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Health professionals implicit bias of patients with low socioeconomic status (SES) and its effects on clinical decision-making: a scoping review

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ABSTRACT

Objectives Research indicates that people with lower socioeconomic status (SES) receive inferior healthcare and experience poorer health outcomes compared with those with higher SES, in part due to health professional (HP) bias. We conducted a scoping review of the impact of HP bias about SES on clinical decision-making and its effect on the care of adults with lower SES.

Design JBI scoping review methods were used to perform a systematic comprehensive search for literature. The scoping review protocol has been published in *BMJ Open*.

Data sources Medline, Embase, ASSIA, Scopus and CINAHL were searched, from the first available start date of the individual database to March 2023. Two independent reviewers filtered and screened papers.

Eligibility criteria Studies of all designs were included in this review to provide a comprehensive map of the existing evidence of the impact of HP bias of SES on clinical decision-making and its effect on the care for people with lower SES.

Data extraction and synthesis Data were gathered using an adapted JBI data extraction tool for systematic scoping reviews.

Results Sixty-seven papers were included from 1975 to 2023. 35 (73%) of the included primary research studies reported an association between HP SES bias and decision-making. Thirteen (27%) of the included primary research studies did not find an association between HP SES bias and decision-making. Stereotyping and bias can adversely affect decision-making when the HP is fatigued or has a high cognitive load. There is evidence of intersectionality which can have a powerful cumulative effect on HP assessment and subsequent decision-making. HP implicit bias may be mitigated through the assertiveness of the patient with low SES.

Conclusion HP decision-making is at times influenced by non-medical factors for people of low SES, and assumptions are made based on implicit bias and stereotyping, which compound or exacerbate health inequalities. Research that focuses on decision-making when the HP has a high cognitive load, would help the health community to better understand this potential influence.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This scoping review has a previously published protocol and has been conducted in line with international standards for best practice, to ensure rigour and transparency.
⇒ The inclusion of a patient and public interest representative in the research team added quality to this review, by ensuring that the review is relevant, meaningful and informed by the perspective of the people who access and use healthcare services.
⇒ This work summarises the body of evidence in a clear concise manner, which highlights the patterns, advances and gaps in what is known about this topic as well as the priorities for future research.
⇒ Due to the nature of funding, only studies published in English were included, and therefore, this scoping review may have excluded relevant literature published in other languages.
⇒ In keeping with the nature of a scoping review, the quality of literature collected was not evaluated.

INTRODUCTION

Socioeconomic status (SES), a social determinant of health, is a key causative and contributory factor to disparities and inequities in morbidity as well as mortality in many nations.[1–3] There is a wide range of robust empirical evidence from many settings which indicates that people with lower SES tend to have a shorter life expectancy and worse health-related outcomes in comparison to more affluent people.[1–4] People with higher SES have better life chances, and thrive more than those in other socioeconomic groups.[5–7] The causes of the social gradient in health are complex, and the exact nature of the relationship is difficult to establish because it is informed by both individual factors such as health behaviour and also factors associated with economic wealth.[8 9] The gradient in health and SES is also subject to a person's power, prestige and the social connections

they enhance.[5] Therefore, SES-related healthcare disparities are influenced by how a person's SES is perceived by themselves and others.[5 6]

There is evidence that suggests the care people receive is subject to Health Professionals (HPs) implicit bias arising from perceptions of patients with low SES.[10] Every person's thinking is shaped by lived experiences; interacting with people whose lived experience more closely reflects our own can lead people to using a favourable bias; just as unfavourable bias can be attributed to people whose life experience differs from one's own.[11 12] These biases are often subconscious or implicit and manifest in unthinking actions or ill-considered behaviours.[11–15] HPs are susceptible to multiple implicit biases relating to different characteristics such as SES, gender, weight, age and ethnicity in their decision-making.[11 12 16] Implicit biases affect HPs decision-making about different aspects of patient care, such as diagnosis and treatment, often with deleterious consequences for the healthcare of people that are minoritised, marginalised or othered.[17] HPs and patients hold implicit biases alike, which hinder the formation of a therapeutic healthcare relationship, patient experience, clinical decision-making and care quality.[9]

AIM

We sought to scope the reported impact of HP bias about SES on clinical decision-making and its effect on the care for people with lower SES in the wider literature. Our aim in this scoping review was to answer three related research questions:

- RQ1: What has been published about implicit SES bias and HP attitudes or behaviours when deciding and providing care?
- RQ2: How does SES effect the dynamics of the HP and patient relationship?
- RQ3: What recommendations for practice have been postulated, implemented or evaluated to address HP implicit bias related to SES?

Operational definitions

It is important to define key concepts at the onset of this work so that there is clarity about their use in this scoping review. Our operational definitions are summarised in figure 1 and are set out in detail with their underpinning rationale in our protocol for this scoping review.[13]

Socioeconomic status

SES is complex and challenging to define. Internationally, typically countries measure SES using Multiple Indices of Deprivation (sometimes called multidimensions of deprivation), which include economic factors such as income but also factors such as education, physical environment (sometimes known as neighbourhood quality) and health.[13 18] Papers will be included in this scoping review when the connection between SES of the patient (or one of its discrete measures, eg, income, unemployment, education) and HP decisions are explored. There are some limitations to the use of discrete measures like income as proxies for SES, but it is prudent to include papers which include proxy measures of SES, as this is more likely to reflect the way healthcare professionals make decisions, as they encounter people in their practice.[13 19] In other words, we assert that healthcare professionals are more likely to use discrete measures of SES, rather than more robust empirical measures to inform their perceptions of patients in everyday practice.[17] Therefore, we contend that it is apposite to include papers with discrete measures that may be limited in their utility as proxy measures of SES in this scoping review because

Key term	Operational Definition
Health Professional (HP)	Any registered healthcare professional including Doctors, Surgeons, Nurses, Midwives, or Allied Healthcare Professionals.
Clinical Decision-making	A judgement or decision that influences any aspects of care organised or delivered by the HP such as choices made about the diagnostic tests, and referrals seeking specialist input. It also includes decisions about specific treatments such as surgical procedures, therapies, or medications, as well as ceasing or withdrawing active treatment.
Socio Economic Status (SES)	Any single discrete measure of SES as set out in the Multiple Indices of Deprivation or the Multidimensions of Deprivation, including factors such as income, education, physical environment or neighbourhood quality, and health[14,15]. Any discrete measures that can be used as a proxy for the SES of a patient in HP decision-making such as income, unemployment, education.

Figure 1 Key terms and their operational definitions in this scoping review. SES, socioeconomic status.

they offer useful insights into factors relating to healthcare implicit SES-related bias(es) and how they affect HPs decision-making about different facets of patient care in the reality of everyday practice.

HP biases and patient care

Several systematic and scoping reviews[12 16 20] have explored the impact of HPs cognitive biases on patient care. However, only two of these systematic reviews[16 20] have focused specifically on the HP implicit bias and its impact on clinical decision-making as well as the consequences for the quality, safety, equity and appropriateness of patient care.

FitzGerald and Hurst's systematic review[16] explored HPs implicit biases relating to race/ethnicity, age, gender and SES and indicated that biases are likely to influence diagnosis, treatment decisions and levels of patient care. FitzGerald and Hurst's review[16] discusses evidence that social class may invoke more salient bias than bias associated with other characteristics such as race. Beyer *et al*[20] explored factors that influence treatment decisions in localised kidney cancer and found that education and SES, were identified as barriers to HP making equitable treatment decisions.

Willems *et al*'s systematic review[12] focuses on the impact of SES on doctor–patient communication, however, this review does not consider decision-making. Willems *et al*[12] found that patients with lower SES had a less positive dialogue with their doctor, characterised by lower levels of information giving, less interactive discourse and a lower level of doctor advice/instruction.

Bias and decision-making

Biases can be explicit, implicit, favourable or unfavourable, but regardless of form, they are an impediment to judging others fairly, which undermines safe, just and equitable healthcare.[11 16 21–23] Explicit bias occurs when the individual has conscious thoughts, beliefs and awareness that they evaluate people differently based on their characteristics, these evaluations consciously influence their behaviours and decision-making.[8 9 11 24] In contrast, implicit bias is subconscious, and the individual is unaware of its influence on their, cognition, behaviour and decision-making.[24–26] Consequently, there is a more deliberate, volitive and intentional process to decision-making when explicit bias is at play in contrast to the tacit, covert, unintentional nature of the relationship between implicit bias and decision-making.[11 16 23]

Implicit and explicit bias are kindred but independent constructs which raise some methodological challenges and considerations with regard to their measurement.[13 21] Explicit bias relates to 'ways of thinking' that people are aware of and so can be measured through self-report, but there is the risk of people providing socially desirable responses.[21] The subliminal nature of implicit bias requires a different approach to surface and measure it given its multifaceted impact on a person's affect, cognition and behaviour.[21] The Implicit Association Test (IAT) is the most established way of measuring implicit bias and has strong psychometric properties in comparison to other implicit measures.[21 27–30] Therefore, it is important to briefly consider its strengths and limitations.

Implicit Association Test

The IAT is a validated measure of implicit bias and with strong psychometric properties in comparison to other tools.[30 31] A consensus exists among researchers with regard to the IAT's lack of a high test–retest reliability in the same individual.[16] However, the construct validity of the IAT, as well as its efficacy as a measure of implicit bias, especially as a predictor of real-life behaviour in the context of everyday life is contested.[16 21 30 32] Concerns relating to the predictive validity of the IAT persist among some researchers, with progenitors cautioning against its use to forecast what people will do, or not do, and behave as they go about their lives, given the vicissitudes of human existence with their concomitant, contingent events that intersect in complex, unexpected, emergent ways to impact on an individual's affect, actions and behaviour.[16 30] Conversely, others[30 32] maintain that implicit and explicit measures of bias are not superfluous but have their merits in informing predictions about human behaviour in different ways that are distinct from each other. Despite this lively debate about the relative merits of IAT, it is the most widely used measure of implicit race and ethnicity bias in healthcare.[16 31 33] One view is that there is specious evidence of the predictive validity of the IAT with regard to implicit racial bias.[30 34] This characterisation of the IAT's utility in establishing implicit racial bias is strongly disputed by many others,[30 35 36] who have a different understanding and conclusions predicated on the same data set. There is also evidence from a systematic review[37], which highlights the limitations of the IAT in establishing multiplicative effect of several biases that intersect across multiple social identities.

Our approach

A better understanding of the impact SES has on HP patient-related decision-makings arguably will provide a valuable new focus in tackling socioeconomic health inequalities.[8 9 12] Therefore, it is imperative to undertake a scoping review that maps all pertinent evidence, integrates contemporary knowledge about this topic, clarifies key concepts, sets out evidence-based recommendations for practice and identifies the priorities for future research. In our view, it is essential that the scoping review should map all available research on implicit SES-related bias regardless of the research method used. Several scoping reviews[24 33 38] have highlighted the valuable insights into implicit bias and its impact on HPs decision-making that can be gained from studies that use other research methods such as case study vignettes, questionnaires, think-aloud interviews, randomised controlled trials and qualitative methods. This evidence from other scoping reviews underscores the aptness of our decision to include all studies that met our inclusion criteria as

stated in detail in our a priori protocol[13], regardless of the methodological approach used. Debates about methodological rigour in relation to implicit bias should not be an impediment to use every means to better understand and address its pernicious impact on HPs clinical decision-making, often culminating in inappropriate or discriminatory care that gives rise to adverse event, causes harm, offence and negatively impact people's healthcare-related outcomes. In sum, any scoping review that considers implicit bias in healthcare has an obligation to include all studies so the best possible relevant research evidence to inform and underpin the consistent delivery of safe high-quality, just and equitable healthcare.

METHOD

We conducted a scoping review using Joanna Briggs Institute (JBI) methodology[39 40] as set out in our a priori published protocol[13] and reported our results in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Protocols and Scoping Reviews (PRISMA-ScR) guidelines.[41 42] A detailed account of methods used in this scoping review is provided in our a priori published protocol[13], which has granular details about key elements such as the search strategy, inclusion/exclusion criteria which can be replicated. Therefore, we present a concise summary of the conduct of this scoping review in line with best practice reporting to avoid undue repetition.

Patient, public involvement

This scoping review (and its previously published protocol) has been developed with a member of the public (BA). The design of this scoping review draws on BA's personal experience of living with, and beyond a cancer diagnosis, which entails regular contact with health services and healthcare professionals. Therefore, BA's lived experience and perspective have directly shaped the design, results, discussion and implication sections of this work.

Search strategy and data sources

Our literature search was carried out in three stages. In the first stage, an initial search was undertaken on Medline to identify and refine search terminology and consider Medical Subject Headings to ensure a comprehensive strategy that selected all the relevant papers published related to SES and its impact on healthcare. The Medline search strategy was tested, and the first 100 references were scanned by three authors (AC, CJ and RS) to ensure relevant papers were retrieved. Key papers were checked to confirm they were being retrieved by the search. In the second stage of the search process, the Medline search strategy was adapted for use on other key databases (Medline, Embase, ASSIA, Scopus and CINAHL) to account for differences in controlled vocabulary and database functionality. We also searched the website of key organisations such as professional regulatory bodies, think tanks and policy-making bodies for any pertinent publications. In the final stage of the literature search, we conducted back-and-forward chaining of included papers to identify any other relevant documents. All searches have been updated since the initial search date, of 21 October 2021 and are up to date as of 9 March 2023. Please see online supplemental material 1 for the detailed search strategy, and our a priori published protocol[13] for more information.

Screening and selection process

All retrieved citations were exported to the Rayyan systematic review software package and duplicates were removed. In the first filter, the titles and abstracts of the included papers were assessed against the inclusion criteria and independently filtered by two members of the project team (CJ and RS). Any differences with regard to the inclusion or exclusion were resolved through discussion and after reviewing the full text of the papers in question. In the second filter, the full-text papers were assessed against the inclusion and exclusion criteria. Our population, concept, context and design criteria are set out in table 1, as per our protocol.[13] We only included publications in English as this was an unfunded study with

Table 1 Identification of the population, concept and context and design

Population	Concept	Context	Design
► HPs working in any healthcare setting including: ✓Doctors ✓Nurses ✓Physiotherapists ✓Occupational therapists ✓Speech language therapists ✓Midwives ✓Mental health professionals ✓Pharmacists	► Socioeconomic status (SES) ► Papers that discuss discrete measures of SES as defined in the operational definitions.	► HP decision-making when it interacts with bias of SES.	► Research studies of all designs that include primary data. ► Case studies ► Editorials ► Opinion papers

HPs, health professionals.

no facility for translation.[13] Studies of all designs were included in this review because our focus was on mapping the evidence about the impact of HP bias of SES on clinical decision-making and its effect on the care for people with lower SES. Please see the search strategy in online supplemental material 1 for a full list of search terms used in relation to SES.

Data extraction and charting

Relevant data were gathered using an adapted version of the JBI data extraction tool systematic scoping reviews[43], that was converted to an Access Database form (please see online supplemental materials 2 for the adapted JBI data extraction form). This access database form was tested on the first five papers and then adapted as per JBI guidance to gather all information pertinent to the review questions.[43] On completion of data extraction, the data were exported to an Excel spreadsheet to facilitate data analysis. Our mapping and reporting of the data were also informed by the lived experience and perspective of the patient and public interest representative on our team (BA) as stated in our protocol[13] and consistent with best practice in systematic reviews.[44]

RESULTS

Selection of sources of evidence

The PRISMA flow diagram (figure 2) summarises how we searched for relevant publications and selected literature for inclusion, in line with best practice in scoping reviews.[45] Data analysis, interpretation and reporting was underpinned by the PAGER framework.[46]

Summary of characteristics

The 'characteristics of included publications' are presented online supplemental materials 3. In our search strategy, we purposively cast a wide net to capture all relevant published papers because of the complexity of defining SES and in total, we screened 11 823 publications across different decades. At first filter, 11281 'off topic' papers were excluded, such as those concerned with children, dentistry, HP career development or

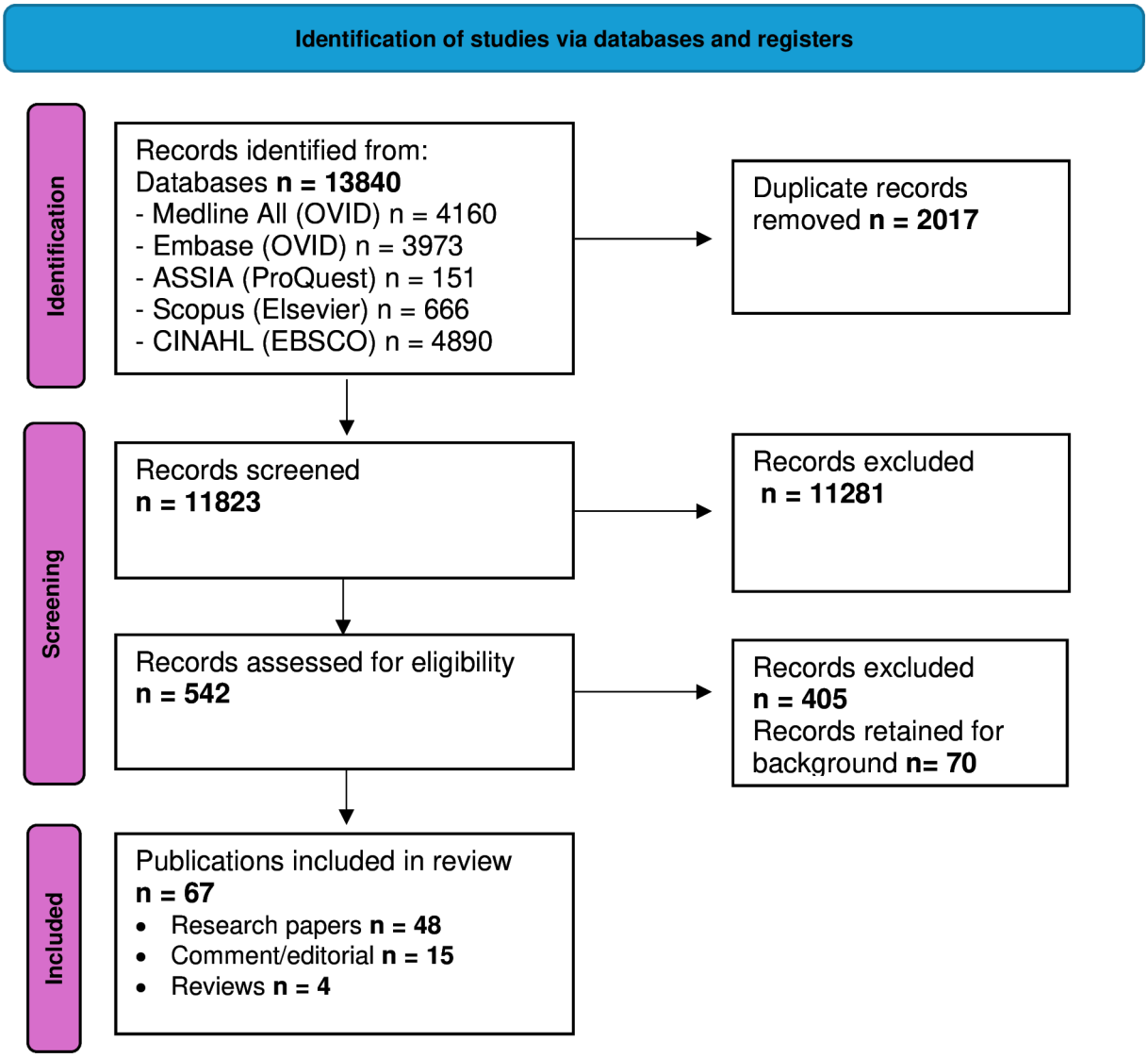

Figure 2 PRISMA flow diagram. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

focused on SES but not HP decision-making. We selected publications that considered HP decision-making from the HP's viewpoint and excluded papers that explored HP decision-making from the patient perspective.

We reviewed 542 studies for eligibility and retained 67 publications for inclusion in the scoping review. 70 papers were retained for background reading and synthesis because they provided broader insights about the relationship(s) between stereotyping, bias and SES. We included a wide range of publications in this review. 48 of the 67 included papers (72%) reported on original research while the remaining papers were commentaries or opinion pieces (n=15) and reviews (n=4) about aspects of SES and HP decision-making. Most included papers were from the USA (67%; n=45), followed by the UK (10%; n=7), Canada (6%; n=4) and Portugal (3%; n=2). Two papers involved authorship across national boundaries, and these were labelled as international (3%; n=2). The remaining included papers included involved a single published paper from Denmark, Finland, Mexico, New Zealand, Norway, Sweden and Pakistan.

The earliest published research paper retained was by Crane[47], who explored the impact of social factors and physiological criteria in HP treatment decisions about critically ill patients. Crane[47] explored doctor decision-making using case histories and questionnaires; she discovered that there were disparities in doctors' decision-making between a patient with a high-status occupation and another patient described as an unemployed labourer. Doctors in this study[47] offered more aggressive treatment options to people with high-status occupations, even though they explicitly stated that they did not rate social status highly in their decision-making process. Crane[47] did not categorise this finding as implicit bias, which may reflect the prevailing sociocultural beliefs at the time this study was conducted. However, in our view, this finding by Crane[47] is an example of implicit bias and the earliest research study we found. We also noted that from 2008 onwards, there was at least one publication about bias in relation to SES that met the inclusion criteria for this review. The increased frequency of publications from 2008 onward may be a consequence of the emergence of the fundamental causes theory[3] and a greater understanding of socioeconomic disparities in English healthcare provision facilitated by the Marmot review.[1]

Types of publications

The results of this scoping review highlighted various aspects of what has been published about implicit SES bias and HP attitudes or behaviours when deciding and providing care. First, most of the 67 publications included in this scoping review were original research studies (n=48, 72%), with the remainder being reviews, commentaries and opinion papers (n=19, 28%). This indicates that there has been a greater focus on building the evidence on this topic by focusing on conducting primary research relative to preparing other types of papers which provide useful and complementary insights. An alternative perspective to consider is that publications such as commentaries, opinion papers and editorials often contain useful tacit insights and wisdom that constitute 'fugitive knowledge' or 'soft intelligence' as they exist beyond formal knowledge structures because this information is risky to know and share with others through conventional mechanisms.[48 49] Therefore, these valuable insights are challenging to establish and understand using conventional research approaches. So, they may be scope to encourage the publication of different types of papers on this topic to facilitate a better understanding of how the SES-related perceptions, views or beliefs of an HP impact their clinical decision-making in a manner that reflects the reality of healthcare which is delivered in complex adaptive systems.

Geographical location

Many of the papers in this scoping review were authored by people based in the global north, specifically North America and Europe from 1995 onward (n=61, 91%), with the remainder being written by an international team of authors or people based in other parts of the world. This may be an indication of the impact that seminal publications such as the fundamental causes theory[3] and Marmot review[1] have had in highlighting the relationship between lower SES, health inequalities and poor health-related outcomes in these parts of the world. It is also possible that the higher number of publications in these regions may reflect that there is greater scope to access funding for research on the relationship between implicit SES bias and HP's clinical decision-making within these settings. Then, it would be apt for more multinational research on the relationship between implicit SES bias and HP's clinical decision-making, especially in countries that are low and middle income, or described as developing and transitional so there is a better understanding of this issue across nations especially those that are in the global south.

Health professionals

Thirty-one[9 18 19 25 28 47 50–74] of the 48 research papers reported on implicit bias in relation to doctor/physician clinical practice. The remaining papers explored or discussed decision-making from a multiprofessional viewpoint (n=6)[75–80] and this included doctors, nurses or midwives working in multidisciplinary teams. Four research papers[29 81–83] explored nurse bias and decision-making, four involved medical students[27 84–86] and two papers[87 88] explored potential bias and decision-making of psychotherapists/counsellors. One study[89] was concerned with occupational therapists. The implicit bias in nurses and allied HPs' practice is more evident in recent research studies which may reflect their increasingly central role in clinical healthcare decision-making. We found no studies that explored implicit bias in pharmacists' decision-making. This was a surprise as clinical decision-making is a fundamental aspect of pharmaceutical practice, especially in settings such as the UK, where pharmacists have

extended roles as non-medical prescribers and must be able to assess, diagnose and treat patients.[90–93]

Research methods

Included primary research papers employed several different methodological approaches. Most research papers (50%, n=24) used a vignette approach,[19 25 27–29 44 47 51 53 54 57 60 64 67 68 71 72 79 82–84 86 88 89] and some combined the vignette approach with the IAT (n=6).[27–29 67 68 72] Some studies used prospective data collection (n=2),[29 80] high fidelity simulation (n=1)[85], retrospective data review (n=3)[62 69 78] quantitative survey/questionnaire (n=8),[9 47 56 61 66 68 81 87] qualitative interview (n=10),[52 55 58 63–65 70 75–77] or a qualitative observational approach (n=2).[65 76] Vignette studies illustrated the clinical scenario through a video recording (n=11)[19 25 44 51 53 64 71 79 82 83 88] while others used a combination of written case examples and written scenarios with pictures depicting the clinical cases (n=13).[27–29 47 54 57 60 67 68 72 84 86 89] Representations of SES were indicated based on appearance of the patient, such as how they dressed and/or the description of the person which indicated their occupation. In studies that retrospectively or prospectively examined health data, health insurance status or area-level deprivation measures were applied to patient demographic information to measure the SES of the population.

SES and HP decision-making

Thirty-five of the 48 included primary research studies (73%) reported an association between SES and HP decision-making.[9 18 19 47 51 52 54–58 60 62–66 68–73 76–79 81–87] Meaning that in over two-thirds of the research papers reviewed HP decision-making about assessment, investigations, treatment or care was influenced by a person's SES. Thirteen papers did not detect any SES-related bias in HP decision-making.[25 27–29 44 53 59 61 67 74 80 88 89] There were no discernible patterns or trends in the characteristics of these 13 papers, which used a variety of methodologies, involved different HPs across a range of specialty settings. Interestingly, four papers by Haider *et al*[27–29 67] did not find a link between SES and decision-making but detected high levels of implicit favourable bias towards people with high SES, in doctors,[28 67] nurses[29] and medical students.[27] All these studies[27–29 67] combined the IAT and a vignette-based approach to assess the impact of implicit bias on decision-making. Three of these studies reported that 90.7% of doctors (n=215)[28], 93% of nurses (n=245)[29] and 86% of medical students (n=211)[27] demonstrated an implicit preference towards people with High SES. However, in these studies,[27–29] the high levels of implicit SES bias were not evident in HP's decision-making. This result suggests that not all implicit bias leads to disparities in decision-making.

Table 2 displays the research that links SES and decision-making by professional group. Three-quarters of the research papers demonstrate a link between SES and decision-making in doctors (n=23),[9 18 19 47 51 52 54–58 60 62–66 68–73] medical students (n=3)[84–86] and nurses (n=3).[81–83] Five of the six studies with multiprofessional participants demonstrated a link between SES and decision-making (n=5).[75–79] There was not enough data within the included studies that focused on occupational therapists and psychological therapists, to draw any meaningful conclusions about the relationship between implicit SES bias and their decision-making (table 2).

In our included research publications, we identified that there were some medical specialities in which there were three or more research studies exploring SES-related implicit bias in HP decision-making (see table 3). Every included study (n=7; 100%) on pain assessment and/or management[60 71 72 79 81–83] reported a link between decision-making and SES. In obstetric/contraception care, 80% (n=4) reported a link between implicit SES bias and HP decision-making.[62 75–77] More than three-quarters of the studies involving cancer care (n=6; 86%)[19 51 57 69 70 84] and all but one study (n=7; 87.5%)[9 18 55 56 68 78 85] exploring coronary heart disease (CHD) detected disparities in HP decision-making related to SES. Three of the nine papers that explored multiple conditions detected a link between SES and decision-making.[58 65 66] Two of the included research papers on diabetes[64 65] and one on mental health[87] found a link between SES and decision-making. The two studies exploring SES and decision-making in trauma care did not detect a link between SES and decision-making.[28 67] For the other specialties listed in table five a single research paper was included; asthma[73],

Table 2 Link between SES and HP decision-making per professional group (research papers)

Professional group	Link found	Link found %	No link found	No link found %	Grand total
Doctor	n=23	74	n=8	26	n=31
Medical student	n=3	75	n=1	25	n=4
Multiprofessional	n=5	83	n=1	17	n=6
Nurse	n=3	75	n=1	25	n=4
Occupational therapist	n=0	0	n=1	0	n=1
Psychological therapist	n=1	50	n=1	50	n=2
Grand total	n=35	73	n=13	27	n=48

HP, health professional; SES, socioeconomic status.

Table 3 Link between SES and HP decision-making per specialty (research papers)

Condition	Link found	Link found %	No link found	No link found %	Total
Cancer care	n=6	86	n=1	14	n=7
Multiple conditions	n=3	38	n=6	62	n=9
Coronary heart disease	n=7	86	n=1	14	n=8
Pain assess/management	n=7	100	n=0	0	n=7
Obstetrics/contraception	n=4	80	n=1	20	n=5
Diabetes	n=2	67	n=1	33	n=3
Mental health	n=1	50	n=1	50	n=2
Trauma	n=0	0	n=2	100	n=2
Asthma	n=1	100	n=0	0	n=1
Dermatology	n=1	100	n=0	0	n=1
Kidney transplantation	n=1	100	n=0	0	n=1
Palliative care	n=1	100	n=0	0	n=1
Sickle cell disease	n=1	100	n=0	0	n=1
Total	35	–	13	–	48

HP, health professional; SES, socioeconomic status.

dermatology[63], kidney transplantation[52], palliative care[47] and sickle cell disease.[86]

Discussion

As far as we are aware, this scoping review is the first to scope wider literature about the reported impact of HP SES-related bias on clinical decision-making, through a comprehensive and systematic search of all the available evidence. This pioneering scoping review has generated key insights into what has been published about HP implicit SES bias, and how it affects HPs attitudes or behaviours as they make decisions about the provision of care for patients. In addition, this scoping review has also revealed how SES can affect the interpersonal dynamics of the HP and patient/service user in their relationship during care delivery. The insights that have been generated from the scoping review can be used to inform efforts to ensure that everyone receives safe high-quality, person-centred, evidence-based care in a just and equitable manner from every HP that they encounter. We begin our discussion by focusing on the salient points from the results relating to HPs, research methods and measures of SES. This progresses into a tightly focused discussion of our results aligned to each research question in relation to the wider literature.

Types of HP

It is worth noting that just under two-thirds (n=31)[9 18 19 25 28 47 50–74] of research papers on HP SES implicit bias and decision-making focused on doctors/physicians, with significantly less studies focusing on interprofessional or multidisciplinary teams (n=6),[75–80] nurses (n=4)[29 81–83] and medical students (n=4).[27 84–86] The number of papers exploring decisions made by non-medical HPs gained interest in the literature after 2008 and reflects the changing landscape of healthcare decision-making, and the extended role of Nurses and Allied HPs. The lower number of research papers exploring decisions made by non-medical HPs may also be an indication of the perceived importance of different healthcare professionals in patient care by those who fund research. The empirical evidence at hand indicates that more is known about doctors/physicians' implicit SES biases and its consequences with regard to their decision-making than other professions. Given the global shift towards more plural approaches to healthcare delivery in which other HPs have extended roles, such as non-medical prescribing, there needs to be a greater focus in future research that explores any link between SES and decision-making of other professionals in healthcare and its consequences for patient care.

Research methods

Our results indicate that the association between HP implicit SES bias and their decision-making has been examined using a variety of different research methods. However, half of the studies (50%; n=24)[19 25 27 29 44 47 51 53 54 57 60 64 67 68 71 72 79 82–84 86 88 89] used a vignette approach which used a video recording or combined written case exemplars, scenarios and images of different types of people. Some studies (n=6)[27–29 67 68 72] used the IAT to gather data regarding the participants' favourable bias as a precursor to vignette examination of decision-making. Regardless of the research method used, in most studies, the information provided to the participants with regard to SES was predicated on the patient's visual appearance such as the clothes that they were wearing, or how they were described which provided an insight into their profession and or education.

Given the preponderance of vignetted-based research on this topic, it is prudent to consider its utility in understanding HP decision-making. Vignette studies are adept at establishing judgement and decision-making in a variety of professions, which have a high level of applicability and generalisability about how HPs undertake their work on a day-to-day basis.[94 95] In addition, vignette studies are an effective way of exploring people's beliefs, perceptions, attitudes, behaviour and biases.[95–98] However, the utility of this approach in decision-making studies is contingent on the researcher's ability to craft and word a written or visual vignette that reflects the complex nature of reality, and that sets out key information in line with best scientific practice.[94–96 99] A key issue with the use of vignettes in research is that the information that they contain and convey, may subconsciously relay, or reflect the researchers' own perspectives and/or biases, which may influence the information they provide, as well as how they describe others in the scenarios that they create. Hence, it is widely recommended that the vignettes are evidence based, reviewed by expert peers or patients and subsequently pilot tested to ensure that they are valid, culturally appropriate and clear before they are used in a study.[94 96 100] Equally, others[101] have opted to co-create vignettes with members of the population they research to ensure that they are culturally relevant, use the appropriate terms and convey the perspective(s) of the people who are being characterised therein.

There is scope for the greater use of other research approaches such as high-fidelity simulation, prospective data collection, qualitative interviews, qualitative observation, quantitative surveys or questionnaires, and retrospective data reviews in studies on this topic. Conducting future research which uses some of these less commonly used approaches, on their own or in combination may shed new light on hitherto unknown or overlooked aspects of HP implicit SES-related bias. This is particularly important as each research method has its own strengths and weaknesses so using a combination of different approaches facilitates data triangulation, which can lead to more meaningful insights, enhance methodological rigour and help to draw more robust conclusions from the data.

Measures of SES

When developing the protocol for this study we made the decision to include proxy measures of SES and in retrospect this was an important decision. When exploring HP decision-making a number of proxy measures or indicators of SES have been used in the included research papers. Included papers used proxy measures such as occupation/employment (n=15),[25 27 29 47 53–55 65 68 71 72 81 84 85 89] education (n=14),[9 28 52 58 59 61–63 70 78–80 82 89] income/finances (n=11),[9 18 57 69 71 72 74–76 78 80] appearance/dress (n=7),[19 25 53 64 83 85 88] health insurance (n=3).[18 19 56] A formal SES or deprivation measure was used in only three of the studies included in this review.[9 66 69] We are aware that the inclusion of papers with single discrete measures such as these may be contested from a social science perspective, as SES is invariably multifaceted and complex.[17] A comprehensive discussion about the utility or otherwise of different discrete or proxy measures is beyond the remit of this paper, but there are some constraints to the use of some discrete measures such as income as a proxy for SES. The results of this scoping review support our view that proxy measures for SES, although with their limitations, can provide useful insights into HP implicit bias and its consequences for their clinical decision-making about patient care.[17] Therefore, by mapping the different methods that are used to measure and report SES in different types of publications, it is hoped that there is a clear overview of how they have been used in different contexts.

RQ1: bias and stereotyping

HPs make different judgements or decisions about assessment, treatment and care based on who the patient is, as opposed to what they present with.[64] Three examples of this are highlighted below drawing on the evidence pertaining to pain assessment/management, maternity/contraception care and cardiac care. Wilson[81], Anastas *et al*[72] and Brandao *et al*'s[82] studies highlight stereotyping as an influence in HP behaviour and decision-making. Brandao *et al*[82] reported that people with low SES were viewed as less credible during pain assessment by an HP. Anastas *et al*[72] and Wilson's[81] studies both found that people with low SES were often viewed as being untrustworthy and incapable during pain assessment, which led to disproportionate concerns about possible opioid addiction and triggered 'gate keeping' behaviours in the HP and this affected pain management decisions. Stereotyping and bias were also reported in maternity and family planning studies.[65 76 77] Manzer and Bell[77], Smith-Oka[76] and Shawahna *et al*'s[65] studies identified the adverse impact of stereotyping on HPs assessment and decision-making. In these studies HPs considered women with low SES to be untrustworthy, bad mothers and/or promiscuous, as well as lacking capacity to make sensible decisions about planning future pregnancies.[65 76 77] Manzer and Bell[77], Smith-Oka[76] and Shawahna *et al*[65] studies also reported that women with low SES were subject to biased disparities in advice, guidance and management that nudged them towards using longer-term (and on occasions irreversible) contraceptive options. Agerström *et al*[78] found that people with low SES were more likely to receive delays in cardiac arrest care compared with patients with higher SES. In this study,[78] the results revealed that highly educated patients ($p<0.001$) and patients with higher income ($p=0.001$) were significantly more likely to have their heart rhythm monitored prior to the onset of the cardiac arrest (holding all other variables). Heart rhythm monitoring was significantly associated with less delay, shorter duration, increased immediate survival and 30-day survival.[78] In this instance, SES-related discrimination

was associated with HP decision-making about who gets cardiac monitoring, which impacted timely cardiac arrest care and patient survival. Goddu *et al*'s[86] study highlights that perceptions and stereotyping among HPs can be triggered prior to in-person meetings with patients through language and words used in medical records or referral letters. This suggests that SES-related stigma and bias can unwittingly be transmitted among HPs through the words and language that are used to characterise the person receiving care as well as to describe their lived experience. Therefore, the words, terminology and language in reference to the people seeking or receiving care seem to be a key influence and, in some cases, a predeterminant of HP attitudes and behaviour that can adversely affect clinical outcomes.

Social psychologists describe two fundamental dimensions of social perception when considering bias and stereotyping that help us to understand how people see each other.[102] The stereotype content model (SCM) was first proposed by Fiske[103 104] and provides a theory that explains how individuals form impressions, assumptions and judgements of other individuals or groups based on their perceived warmth or capability. This theory is useful when making sense of the biases that might be impacting HP interaction with patients and when making decisions.[102] The first dimension of the SCM relates to the warmth of a person, for example, how friendly or trustworthy they appear to be.[103] A person who is cooperative is deemed warm, and a person who is perceived as resistant is perceived as cold.[104] The second dimension relates to the capability of the person, for example, how skilled, intelligent or competent they appear.[103 104] Warmth is evaluated first because it predicts future behaviour; capability is judged more slowly as it reflects the other person's ability to act competently.[26] In terms of SES or social class, for example, wealthier people are stereotyped as intelligent and better educated, therefore, more capable than poorer people of lower SES or class.[26] SES can be signalled in many ways, the way a person dresses, their mannerisms or their accent and these cues lead to behaviour changes that impact on the interaction between people.[26] The interaction between people is a dynamic process in the context of healthcare so HPs make conscious and subconscious judgements about the other person while simultaneously, the person seeking, or receiving healthcare makes similar judgements about the HP, this is then manifest through dialogue and influences how they see each other. Stereotypes do not need to be consciously recognised to generate discrimination, they can be subconsciously held and triggered in such a way that people use them to frame their actions and to rationalise what they do, or do not do, in an automatic process with little or no thought or self-awareness.[105] Consequently, SES-related stereotypes seem to be a contributing factor that maintains health inequalities, given that HP decision-making appears to lead to unwarranted variations in care and treatment.[64]

Time and cognitive load

A recurring theme is the reported influence of HP workload on implicit bias and decision-making. There is evidence to suggest that HPs rely on implicit messages to 'fill the gaps' in comprehensive assessment when time and effortful thought are limited or prevented. Several papers[11 75 106 107] suggest that the contribution of cognitive load, stress and limited time restraints impact on the HP's motivation to suppress implicit bias when making decisions. Self-awareness of one's own prejudice and bias is important when making decisions, but self-awareness is diminished when the HP is busy and does not have sufficient head space to mitigate the impact of potential implicit bias.[108] Decision-making is ideally a controlled process which involves making intentional, conscious and effortful thought.[108] However, if the HP is engaged in high levels of mental activity, is stressed or has limited time, then this can interrupt, impair or prevent a controlled thoughtful decision.[108] In these circumstances, stereotyping is used as an energy-saving mechanism that allows for intellectual shortcuts in decision-making that feel comfortable because they fit with what we think we know.[11] Therefore, HPs are less patient-centred in these circumstances and the unique features of the patient (which are discovered during comprehensive assessment) can be replaced with stereotypical patterns based on the patient belonging to a certain social group/s.[11 107 108] Brown[75] discovered that HPs took the greater effort to ensure the confidentiality of the HIV diagnosis was protected for women with high SES. The HPs in the Brown study[75] considered confidentiality to be less of a priority for the women with low SES because their social position was less important. Brown[75] discovered that this bias tended to be activated when staff were overburdened and/or where health services were poorly resourced. There is also evidence that shows stereotyping can assist in coping with the pressures of HP practice.[109] Spending less time with patients with low SES may be perceived as helping to 'move clinics along' because of the HP assumption that some people will not need as long as other people in clinic. Patients with low levels of SES can often be viewed as needing less information because of an assumption they do not wish to be informed because they ask less questions or because they do not have the capacity to retain information, and this assumption actually helps the clinic to regain lost time.[109]

Intersectionality of SES and other factors

Intersectionality refers to the interactivity of different social identity structures such as race, class and gender, and how belonging to more than one social identity group can have a greater negative effect than belonging to one group alone.[16 110] Our results show that intersectionality can have a powerful cumulative effect on HP assessment and subsequent decision-making. Stereotypes and prejudices are stackable and the proclivity towards discriminatory attitudes, tendencies and behaviours rises as the perceived vulnerability of the person seeking or receiving care increases.[16] Denberg *et al*[57] explored race

and social vulnerability for men with localised prostate cancer and discovered that the higher the perceived patient vulnerability by the HP, the more likely they were to opt for 'watchful waiting' as opposed to active treatment. For example, men who were deemed to have a low income, were widowed or were characterised as being black by HPs, were the least likely to be referred for radical prostatectomy. McKinlay *et al*[18] explored non-medical influences on HP decision-making for patients with coronary heart disease and found that discriminatory attitudes and behaviours were linked to the patient's age, perceived level of income and insurance status. Older adults with low income and without medical insurance were less likely to receive a primary cardiac diagnosis, however, this discrimination did not affect younger patients who were low income and without insurance.[18] FitzGerald and Hurst's[16] systematic review which explored implicit bias in healthcare professionals, highlighted how perceptions relating to race, SES and gender intersect but also interact in complex ways. The intersectional interaction between different factors is arguably a reflection of the continuous nature of perceived warmth and capability matrix as previously described in the SCM, but the outcome for the patient can be bleaker when racial and class biases stereotypes overlap.[26] Our results about the complex intersection of SES and other factors such as race are consistent with wider evidence from other studies. For example, there is evidence which shows that controlling for SES, people who are of Afro-Caribbean heritage are three times more likely to be diagnosed with diabetes than their counterparts of European heritage, while people who are lesbian, gay, bisexual, transgender or identify as queer are more likely to have multiple risks for cardiovascular disease than their heterosexual peers.[4] The evidence collected on intersectionality in this review demonstrates the importance of multivariable reviews of implicit bias, therefore, exploring SES, race, age or gender as individual factors in isolation will not tell the whole story. Instead, the intersectionality the distinctive characteristics, and traits that a person has as well as the social groupings that they belong to must be considered, especially given their complex interactions and cumulative effect on the care of patients is the correct way forward when we seek to understand patient experience.

RQ2: SES and HP decision-making

Dialogue plays a key role in how we see each other.[111] Initial impressions of both the HP and the patient can be corrected through interaction between both parties.[112] Initial impressions of warmth and competence can be adjusted through dialogue during the assessment and decision-making process. This interaction, however, requires motivation for one or other party.[51] A motivated HP who offers more time, seeks the input of the patient and consciously considers equality and/or equity can build a dialogue with the person based on 'what matters most to them'.[103] In the same way, a patient who demonstrates existing knowledge and has an active or assertive manner in dialogue with the HP can influence the HP decision-making by altering the HPs assumptions related to the warmth or competence of the patient.[51]

Manderbacka[55] exploration of decision-making in relation to 'white collar' and 'blue collar' patients found that doctors were more likely to take a 'doctor-centred model' for communication, assessment and decision-making with patients from a 'blue collar' background but tended to adopt a 'person-centred and shared decision-making model' with 'white collar' background patients. It is not always the case that a person who is inferred as capable is automatically also perceived as warm on the SCM matrix[113], in fact, some research has shown that when a person is viewed as capable and competent then the perception of warmth is viewed less positively.[102 103 113] This can mean that when a patient is perceived as lacking capability or competence then their warmth can be viewed more positively as a compensatory effect, which in turn triggers a greater paternalistic behaviour from the HP, that affects their communication style and quality.[113] Castaneda-Guarderas *et al*[114] and Krupat *et al*[51] assert that the perceived power differential between the HP and the patient can inhibit shared decision-making because it negatively effects patient trust.[114] Patients are less likely to participate in dialogue and shared decision-making if they perceive the HP as judgemental, in this way, HP bias can trigger the patient's bias in a dynamic way, adversely affecting dialogue and patient-centred care.[51]

Patient assertiveness can lead to more careful diagnostic testing for people who may have been otherwise disadvantaged because of their SES.[56] Barnhart *et al*[56] explored non-medical reasons for disparities in coronary heart disease treatments and discovered that if patients with low SES adopted a health-assertive manner, then their treatment recommendations (revascularisation) more closely mirrored patients who had high SES. Krupat *et al*[51] explored the effect of patient assertiveness in HP decision-making for older adults with breast cancer and similarly discovered that patients with low SES were more likely to have full staging of their cancer investigated when they made assertive requests. In both these studies,[51 56] patient assertiveness led to more careful diagnostic testing for people who may have been otherwise disadvantaged because of their SES. Therefore, there is empirical evidence which suggests that implicit SES bias can manifest itself in HP–patient behaviours that impede relationship building, which could be mitigated with greater HP self-awareness and greater patient assertiveness.[51 56 111] Further research is needed to explore the impact of patient-assertive requests on HP decision-making. It is increasingly recognised any such improvement efforts that seek to address health inequalities, such as those caused by HPs implicit SES bias, must involve meaningful coproduction and dialogue about health inequalities that enables and empowers people to have agency and to take action.[115]

RQ3: measures to address HP implicit bias related to SES

We integrated a range of recommendations from included publications into three main themes: further research, education/training and policy, and guidelines. The reviewed papers highlight the need for further research to explore in more detail the reasons and mechanisms in which social factors affect and influence HP decision-making.[54 55 59 61 63 69 72 73 82] There is a gap in understanding mechanisms that prevent or inhibit the implicit judgement surfacing as explicit actions, particularly related to HP time and cognitive load.[61 108] Hence, this gap in understanding is a key priority for any future research and improvement efforts that seek to address HPs SES-related decision-making and its negative impact on patient care.

Another recommendation arising from the reviewed papers is the exploration of education and training for both HPs and patient groups which seeks to increase HP self-awareness through perspective taking and/or help patients with health literacy and assertiveness.[9 51 56 60 68 70 71 76 77 82 84 85] There appears to be a gap in the evidence that requires further exploration, specifically, there are as yet unanswered questions about how training can successfully raise awareness of SES bias, and how the impact of this training on clinical practice can be assessed or evaluated in the short term and longer term.[116] The impact of health literacy education on SES-related bias is outside of this scoping review, but moving forward, it would be prudent to consider how health literacy and assertiveness education with patients might help facilitate more active participation for patients with low SES, which may have a role in reducing health inequalities.[56]

Policies, guidelines and best practice statements, which recognise the impact of SES on HP decision-making, are needed to guide the HP when making decisions that inevitably include non-medical factors.[58 70 75] A smaller number of papers recommend that any such policies, guidelines and best practice statements should be constructed with mindfulness of implicit bias.[75 117] Implicit bias needs to be explicitly discussed and integrated into the policy and guidelines that help to shape HP interactions and patient experience. There is evidence of this work is happening to help support people of global majority heritage who are minoritised because they are categorised as non-white.[118] This work must be expanded to include SES-related bias, given its pervasive nature, as well as its complex interaction and intersection with race in relation to patient care.

Strengths and limitations

This scoping review has its limitations which must be given consideration. Most included publications are from North America and Europe in the global north, therefore, the relevance of its results to other parts of the world, especially those that are part of what is increasingly referred to as the global south is limited. The fact that only articles published in English were included, means that relevant works in other languages will have been omitted from this review. Consequently, the result of this scoping review provided a limited insight into other parts of the world, particularly those where English is not the native language, as well as in places where the organisation and delivery of healthcare take place in systems that are distinct from those in North America and/or Europe. Conversely, the inclusion of research studies and other types of publications broadened the depth and breadth of this review. There was no critical appraisal or quality assessment of the included research studies, which is in keeping with JBI scoping review methodology,[39 40] and was apt; the focus was on mapping the literature on this topic. Drawing on our diverse range of skills as patient and public interest representative (BA), a librarian/information technologist (AC) and three HP academics (CJ, PG and RS), we reached a consensus on how best to convey the results to others in plain English, a series of recommendations for implementation in practice, as well as the priorities for future research.

Implications for practice and policy

A key message arising from this scoping review for health services, professional bodies and policy-makers is that HPs have SES-related implicit biases that influence how they organise and deliver patient care. HP decision-making is also subject to non-medical factors, as assumptions are often made about the care of people of low SES based on bias and stereotyping, which causes or exacerbates health inequalities that can adversely affect patient's clinical outcomes.[64] It is important that we remain mindful that some people do not receive equitable care so there is a responsibility for all HPs to do what they can to be better informed about their own practice in relation to equity and to do what they can to address this issue. Heffernan[116] contends that people can find it unpalatable when they are confronted with evidence that challenges their firmly held big ideas, such as HPs who believe that they do no harm and always seek to do good, being informed that their implicit SES-related biases may have deleterious impact on the quality, safety and equity, of patient care. It is always tempting for people to elide inconvenient truths or unpalatable facts because if they are accepted, then the individual is compelled to deal with things in a different way or to address gaps in their knowledge, attitude, skills and behaviour, which is nearly always challenging. Turning a blind eye to biases can feel safe for an individual HP, but it is morally untenable as it contravenes the values that underpin healthcare and increasing the likelihood of people who are vulnerable, marginalised, silenced and/or overlooked by wider society enduring unwarranted variations in care, receiving suboptimal care that is delivered in an iniquitous and unjust manner.

It is challenging for anyone to be truly objective and self-critical about their clinical practice, especially with regard to implicit bias which is tacit and often reflects normalised patterns of thinking and behaviour. In other words, everyone has a rationale or vocabulary of motive, for what they do or do not do, which means that it is challenging for anyone to accept that they have implicit biases,

which are often contrary to the way a person thinks about themselves and their behaviour towards others. On the other hand, genuine changes in behaviour and improvement in any human endeavour can only arise when there is a genuine acceptance of the truth of the situation, specifically facts and issues at hand, including any implicit biases, with a concomitant theory of action.[119] As challenging as this may be, it is important to bear in mind that a transformational programme of action, especially in terms of improvement, requires a willingness to confront and examine all possible truths by asking searching questions, in this case about the organisation and delivery of healthcare. This sentiment is summed up in the view that not 'knowing something' is understandable because we are human, provided that the person is not turning a blind eye because they 'don't want to know'.[116]

Health inequalities only endure because of a lack of insight or willingness to address social injustice, social indifference, an ideological stance or a vacuum of leadership.[115] Given what this scoping review has surfaced about the potential impact of implicit SES-related HP bias greater consideration is needed about how the results can inform efforts to reduce health inequalities. It is also important to concede that HPs implicit biases often mirror those of wider society at any given point in time because their values, beliefs, attitude, outlook and world view will be tempered and influenced by the communities that they belong to and the wider culture that they inhabit. However, HPs are held to a higher moral standard than other members of society because of who they are and what they do, which comes with the requirement and expectation for them to treat all that they come across in an equitable, just manner with dignity and respect. Social status is linked to power so for people of low SES, there is often a power differential between HP's and themselves.[3] Bias is dynamic; therefore, the HP–patient interaction can reinforce perceptions and judgemental attitudes that further embed prejudice or stereotypes. Our results suggest that healthcare commissioners, educators and regulators should embed measures to mitigate HPs implicit SES-related bias through policy, guidelines or best practice statements. Healthcare commissioners, policy-makers, educators and regulatory bodies would also do well to ensure that everyone involved in the organisation and delivery of healthcare, especially HPs know that implicit SES-related bias increases the risk of the most vulnerable people in society experiencing suboptimal, inappropriate, or harmful care. Simply put, implicit SES-related bias by HPs tends to result in people who are the most vulnerable receiving the worst care, which has a harmful impact on their well-being, health-related outcomes and life expectancy. Given the reality of praxis in healthcare within complex adaptive systems, normalising the practice of HPs taking a brief intermission, when it is clinically safe and appropriate, to be self-aware and to seek a broader perspective, especially when they are under pressure or have a high cognitive load may help to overcome the impact of implicit bias on decision-making. Whatever view one adopts in relation to the issues raised by the results of this scoping review, more research is needed to ensure that healthcare policy and practice are evidence-based in relation to HPs implicit SES-related bias.

CONCLUSION

This scoping review explored different aspects of SES-related implicit bias and HP decision-making. Research in this area has grown and evolved significantly and the disciplinary focus has recently shifted from doctors to the wider healthcare team. While there remains limited understanding about the circumstances in which implicit bias is most likely to appear, some evidence suggests that this might be related to the HP's cognitive load, as time pressures can diminish self-awareness.

This review indicates that HPs often hold implicit bias of people with low SES, which can result in stereotyping and may compound or exacerbate health inequalities. It is, therefore, important to consider mechanisms to reduce the impact of this bias on HP decision-making. Greater awareness of the nature and potential impact of HPs implicit SES-related bias and on patient care is urgently needed, as the bias associated with SES can make vulnerable people more vulnerable and may adversely affect clinical outcomes.

Research that focuses on HP decision-making, the influence of non-medical factors and the impact of limited time/high cognitive load, would, therefore, help the health community to develop evidence-based interventions to mitigate HP bias. Real-world solutions, which go beyond education, to identify appropriate approaches to HP decision-making, are needed, to ensure decisions are equitable.

Our review highlights the need for relevant research to underpin related healthcare policy and practice. Based on the review, we have identified three pertinent research questions that should be prioritised in future work in this area:

1. Does cognitive load reduce self-awareness of SES implicit bias and impact the decision-making of the HP?
2. What are the best conditions to support shared decision-making with people who have low SES?
3. What training do HPs need to raise their self-awareness of implicit SES-related bias and reduce its impact on their decision-making?

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