PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Health Professionals implicit bias of patients with low socioeconomic status (SES) and its effects on clinical decision-making: A Scoping Review
AUTHORS	Job, Claire; Adenipekun, Bami; Cleves, Ann; Gill, Paul; Samuriwo, Ray

VERSION 1 – REVIEW

REVIEWER	Narayan, Mary International Home Care Nurses Organization
REVIEW RETURNED	26-Nov-2023

GENERAL COMMENTS	This paper posed three research questions about patient socioeconomic status and healthcare inequities. Conducting a scoping review with systematic review techniques, resulted in a strong methodology and convincing findings. The paper is comprehensive, with attention to details that make the study easy to follow. The three research questions are convincingly answered and the insights into the relationship of low socioeconomic status and heath care provider bias are thoughtfully discussed. The only critique I have is that Supplementary Material Table 2 does not seem to be completed. However, the paper clearly delineates the gaps in the literature that need further investigation. It also makes an important contribution to literature about healthcare disparities, why they occur, and how they can be mitigated.

REVIEWER	meidert, Ursula Zurich Universities of Applied Sciences, School of Health Sciences
REVIEW RETURNED	04-Dec-2023

GENERAL COMMENTS	Abstract: Add to the aim goals related to research question 3. Please provide more information in the methods section on selection criteria and screening process. See PRISMA Abstract checklist. Show N in the results instead of % or report both. Complete information on remaining 33% of articles. Conclusions: conclusions do not reflect results and content of the manuscript. This section of the abstract should be revised to reflect the content better. Omit last sentence it is superfluous. Manuscript: Background: Other systematic reviews in the field should be mentioned. Background is rather sparse compared to the discussion section. Operational Definitions: Provide a definition of unconscious bias and also differentiate it from explicit bias. Show definitions in the

article not in the supplementary material as it is vital to the following steps.

Methods:
More information should be provided about inclusion and exclusion criteria (a table would be helpful) and explanations given. The provided information is not sufficient to replicate the following steps. Provide more details e.g., on studies with HP students or mixed populations (HPs or students and registered HPs)

If possible, include Table of Characteristics of Included Publications into main article as it provides the findings and is at the core of the results. Add literature references to the table.

Table 2 Is not clear. Setting and context overlap. It seems from the table that the conceptualization of the PCC is only partially well implemented.

Results:
Prisma Flow Diagram: It would gain if the sources with the number of found literature is indicated as well. Also show how many records were found with the forward and back chaining. B

By the description of Cranes study, it seems unclear how implicit bias is differentiated from explicit bias. This should be defined and better addressed in the article. The issue also arises in the methods of the included studies. As from a methodological point of view it is doubtful if a qualitative approach can capture implicit bias. Therefore, more information how the authors came to include also qualitative studies.

Research Methods:
Article would profit if a section were provided on how SES was operationalized in the studies. As this is the concept of interest it is relevant to shed light on this.

Table 3 and 4:
Percentage should be shown right after link found. Percentage also shown for no link found.

More in depth reporting of results regarding decisions to the detriment of low SES patients would be interesting. Better address research question 2 in the results.

Content of other literature found (beside research papers) should be mentioned in the results.

Results of research question 3 are not presented. This should be added otherwise remove from the research questions, abstract and discussion sections.

Discussion
The discussion section is somewhat unbalanced in comparison to the rest of the article. To a large part new results are show that should appear in the results section of the article. Also, parts should be placed in the background in the article. This would shorten the discussion and make it more compelling.

Measures of SES:

Information measures and proxy measures should be mentioned in the methods section of the article. It is incoherent when only addressed in the discussion section of the paper. What exactly was defined as a proxy and how does the proxy differentiate from other types of biases such as "dark skin" or "fat bias" as those are often overlapping with low SES or even are a proxy for low SES.

Intersectionality related to SES should also be addressed in the discussion.

Bias and stereotyping:
Large parts (where study content is described for the first time) of this section belong into the results section of the manuscript. Other parts would suit better in the background section (part which relates to underlaying theories on stereotypes).
Also, the section of "time and cognitive load" should be reported in the results and elements of it in the background.

Conclusions are lengthy and are to some extent repetitive. Conclusions would be more comprehensible when shortened and content is more condensed to the main points.

REVIEWER	Holbein, John University of Virginia
REVIEW RETURNED	04-Jan-2024

GENERAL COMMENTS	I think this is an important review piece. I think it is close to being ready to be publishable. However, I have a few questions that I would like to see addressed in the manuscript before it is published. 1. The authors should engage with the critiques that have been levied at IATs in the psychology literature in recent years. Many of these critiques get at the core of what exactly IATs measure, so they are incredibly important for what we can draw from these studies that use them. 2. The authors use causal language throughout the manuscript. However, I was worried that in some studies that simply correlated IAT with decision-making, omitted variable bias may be a problem. The authors should clarify whether they think the relationships they are observing are causal, and if so why, and if not why not. 3. I would have appreciated earlier on in the manuscript a clear definition of what exactly capture health-care decision-making. What behaviors are encapsulated in this construct? What types of behaviors are not captured by this construct? 4. I thought some of the conclusions of the piece could be slightly more muted. Not all of the recommendations flow from a relationship between SES and decision-making. The authors should be clear what recommendations come from research v. intuition.

No.	Introductory reviewer comments	Our Response
3.	Reviewer 1: This paper posed three research questions about patient socioeconomic status and healthcare inequities. Conducting a scoping review with systematic review techniques, resulted in a strong methodology and convincing findings. The paper is comprehensive, with attention to details that make the study easy to follow. The three research questions are convincingly answered and the insights into the relationship of low socioeconomic status and heath care provider bias are thoughtfully discussed.	We are grateful for the comments and feedback from Reviewer 1.
4.	Reviewer 1: Supplementary Material Table 2 does not seem to be completed. However, the paper clearly delineates the gaps in the literature that need further investigation. It also makes an important contribution to literature about healthcare disparities, why they occur, and how they can be mitigated.	Thank you for highlighting this oversight on our part. We have revised Table two, to reflect the reviewers' feedback.
5.	Reviewer 3: I think this is an important review piece. I think it is close to being ready to be publishable.	We grateful for the comments and feedback received from reviewer 3.

No.	Abstract	Our Response
6.	Reviewer 2: Add to the aim goals related to research question 3.	Thank you for your help and advice regarding the abstract. The abstract has now been amended to follow guidance from reviewer 2 and from the editorial team (see point 1).

No.	Abstract	Our Response
	Please provide more information in the methods section on selection criteria and screening process. See PRISMA Abstract checklist.	Thank you for your comments and feedback. We provided a detailed account of the selection criteria and screening process for this scoping review in our a-priori protocol, i.e. (https://bmjopen.bmj.com/content/12/12/e059837.long). Therefore, we did not provide the same level of detail in this manuscript to avoid duplicating the same information presented in the published protocol due to the risk of self-plagiarism. We have also added the following text to the methods section of the paper: "*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 best practice reporting to avoid undue repetition.*"
	Show N in the results instead of % or report both. Complete information on remaining 33% of articles.	We appreciate the feedback you have given and have revised the result section of the abstract so that it states the number and percentages where necessary.
	Conclusions do not reflect results and content of the manuscript. This section of the abstract should be revised to reflect the content better.	We are grateful for the points made about the conclusion. The conclusion to the abstract has been revised to better reflect the results and content of the manuscript.
	Omit last sentence it is superfluous.	Thank you for your feedback. The last sentence has been deleted from the abstract as it is superfluous.

No.	Background	Our Response
7.	Reviewer 2: Background: Other systematic reviews in the field should be mentioned. Background is rather sparse compared to the discussion section.	Thank you for your comments and feedback. The original introduction to this paper was concise as a detailed review of relevant background literature was provided in the published a priori scoping review for this protocol. In other words, the protocol for this scoping review was published in the BMJ Open December 2022, (https://bmjopen.bmj.com/content/12/12/e059837.long), with comprehensive information provided about the

No.	Background	Our Response
	The discussion section is somewhat unbalanced in comparison to the rest of the article.	background, rationale for methodological decision making and operational definitions. We conducted this scoping review in the manner stated in the previously published protocol and were keen to avoid repetition and self-plagiarism in this manuscript. We were cognisant of the imperative for us to avoid repetition in this manuscript which we sought to make distinct from the published priori protocol with regards to key aspects of the background, operational definitions, and design of this scoping review. Clearly, our understanding was incorrect, so we have added more detail into the introduction about other systematic reviews without repeating points that were stated in our related protocol that was published in 2022. However, the introduction remains relatively short in comparison to the discussion because the wider literature, background, concepts, and operational definitions were examined and explored in great depth in the protocol for this scoping review. In other words, we have integrated as much additional detail as possible in response to the reviewers' feedback, but this was constrained by the need to avoid unnecessary repetition and self-plagiarism of points made in the protocol for this scoping review.

	Operational Definitions	Our Response
8.	Reviewer 2: Operational Definitions: Provide a definition of unconscious bias and also differentiate it from explicit bias. Show definitions in the article not in the supplementary material as it is vital to the following steps.	Thank you for your feedback. The BMJ Open journal requires that tables and boxes are uploaded onto their system separately, in the published paper the 'operational definitions box' would appear in the published paper itself, and not in the supplementary materials. We have added a section on bias which includes a differentiation between implicit and explicit bias see page 5.

	Operational Definitions	Our Response
9	Reviewer 3: I would have appreciated earlier on in the manuscript a clear definition of what exactly capture health-care decision-making. What behaviors are encapsulated in this construct? What types of behaviors are not captured by this construct?	We are grateful for your comment. The definition of clinical decision making is included in box 1 which is uploaded to the BMJ Open portal as a separate document however when the paper is published box 1 will be part of the main paper.

	Method	Our Response
10.	Reviewer 2: Inclusion/exclusion: More information should be provided about inclusion and exclusion criteria (a table would be helpful) and explanations given. The provided information is not sufficient to replicate the following steps. Provide more details e.g., on studies with HP students or mixed populations (HPs or students and registered HPs)	Thank you for your comments and feedback. We provided a detailed account of the inclusion and exclusion criteria for this scoping review with accompanying explanations as well as a table in the a-priori protocol, i.e. (https://bmjopen.bmj.com/content/12/12/e059837.long). Therefore, we did not provide the same level of detail in this manuscript to avoid duplicating the same information presented in the published protocol due to the risk of self-plagiarism. We have however added the following text to the methods section of the paper: "*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 best practice reporting to avoid undue repetition.*"
11	Reviewer 2: If possible, include Table of Characteristics of Included Publications into main article as it provides the findings and is at the core of the results. Add literature references to the table.	Thank you for your comment, we agree that the inclusion of this table in the main body of the paper would be advantageous. We were asked to upload this table as supplementary material by the editorial team. Therefore, we will defer the final decision about the placement of this table to the editors.
12	Reviewer 1: Supplementary Material Table 2 does not seem to be completed.	We appreciate the points that you have highlighted. We have amended Table 2 so that it is structured and presented in line with the PCC mnemonic.

	Method	Our Response
	Reviewer 2: Table 2 Is not clear. Setting and context overlap. It seems from the table that the conceptualization of the PCC is only partially well implemented.	
13	Reviewer 2: Prisma Flow Diagram: It would gain if the sources with the number of found literature is indicated as well. Also show how many records were found with the forward and back chaining.	Thank you for your feedback. We apologise for this oversight on our part and have added this additional data to the PRISMA flow diagram as requested.
14	Reviewer 2: By the description of Cranes study, it seems unclear how implicit bias is differentiated from explicit bias. This should be defined and better addressed in the article. The issue also arises in the methods of the included studies.	Thank you for your comment. It is important that the first paper included in the study is highlighted as a starting point in the mapping of research of this nature. The bias detected in Crane's study (1975) was evaluated by us as 'implicit' because the doctor participants state that they do not use the person's social status when making decisions. Despite this explicit declaration that social status is low in their decision-making process, Crane found different decisions were made for people with high verses low status occupations. The doctor participants were therefore unaware that they held a bias based on a person's socioeconomic status.
	As from a methodological point of view it is doubtful if a qualitative approach can capture implicit bias. Therefore, more information how the authors came to include also qualitative studies.	Thank you for your comment. We contest the notion that the ability of qualitative studies to capture implicit bias is open to doubt. This is because the language, tenor, and positioning that is manifest with the discourse that is inherent in qualitative data often reveals the implicit and explicit biases that people have. This is because as people narrate their lived experience (qualitative data), they position themselves relative to other people in a way that reveals how they perceive the views, experiences, and perspectives of others. Consequently, we contend

	Method	Our Response
		that qualitative studies are a viable and intellectually tenable scientific method of establishing implicit bias. The aptness of our assertion is demonstrated by the fact that several qualitative studies included in this scoping review generated rich data on implicit bias, consistent with our view about their utility, which contribute novel and important insight to wider knowledge on HP's bias and decision making. For example, Shawahna et al.'s (2012) observational study in Pakistan, which discovered SES influences on prescribing behaviour. It is important that a scoping review aiming to map all research in this field of study does not exclude methodologies that might lead to an incomplete picture of a body of evidence. We have added a small paragraph to page 5 that provides a rationale regarding the inclusion of papers exploring bias and that pragmatically we did not attempt to judge if a paper explored bias that was explicit as opposed to implicit.
15	Reviewer 2: Article would profit if a section were provided on how SES was operationalized in the studies. As this is the concept of interest it is relevant to shed light on this.	Thank you for your feedback. A comprehensive statement about the how SES was operationalised is provided in our published a-priori protocol, i.e. (https://bmjopen.bmj.com/content/12/12/e059837.long), so we did not include it in this manuscript to avoid undue repetition. However, we recognise the merit of provided additional information for completeness, so we have integrated an abridged summary of key operational definitions into this paper – see page 5).

	Results	Our Response
16	Reviewer 2: Percentage should be shown right after link found. Percentage also shown for no link found.	Thank you for highlighting this important point. We have reformatted Table 4 and 5 as per your feedback.
17	Reviewer 2: More in depth reporting of results regarding decisions to the detriment of low SES patients would be interesting. Better address research question 2 in the results.	Thank you for your comments and feedback. We have revised the reporting of the results so that they are more aligned to the research questions, especially research question 2, and have provided additional details about decisions to the detriment of low SES patients.

	Results	Our Response
	Reviewer 2:	We are grateful for the point made. It
18	Results of research question 3 are not presented. This should be added otherwise remove from the research questions, abstract and discussion sections.	appears that there has been a misunderstanding as the section entitled 'measures to address Hp implicit bias related to SES' presents the results linked research question 3.
19	Reviewer 3: The authors should engage with the critiques that have been levied at IATs in the psychology literature in recent years. Many of these critiques get at the core of what exactly IATs measure, so they are incredibly important for what we can draw from these studies that use them.	Thank you for your comment regarding the use and inclusion of research using the Implicit Association Tests. It appears that there may have been a misunderstanding about the focus of this paper. As a scoping review the aim of this paper is to map out the work on implicit bias and SES. Our aim in this scoping review was to establish what is known about HPs SES related implicit biases and their impact on clinical decision-making. A key part of this work entailed mapping the different types of studies that have been conducted on this topic. There have long been many different research methods that have been used to establish implicit biases. A critique of the utility and merits or otherwise of Implicit Association tests is outside of the boundaries of this scoping review.
	The authors use causal language throughout the manuscript. However, I was worried that in some studies that simply correlated IAT with decision-making, omitted variable bias may be a problem. The authors should clarify whether they think the relationships they are observing are causal, and if so why, and if not why not.	Thank you for your feedback. We note with due regard, the point made about the tenor of the language used in the paper. Clearly, there is scope for greater clarity on our part. An assessment of the nature of the relationships in the included studies was outside the focus of this scoping review. In our view, it would be untenable for us to state the nature of the reported relationships between IAT and decision-making, be they correlational or causal. This is because, we did not undertake any assessment of methodological quality of the included studies in keeping with recognised best practice for scoping reviews. Therefore, it would be inappropriate to make any determination or provide commentary about causality or otherwise about reported relationships in the results of included studies without sufficient scientific

	Results	Our Response
		methodological underpinnings. Instead, we maintain that our pragmatic approach of reporting the results as presented in the included publications was just, proper, and sufficiently robust. A scoping review is not designed to assess 'cause and effect', but simply to map and chart the research undertaken. Therefore, we respectfully assert that our reporting of the results is appropriate. We are duly mindful of the limitations of this scoping review, which will be addressed in subsequent stages of our programme of research, the next of which will be and evidence synthesis with critique of methodologies and an evaluation of quality.

	Discussion	Our Response
20	Reviewer 2: New results are show that should appear in the results section of the article. Also, parts should be placed in the background in the article. This would shorten the discussion and make it more compelling.	Thank you for highlighting an important point. We have revised the result and discussion sections in response to the feedback provided. There is now a more detailed results section which presents key information from all the included publications. There is now a shorter discussion, which should make for more compelling reading'.
21	Reviewer 2: Information measures and proxy measures should be mentioned in the methods section of the article. It is incoherent when only addressed in the discussion section of the paper. What exactly was defined as a proxy and how does the proxy differentiate from other types of biases such as "dark skin" or "fat bias" as those are often overlapping with low SES or even are a proxy for low SES.	We are grateful for your feedback. A detailed account of information measures and proxy measures was provided in our published a-priori protocol, i.e. (https://bmjopen.bmj.com/content/12/12/e059837.long). Therefore, we do not provide a detailed account in this paper to avoid repetition and self-plagiarism in line with academic convention. However, we recognise the importance of providing the reader with relevant key information and have added a summary of our decision making about proxy measures – see page 4.

22	Reviewer 2: Intersectionality related to SES should also be addressed in the discussion.	We are grateful for the feedback provided. However, there is already a section in the discussion on intersectionality related to SES and other factors. In our view the detail provided in this section provides a comprehensive discussion of the subtle and salient points about intersectionality and SES, which is sufficient considering the research questions.
23	Reviewer 2: Large parts (where study content is described for the first time) of this section belong into the results section of the manuscript. Other parts would suit better in the background section (part which relates to underlaying theories on stereotypes). Also, the section of "time and cognitive load" should be reported in the results and elements of it in the background.	Thank you for your feedback. We have revised the paper to ensure that the results are presented in the results section, before they are referred to in the discussion. For example. We have revised one of the headings relates to research question three and in this section, we describe results and gaps in current knowledge on HP time and cognitive load before exploring these elements in wider detail in the discussion. Therefore, it appears that there has been a misunderstanding about the discussion of the points relating to time and cognitive load. In other words, the paper contains information about time and cognitive load in the results subsection relating to RQ2, which is then explored in more detail in the discussion section. So, in our view there is no need to make any changes in the results and discussion with regards to the information provided about time and cognitive load. We note the point made about providing more detail about stereotypes and related theory in the background. A detailed account of the stereotypes and relevant theory is mentioned in the previously published protocol, i.e. (https://bmjopen.bmj.com/content/12/12/e059837.long). Therefore, we feel that revisiting stereotypes and relevant theory in the introduction to this paper would be unnecessary repetition, the relevant information has already been provided in the a-priori protocol which any interested reader can access free of charge as it is an open access publication.

	Conclusion	Our Response
24	Reviewer 2: Conclusions are lengthy and are to some extent repetitive. Conclusions would be more comprehensible when shortened and content is more condensed to the main points.	Thank you, we have revised the paper to address your advice regarding the conclusion of the paper.
25	Reviewer 3: I thought some of the conclusions of the piece could be slightly more muted. Not all of the recommendations flow from a relationship between SES and decision-making. The authors should be clear what recommendations come from research v. intuition.	Many thanks for advice, the paper has now been revised throughout, and we believe that this comment has been addressed in the revisions already made.

VERSION 2 – REVIEW

REVIEWER	meidert, Ursula Zurich Universities of Applied Sciences, School of Health Sciences
REVIEW RETURNED	22-Apr-2024

GENERAL COMMENTS	The adjustments and additions have noticeably improved the article. A few minor suggestions for improvements remain. Important and relevant work which I recommend for publication.

REVIEWER	Holbein, John University of Virginia
REVIEW RETURNED	07-May-2024

GENERAL COMMENTS	Thank you for addressing my concerns. I look forward to seeing this in print.