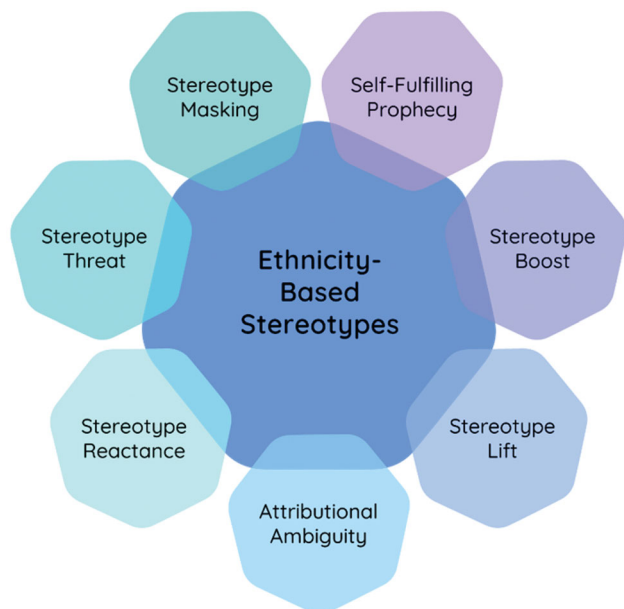
Figure 1. Phenomena that will be used as a framework through which to review the impacts of ethnicity-related stereotype in medical education.

groups in healthcare professions education (Table 1). Distinct and different stereotypes were reported to exist of 'Asian,' 'Black,' 'African-American,' 'Latinx,' 'Native-American' and 'White' medical students. Two of the included texts grouped all non-White health professions students together when discussing stereotypes about minority ethnic students and did not account for the different stereotypes that exist for individuals from each minority ethnic subgroup (Burgess et al. 2010; Kupiri Ackerman-Barger et al., 2015).

Stereotype threat

Steele and Aronson (1995) defined *stereotype threat* as being 'at risk of confirming, as self-characteristic, a negative stereotype about one's group.' In this review, stereotype threat was described in 8 out of 14 articles in HPE literature (Bullock et al. 2020; Bullock and Houston 1987; Erwin et al. 2002; Kupiri Ackerman-Barger et al., 2016; Lempp and Seale 2006; Liebschutz et al. 2006; Morrison et al. 2019; Woolf et al. 2008). The impact of stereotype threat on medical students included stress, anxiety, self-doubt and fear. With respect to the impact of learning, the consequent stress arousal limited the cognitive resources that individuals could allocate to a given task:

> A white boy goes into class to take a test and he just has to worry and concentrate on the test. Every time a black boy goes into the class he has to try hard to stay focused on the work, on the content, because he's worrying about what the professor thinks of him, what the other students think of him, whether or not he has on the right clothes, or is acting the right way, or what his mother will do if he doesn't do well on this test. (Erwin et al. 2002)

This stress arousal also increased stereotyped individuals' sense of self-consciousness about performance and self-worth (Bullock et al. 2020; Kupiri Ackerman-Barger et al., 2016; Liebschutz et al. 2006). Black medical students described how anxious they became when they did not do well in exams as they felt they had lived up to the stereotype of not being intelligent and reinforced beliefs that

others held about Black people (Kupiri Ackerman-Barger et al., 2016). Black (Liebschutz et al. 2006; Kupiri Ackerman-Barger et al., 2016) and Latinx students (J. L. Bullock et al. 2020) also had self-doubts about whether they deserved to be in medical school due to the stereotype of being intellectually inferior. They expressed feelings of wondering whether they were just admitted because of affirmative action; in other words medical schools wanting 'to recruit more people of color' (Liebschutz et al. 2006). Stereotypes about confrontation affected Black medical students (Bullock et al. 2020; Claridge et al. 2018; Morrison et al. 2019). The existence of these particular stereotypes hindered Black students from continuing in HPE (Dana L. Carthron, 2007), especially if they felt they could not oppose perceived structural issues to their progression for fear of being labelled as confrontational and living up to the stereotype.

Different stereotypes resulted in stereotype threat among different groups of medical students. For instance, the stereotypes of medical students pursuing medicine to conform to their parents' wishes rather than an intrinsic motivation (Woolf et al. 2008; Morrison et al. 2019) affected Asian students. Whereas stereotypes about individuals not being as intelligent as their contemporaries of other skin colours affected Black and African American students (Bullock and Houston 1987; Erwin et al. 2002; Kupiri Ackerman-Barger et al., 2016; Lempp and Seale 2006; Liebschutz et al. 2006; Woolf et al. 2008). Furthermore, actual stereotyping did not need to have occurred in order for stereotype threat to occur; it was sufficient for an individual to merely have knowledge that a negative stereotype existed about a demographic group they belonged to (Claridge et al. 2018).

Attributive ambiguity and self-fulfilling prophecy

Crocker et al. (1991) defined *attributive ambiguity* as individuals questioning the validity of any judgment about their competency or performance as a consequence of stereotyping. The ambiguity results in individuals being uncertain as to whether the feedback they are being given is genuine and based on actual performance, or whether feedback has been biased by stereotyping. In this review, attributive ambiguity was described in 2 articles. Black students reported feeling uncertain as to whether negative feedback was due to an evaluator's stereotypes about Black people rather than due to actual shortcomings in performance (J. L. Bullock et al. 2020). The same logic was applied to their feelings about positive feedback (Kupiri Ackerman-Barger et al., 2015).

A *self-fulfilling prophecy* is described as a phenomenon where beliefs or expectations – whether correct or not – can become perceived to be true because of people's behaviours aligning to fulfil a particular stereotype (Kaldis 2013). In this review, self-fulfilling prophecy was described in 6 articles. At an individual level, stereotypes that depicted minority ethnic students as less capable, less valuable, and less successful contributed to minority ethnic individuals changing the way they perceived themselves, acting in a stereotype-consistent way, and confirming to their own erroneous expectations (Kupiri Ackerman-Barger et al., 2015):

I am not going to study because, you know, students like me don't do well on these tests anyway, so why should I even try? (Kupiri Ackerman-Barger et al., 2015)

At a social level, stereotypes were also reinforced as peers from other ethnic groups changed their behaviour in response to prevailing stereotypes. Minority ethnic students were perceived to be less sociable (Beagan 2003) or less likely to join team bonding activities (Roberts et al. 2008). These beliefs were then further reinforced through planning social activities that were exclusionary of certain minority ethnic students, such as 'drinking games' (Roberts et al. 2008; Claridge et al. 2018).

At an institutional level, health professions educators holding stereotypes of minority ethnic students also resulted in them changing their behaviours in a stereotype-consistent manner. Health professions educators stereotyping Asian medical students as 'reserved,' were subsequently 'antagonistic' towards them during teaching sessions in order to just elicit an active response (Woolf et al. 2008). This change in behaviour resulted in these students feeling less able to interact with their health professions educator (Woolf et al. 2008), further perpetuating the original stereotype. Similar stereotypical beliefs held by health professions educators about the intelligence of African American students being insufficient for them to become doctors resulted in advice that prevented African American students from accessing enhanced educational opportunities and progression towards applying to medical school (Erwin et al. 2002).

Stereotype lift and stereotype boost

Stereotypes do not solely have a negative impact on individuals. Walton and Cohen (2003) described *Stereotype lift*: a phenomenon where stereotypes of people who are not members of the 'in'-group results in a positive impact on an individual. In this review, stereotype lift was described in 1 article: white medical students reported feeling that they were better communicators than Asian medical students because of the stereotype of Asian medical students being poor communicators (Woolf et al. 2008). In contrast to stereotype lift, Shih et al. (2012) described *stereotype boost* as an individual receiving a positive motivational arousal from a stereotype of people who were members of the 'in'-group. In this review, stereotype boost was described in 2 articles. White medical students were positively impacted when exposed to socio-cultural cues that invoked positive stereotypes about demographic groups that they self-identified with (Beagan 2003; Woolf et al. 2008):

Perhaps I bond better with the students and the residents and the staff members just because I come from the same background as the other doctors do…. I've often felt – because I fit like a stereotyped white male – that patients might see me as a bit more trustworthy. A bit more what they'd like to see. Who they want to see. (Beagan 2003)

The basic premise of stereotype boost – an individual receiving a performance boost from a stereotype about a social group they identify with – was also described to occur among Asian medical students. The stereotype of 'conscientious, hard-working, and bright' was a driver for some Asian students to work harder than others around

them (Woolf et al. 2008). The motivating factor for these Asian students was a pressure to avoid being labelled as an under-achiever (Woolf et al. 2008). Therefore, this stereotype invoked unpleasant motivational arousal.

Stereotype reactance

Kray et al. (2001) described stereotype reactance as the phenomenon of individuals adopting or strengthening an attitude contrary to a stereotype. In this review, stereotype reactance was described in 3 articles (Bullock and Houston 1987; Erwin et al. 2002; Liebschutz et al. 2006). In these articles unpleasant motivational arousal was described to occur when individuals were exposed to stereotypes that denigrated a demographic group that they self-identified with. For example, Black and African American medical students felt motivated to work harder because they were explicitly aware that they were perceived to be intellectually inferior (Bullock and Houston 1987), and they did not want to settle for being average:

have to be 10 times better to get the same respect [as a White student] (Erwin et al. 2002)

The motivation to work hard was due to a pressure to prove to themselves that they belonged but was also fuelled by a distrust of the system surrounding them. There was also a resultant belief that they needed to ensure their own success and to protect themselves as best they could from punishment or reprisal (Liebschutz et al. 2006).

Stereotype masking

In this review, 5 articles described some minority ethnic medical students attempting to distance themselves from a given stereotype. They did this by either disconnecting from the identity linked to that stereotype (Bullock and Houston 1987; Roberts et al. 2008) or hiding the facets of their identity linked to that stereotype (Woolf et al. 2008; Claridge et al. 2018; Morrison et al. 2019). This phenomenon has been described to be akin to the identity threat described in the Queen B phenomenon related to gender stereotypes by Derks et al. (2016). Appearing to be a form of *stereotype masking*, minority ethnic student felt as though they needed to be someone other than who they were:

felt pressure to become like [White medical students], to mingle in … to stop frequenting the minority office, to speak like them, act like them, play rugby. (Bullock and Houston 1987)

Minority ethnic students were also negatively impacted by trying to change how they spoke in order to try and seem more 'like a [stereotypical White] doctor' (Claridge et al. 2018). This pressure to fit in was linked to minority ethnic students feeling like they were not part of the accepted majority group, whether this was due to the clothes they wore (Woolf et al. 2008), their physical characteristics (Roberts et al. 2008), or a perception of appearing 'foreign' (Morrison et al. 2019).

Practical implications of this review

Adverse impacts from stereotyping may be reduced by training individuals in cultural humility (Tervalon and Murray-García 1998). The training of health professions learners to develop cultural humility across an undergraduate curriculum is challenging given all the other demands competing for their time and attention. Nevertheless, medical schools should ensure curricula are sufficiently diverse in terms of content – reflecting the identities of minority ethnic students when appropriate to do so – and create early opportunities for students from different groups to integrate in meaningful ways (Incision UK Collaborative, 2020). Structured dialogue groups involve individuals – health professions educators and learners – formally coming together, divulging information about themselves, and reflecting on their educational experiences in a non-judgmental setting (Burgess et al. 2010). Hearing from other individuals who are experience similar issues could also reduce an individual's feeling of social isolation (Ma et al. 2020) and tackle the impact of stereotype masking which seems to be primarily driven by the feeling of being 'the odd one out.' Likewise, structured dialogue groups may also reduce stereotype threat experienced by minority ethnic students if similar stories of hardship are heard from individuals who do not belong to the group being stereotyped (Burgess et al. 2010). Structured dialogue groups may also facilitate the creation of allies from non-stereotyped groups, who empower stereotyped individuals to challenge misrepresentation or mischaracterisation (Beagan 2003). Demonstrating these behaviours among health professions educators is important for building trust with students from minority ethnic groups and decreasing both the adverse impacts of stereotypes and student' pressure to disprove them (J. L. Bullock et al. 2020). Alongside creating this shared space, educators acting with integrity and in a manner that inspires the confidence of minority ethnic students to trust faculty and the wider system in general is also essential. This specific type of role-modelling remains one of the few interventions that reduces attributive ambiguity (Cohen et al. 1999).

Discussion

The findings from this review confirm that ethnicity-related stereotypes are portrayed in HPE literature (Table 1) and the impact of stereotyping on medical students can be explained by several well-described phenomena in social psychology research: stereotype threat, stereotype reactance, attributional ambiguity, self-fulfilling prophecy, stereotype boost, stereotype lift and stereotype masking (Figure 1). The review also highlights the profound impact of stereotypes resulted in individuals perceiving the need to change their thoughts, feelings, and behaviour when in social situations; in some cases, having to disidentify with themselves to maintain self-esteem in the face of judgement (J. Steele et al. 2002). The findings have implications for HPE, especially given that the curriculum is experienced differently by minority ethnic students, and educational outcomes also are significantly different compared to other groups of students (Woolf et al. 2013).

A number of ethnicity-related stereotypes were identified within HPE literature, both within and across different groups of students from Asian to Latinx to White individuals (Table 1). Some of these stereotypes – for example those surrounding communication and motivation to study the degree (Woolf et al. 2008; Morrison et al. 2019) – were centred around the context of medical education. These stereotypes aimed to group individuals that are highly heterogeneous based on one shared ethnic characteristic. This inevitably leads to stereotypes that neglect individual values that are critical for effective medical education and the development of clinical reasoning skills (Moyo et al. 2019). In contrast to the HPE specific stereotypes mentioned above, we also identified stereotypes for minority ethnic students (Bullock and Houston 1987; Lempp and Seale 2006) that have been applied to minority ethnic patients in the context of healthcare too (Van Ryn and Burke 2000). The context and culture of healthcare and education are different. There is no reason why ethnicity-related stereotypes about patients and students from minority ethnic groups would or should be the same. It is likely individuals were grouped together on their physical characteristic of skin colour – rather than the shared culture behind having that skin colour – and a generalisation was made that all individuals in this group shared a biological characteristic: a degree of intelligence. These stereotypes were therefore more likely to be race-based rather than ethnicity-related. Continuing to perpetuate stereotypes centred around race being a biological concept in HPE (Bullock and Houston 1987; Lempp and Seale 2006) risks medical students internalising these stereotypes and utilising them in their professional practice (Van Ryn and Burke 2000), which can lead to serious medical errors (Braun et al. 2007).

The findings in Table 1 also underscore stereotypes do not exist solely for specific groups in HPE. This has implications beyond ethnicity. Stereotypes exist in HPE literature for other demographic characteristics, such as age (Jauregui et al. 2020), gender (Bleakley 2013), disability (Takakuwa 1998), and sexual orientation (Burke et al. 2015). However, it is unclear what the impacts of these non-ethnicity-related stereotypes are and how they interplay with the impacts of the stereotypes described in this review. A woman Asian medical student would be impacted by stereotypes about Asians and women depicted in HPE. However, these stereotypes could be contradictory: 'poor communicator'(Woolf et al. 2008) versus 'better communicator'(Tanne 2002) respectively. The combined effect of both stereotypes on the individual may be vastly different from the impact of each stereotype in isolation. Therefore, the current studies investigating the impact of ethnicity-related stereotypes on medical students have been insufficient. To continue with the example of gender, all individuals simultaneously belong to a gender and ethnic group. In non-HPE literature, the intersection of these categories has been shown not only to alter the impact of an ethnicity-related stereotype (Ghavami and Peplau 2013), but change the content of the stereotype itself (Eagly and Kite 1987; Schneider and Bos 2011). Future studies that investigate the impacts of ethnicity-related stereotypes in HPE through the lens of intersectionality theory (Cole and Zucker 2007) and social dominance theory (Sidanius and Pratto 1999) – both of which take into account that

Table 1. An alphabetical list of the studies that described ethnicity-related stereotypes about medical students in health professions education literature.

Author, Year (Study ID)	Country	Literature type	Ethnicity of medical students	Ethnicity-related stereotypes in health professions education
(Kupiri Ackerman-Barger et al., 2015)	USA	Perspective: Expert opinion	Underrepresented minority medic (URM) students (defined here as African Americans, Latinos/as, Native Americans, Pacific Islanders, and members of such Asian groups as Vietnamese, Hmong, and Cambodian)	'[URM students] are less capable'
(Kupiri Ackerman-Barger et al., 2016)	USA	Mixed-methods study	African American, Hispanic/Latino, Native-American, or White students	'People of color are not as smart'
(Beagan 2003)	Canada	Mixed-methods study	Minority and non-minority students	'White students … [are] what patients expect to see' 'Chinese people are seen as … not really social'
(Bullock and Houston 1987)	USA	Qualitative study	Black Medical Students	'Black students were felt to be intellectually inferior to whites.'
(Bullock et al. 2020)	USA	Mixed-methods study	Black, Latinx, Middle Eastern, Asian, and multiracial students	'The trope of an angry Black woman' '[Latinx students] are getting in because of affirmative action'
(Burgess et al. 2010)	USA	Review	URM students (defined here as blacks, Native Americans, Mexican Americans, and mainland Puerto Rican) and White students	'[URM students] are dumb'
(Claridge et al. 2018)	UK	Qualitative study	Black, Asian and Minority Ethnic (BAME) medical students	'Angry Black woman'
(Erwin et al. 2002)	USA	Qualitative study	African American students	'[African Americans] are dumb' '[African Americans] are not good enough'
(Isaac 2019)	USA	Perspective: Expert opinion	URM students (defined here as Black, Latinx, and non-majority Asian students)	'The Angry Black Wo/man.'
(Lempp and Seale 2006)	UK	Qualitative study	'non-White' students	'[Black students] have to justify [their] intelligence all the time'
(Liebschutz et al. 2006)	USA	Qualitative study	Black medical students	'[Black students] are not as good'
(Morrison et al. 2019)	UK	Qualitative study	Black and Minority Ethnic (BME) students	'foreign' '[Black students] … labelled as aggressive or intimidating' '[Asian students]' choice to study medicine was to conform to their parents' wishes rather than internal motivation'
(Roberts et al. 2008)	UK	Qualitative study	White British and Ethnic Minority students	'Asian people… won't be working in a team'
(Woolf et al. 2008)	UK	Qualitative study	Asian and White medical students	'Asian student was viewed as conscientious, hardworking, and bright… over-reliant on books … inflexible and less able to adapt to new ways of behaving… a poor communicator… shy, quiet, reserved, and under-confident… likely to be studying medicine to conform to their parents' wishes' 'White students were perceived… as being autonomous learners who were dedicated and self-motivated; were tough but sociable team players… confident, outspoken, and good communicators'

Information is provided about the ethnicity of the medical student population and evidence of the ethnicity-related stereotypes referenced in the text. The ethnicity-related stereotypes listed here reflect what we have identified as stereotypes NB. USA: United States of America; UK: United Kingdom.
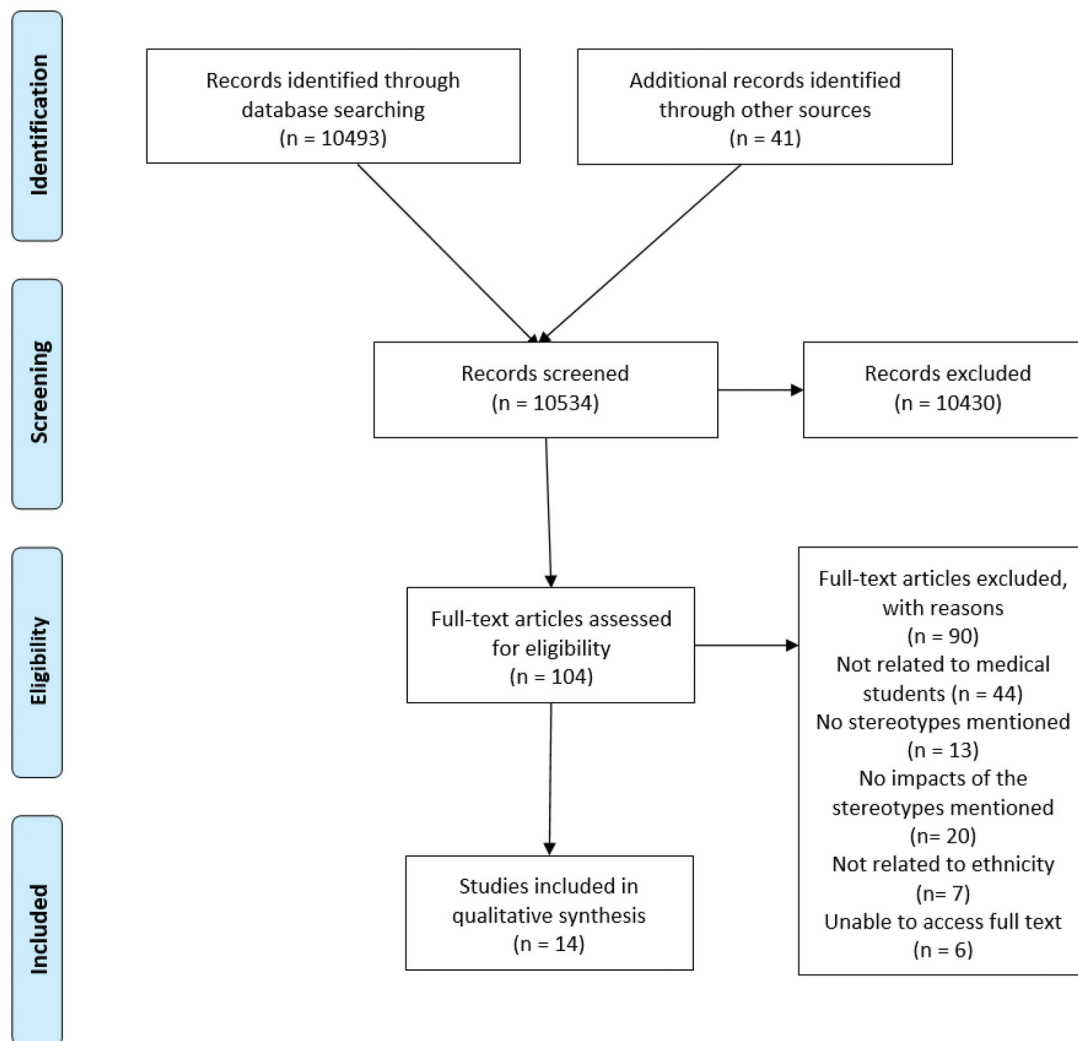
Figure 2. Flowchart of the literature search and study selection process for the critical narrative review. Articles were included if they described [1] an ethnicity-related stereotype on medical students AND its impact, OR [2] a social psychological theory that explained the impact of an ethnicity-related stereotype on medical students. Articles that were not related to HPE were excluded.

individuals belong to multiple demographic groups – are needed, and may yield vastly different results to that described in this review.

The above example involving gender also highlights positive stereotypes exist. As Table 1 shows, positive ethnicity-related stereotypes are present in HPE literature (Beagan 2003; Woolf et al. 2008). Whilst positive stereotypes about White medical students were described to result in stereotype boost (Beagan 2003; Woolf et al. 2008), the same was not true for Asian medical students. This demonstrates the inherent issue with all stereotypes – even those that are seemingly complementary in their portrayal of members of a social group –, they rely on a categorisation process that inherently limits the ability to consider the distinctive individual being stereotyped (Wheeler and Fiske 2005). A growing body of evidence within non-HPE literature suggests that positive stereotypes can lead to harmful impacts for stereotyped individuals' interpersonal and intergroup relationships (Czopp et al. 2015). Indeed, the stereotype of Asian medical students being 'conscientious, hard-working, and bright' placed stress on Asian medical students (Woolf et al. 2008). Such stereotypes have been found to negatively affect the ability of Asian students to ask for help from others (Gupta et al. 2011), and have been linked to students feeling angry or annoyed during group work (Siy and Cheryan 2013).

Therefore, positive stereotypes may in their own way be contributing to the differential attainment among students of various ethnicities at medical school (Woolf et al. 2013). Undue pressure to perform could place students at risk of underperforming: 'choking under pressure'(Wilkinson et al. 2016); unwillingness to seek help could be impeding the formation of peer support networks that are essential for optimising academic achievement (Tinto 1997); and being frustrated during group work could lead to behaviours that are not conducive to effective learning (Iqbal et al. 2016).

A limitation of this review is that it may not only describe ethnicity-related stereotypes, but stereotypes rooted in race. The framing of race-based stereotypes as ethnicity-related stereotypes risks removing some of the truth from the situation. This can only be tackled effectively by future research being more mindful of the distinctions between culture, ethnicity and race (Hamer et al. 2020). For example, the USA articles that used 'Black' as a term tended to contain stereotypes that were highly suggestive of being linked to race (Bullock et al. 2020; Bullock and Houston 1987), but there were exceptions to this rule (Liebschutz et al. 2006). Another limitation of this review is that the various impacts described may not be solely due to the ethnicity-related stereotypes. For example, ethnic minority students not studying for exams (Kupiri Ackerman-Barger et al., 2015) could be driven by structural

inequity in how exams are conducted (Wass et al. 2003). Similarly, ethnic minority students feeling a pressure to fit in could be due to the structural factors that have contributed to high levels of imposter syndrome among this demographic group (Bravata et al. 2020). A further limitation of this review is that the majority of HPE literature around ethnicity-related stereotypes and their impact on medical students is based on work conducted in the USA or the UK. Stereotypes exist in other non-USA and UK HPE contexts, for example Dutch versus Turkish/Moroccan stereotypes that are much more prevalent in the Netherlands (Padgett 2010) were not explored in this review. This review also did not identify social psychology concepts for explaining performance gains in Asian students due to stereotypes, given the underlying psychological phenomenon responsible for these gains were negative and linked to pressure, rather than due to positive feelings linked to stereotype boost (Shih et al. 2012). Finally, this review only identified 14 articles for inclusion. This paucity of literature seems reflective of there not being much published on this topic. There is a need for additional primary research to be conducted in this area.

Conclusion

One of the drivers for undertaking this review was the evidence suggesting stereotyping was likely contributing to the achievement or attainment gap affecting minority ethnic students. The findings from this research confirm that the impact from stereotyping may not just be on assessment, but across all teaching and learning activities at medical school. Although stereotype threat has long been reported (Woolf et al. 2008), the other consequences of stereotyping described in Figure 1 also affect the lived experiences of minority ethnic students on a daily basis. By understanding the types of stereotypes that exist and making sense of their impacts through the lens of various social psychological theories, educators can ameliorate negative outcomes. A key recommendation is for educators to be allies to their learners. This requires researchers and educators – who hold influence in setting agendas and developing recommendations – to continuously evaluate the assumptions, including ethnicity-related stereotypes, they possess about learners, and appropriately amend their attitudes, beliefs, and behaviours towards them.

Authors' contributions

SB and RP contributed to the conceptualising of this review. SB, CTB, YGB, AC, AA, HK, and NB conducted the review of the literature. SB wrote the first draft of this paper. RP, CTB, YGB, AC, AA, and NB made critical revisions of this paper. All authors have approved the final manuscript and are willing to take responsibility for the content.

Glossary

Minority ethnic students: Here refers to students from a different ethnic group to the dominant ethnic group in the country in which they live, for the example individuals who are

White British form the dominant ethnic group in the United Kingdom (UK).

Stereotypes: Are oversimplified beliefs that homogenise all persons in a group into a single characteristic or descriptor.

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