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Implicit biases and differential perinatal care for migrant women : methodological framework and study protocol of the BiP study part 3

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Study registration: The study has been preregistered on Open Science Framework https://osf.io/djva7/?view_only=c6012ace3fe94165a65b05c2dc6aff9e

Abstract

Background

The mechanisms of disparities in maternal and perinatal health between migrant and native women are multiple and remain poorly understood. Access to and quality of care are likely to participate in these mechanisms, and one hypothesis is the existence of implicit biases among caregivers through which ethno-racial belonging can influence medical decisions and consequently engender healthcare disparities. Their existence and their role in the generation of non-medically justified differential care have been documented in the United States apart from perinatal care, but remain largely unexplored in Europe.

In this article, we present the study protocol and theoretical framework of a study that aims to test and quantify the existence of implicit bias toward African Sub-Saharan migrant women among caregivers working in the perinatal field, and to explore the association between implicit bias and differential care.

Material and methods

This study is based on an online survey to which French obstetricians, midwives, and anesthetists were invited to take part. The potential existence of implicit biases toward African Sub-Saharan migrant will be quantified through a validated tool, the Implicit Association Test. Then we will assess how implicit biases are likely to influence clinical decisions and lead to differential care using clinical vignettes designed by an experts group.

Discussion

Implicit bias and differential care are concept that are tricky to capture and interpret. This research program opens up in France a field of research on certain forms of health discriminations and sheds new light on the issue of social inequalities in perinatal health.

Study registration

Registration in the Open Science Framework portal:

https://osf.io/djva7/?view_only=c6012ace3fe94165a65b05c2dc6aff9e

Keywords

Health inequalities, Implicit bias, Perinatal health, Maternal health, Clinical Vignette, Differential care, Migrant

Introduction

Europe has been experiencing a migration and humanitarian crisis for several years. The proportion of childbearing women among migrants in these countries is increasing. In 2019, 24.6% of women who gave birth in France were born elsewhere (INSEE <https://www.insee.fr/fr/statistiques/4647542?sommaire=4647557>). Numerous studies show that migrant women, especially those from sub-saharian Africa, have worse maternal¹⁻⁴ and perinatal outcomes⁵⁻⁷ than those born in the receiving countries. They thus provide evidence for social disparities in maternal and perinatal health. The mechanisms of these health disparities are multiple, complex, and remain poorly understood. Understanding these mechanisms is however crucial to reduce the magnitude of these inequalities. Access to and quality of care are likely intermediate factors in this association between migrant status and adverse pregnancy outcomes^{8,9}, as supported by the higher rates of inadequate and suboptimal perinatal care in migrant compared to native women in France¹⁰.

Belonging to socially vulnerable groups such as migrants is sometimes perceived as a cause for poorer health because of worse adherence to treatment, delays in seeking care, or poorer overall health status. However, it is rarely considered as a cause of suboptimal or even discriminatory treatment¹¹.

The strong commitment of healthcare professionals to provide care without partiality is deeply embedded in their professional and human aspirations. And it certainly constitutes a strong rampart against the risk of openly discriminatory practices toward patients belonging to disfavored social groups or ethnic or racial minorities. Nonetheless, we can legitimately wonder about the automatic influence of implicit bias (IB) through which social factors, such as ethno-racial belonging, can influence medical decisions and non-medically justified differential care that are likely to lead to health disparities. The hypothesis we want to test is that caregivers carry implicit biases that may determine non-medically justified differential care. This mechanism could explain part of the social inequalities in maternal and perinatal health.

The BiP research program (Migrants and differential care in the perinatal period: Effects of implicit bias) has been designed to address this issue of ethnic-based differential perinatal care. This program, funded by the French National Research Agency (ANR), addresses differential care via mixed methodological approaches and three work packages. The first aims to identify, through epidemiological approaches in existing databases such as the PreCARE cohort or the national perinatal surveys, the existence of differential care in the

practice of prenatal screening for trisomy 21, caesarean section or epidural analgesia. In the second work package, socio-anthropological methods are mobilized to study *in situ* the interactions between caregivers and patients and to identify possible differential care practices. The third work package consists of a study using methods from the field of social psychology which is the subject of this article.

The specific aims of this study, were 1) to test and quantify among medical professionals working in the perinatal field (gynecologists-obstetricians, midwives, and anesthetists) the existence of IB toward African Sub-Saharan migrant, 2) to test for the effect of individual, social, and institutional factors on IBs, and 3) to determine whether individual differences in IBs are related to differential care in several aspects of perinatal medicine.

We aimed to present here the protocol of this study and the methodological and theoretical framework of this approach which has been used to address racial/ethnic healthcare disparities in the United States for decades, but still remains underused in the European context¹².

Material and methods

This study is based on an online survey to which professional from three fields of perinatal medicine, gynecologists-obstetricians, midwives, and anesthetists will be invited to take part. The study protocol was approved by the INSERM Ethic committee (CEEI-IRB 00003888) the July 3, 2018 and has been preregistered on Open Science Framework (https://osf.io/djva7/?view_only=c6012ace3fe94165a65b05c2dc6aff9e).

Study procedure

The obstetrician-gynecologists, midwives, and anesthetists were invited to participate to the survey by email by one of the partner medical organizations listed below. The study was hosted by the *Project Implicit* platform (<https://www.projectimplicit.net/>), a renown platform for implicit bias measures. After providing informed consent, the participants first completed professional and socio-demographic information (age, occupation, gender, years of practice, country of birth, and/or whether the participant had at least one parent born outside of France). They then read a series of 6 case vignettes, and for each one, they had to express a series of intentions concerning the proposed treatment options. Vignettes varied depending on the patient's origin, operationalized by the patient's name (African Sub-Saharan typical name vs. Typical French name)(see description of vignettes below). Participants then completed two African/French Implicit association tests (IAT), one about valence and the other one,

about strength. These IAT were based on reaction-time measures created to assess implicit bias toward Sub-Saharan African¹³. The order between the two IATs was randomly counterbalanced between subjects. Finally, they completed a measure of explicit stereotypes toward Sub-Saharan African and non- Sub-Saharan African and a measure of the motivation to control prejudiced reactions¹⁴. All data were anonymous and stored on a server. The study lasted approximately 20 minutes.

Case vignettes

A group composed of gynecologists, midwives, anesthetists, a sociologist, and a social psychologist, part of the BiP working group elaborated a series of 22 case vignettes describing 3 categories of situations very likely to be encountered by the medical staff regardless of the maternity hospital in which they work. Eight vignettes concern screening and follow-up, 7 concern pain management, and 7 pathologies management. Three situations were relevant for all 3 professional categories, 6 to midwives and gynecologists, 2 to midwives and anesthetists, and the remaining situations to unique professional category (3 for gynecologists, 6 anesthetists, and 2 for midwives). For each vignette, 3 response options were proposed. The 22 vignettes were pre-tested for clarity of questions and wording and were selected for relevance to the clinical situation and appropriateness to the study objective. For this pre-test, 11 gynecologists, 11 midwives, and 8 anesthetists indicated whether the described situation in each of the 22 vignettes was ambiguous in terms of symptoms and required course of action on 7-point scales from 1 (not ambiguous at all) to 7 (very ambiguous). Moreover, pre-test participants indicated the extent to which each response option was adequate from 1 (incorrect) to 6 (ideal). The vignettes were selected by EA, PS, MPB, OA and JR, depending on their ambiguity, needed to avoid too obvious answers, and their realism, mainly if at least one solution was better than the others. Moreover, vignettes were chosen because of the relevance of their topic. Based on the pre-test results, some response options were reformulated. Finally, ten vignettes were selected (Cf. Appendix A), 2 common to all three professional groups, 3 common to midwives and obstetricians, 1 common to midwives and anesthetists, 3 specific to anesthetists, and 1 specific to obstetricians.

Participants in the online survey were presented with 6 vignettes in a fixed random order, 2 for each of 3 categories of situations (screening/follow-up, pain, and pathology) and according to his/her professional category. For each category, the patient's origin, African or French, was only suggested by using typical surnames. The choice of names with a strong

immigrant versus French connotation was based on the INSEE national database of names by decades of birth from 1891 to 2000, taking the most common. The African versus French connotation of the name (i.e., French: Leroy, Roux, & Morel; African: Touré, Camara, & Mendy) associated with each vignette was balanced between participants so that each participant saw 3 vignettes picturing an “African” patient and 3 vignettes picturing a “French” patient. The origin of the patient in the first vignette (African vs. French) was counterbalanced between subjects, but the following vignettes' order was fixed random. For each vignette, participants rated each management option using a 7-item scale that ranged from 1 (strongly disagree, this is clearly the wrong treatment option) to 7 (I strongly agree, this is clearly a good treatment option).

Measure of implicit bias

The concept of implicit bias (IB) designates automatic stereotypes and associations between membership to a social group (an out-group) and a negative attribute predisposing individuals in a given situation to treat people from that different social group differently¹⁵. Because individuals sometimes do not want to reveal their opinions and because they are sometimes unaware of them or of their influence, various measures have been developed to assess implicit attitudes, preferences, bias, or stereotypes. The Implicit Association Test (IAT) is the most common and most reliable measure of implicit attitudes^{13,16,17}. This test has been chosen here to assess the implicit attitude of caregivers toward the category of migrant women from Sub-Saharan Africa (out-group). Two IATs were administered, a valence and a strength IAT. The valence IAT was introduced as a “categorization task” with 2 categories of targets, “French” and “African” surnames, and 2 categories of attributes, pleasant or unpleasant words. For a given trial, a stimulus word appeared in the center of the screen, and the participant had to categorize it by pressing a corresponding key (“E” or “I”) on the keyboard. We followed the procedure implemented by Greenwald et al.¹³ with the typical sequence of 7 blocks. Each block was preceded by a set of instructions and characterized by a different combination of the 4 categories. In the first set of critical blocks (3 and 4), “French” surnames and positive attributes were categorized with the same key and “African” surnames and negative attributes with the other key. In the second set of critical blocks, “African” surnames and positive attributes were categorized with the same key and “French” surnames and negative attributes with the other key. For each attribute category, 5 words were used (Positive: positive, peace, happy, nice, perfume; Negative: negative, war, ugly, sad, stench),

and 5 names were used for each target and contrast categories (French: Girard, Dubois, Durand, Moreau, Lefebvre; African: Traoré, Diallo, Coulibaly, Diarra, Cissé).

The Strength IAT had the same structure as the valence IAT. The only difference was that the Attributes categories were “Strong” versus “Weak” with 5 stimuli per category (Strong: strong, robust, tough, solid, vigorous; Weak: weak, delicate, fragile, frail, reedy).

The IAT score is calculated by taking the difference in reaction times between the two critical blocks¹⁸. In our study, it is an indicator of implicit relative negative bias toward Sub-Saharan compared to French.

To demonstrate that the implicit bias differs from what individuals explicitly report, we used a measure of explicit prejudice, a 12-item stereotype scale for both Sub-Saharan and non-Sub-Saharan, adapted from the Stereotype Content Model, the most common in intergroup relations research¹⁹. First, participants completed a feeling Thermometer for each of the two groups “*My feelings towards African women are*” . . . and “*My feelings towards French women*” with answer options ranging from 0 (cold/unfavorable) to 10 (warm/favorable)²⁰. Then, participants will respond to six items assessing personal attitudes towards first African women and then towards French women (“In your opinion, how competent, capable, efficient, friendly, well-intentioned, warm, robust, solid, and resistant are African/French women?”) on 7-point scales from 1 (completely disagree) to (completely agree). The first six adjectives were chosen as markers of the two dimensions of competence and warmth,¹⁹ to which we added 3 of the adjectives used in the Strength IAT.

Sample

French care providers from three different categories (obstetrician-gynecologists, midwives, and anesthetists) were invited by email to participate in the survey. This study was supported by four regional perinatal networks (Réseau Maternité en Yvelines et Périnatalité Active, Réseau de Santé Périnatal Parisien, Réseau Aurore et Réseau de Santé en Périnatalité d’Auvergne), which actively participated in disseminating the invitation to complete the survey to their members, including obstetricians and midwives, both in private and public practices. Five professional societies, partners in this project (the National College of Midwives, the SFAR Research Network, the Club of anesthetists/critical-care specialists practicing in obstetrics (CARO), and the National College of French Obstetricians and Gynecologists (CNGOF)), also disseminated the invitation to their members. In total, over 5000 professionals were invited and reminded to participate by these different associations nationwide.

The required minimum sample size was determined to provide adequate statistical power for the test that would require the biggest sample, which was the test of whether the implicit bias predicted the behavioral intentions of perinatal health professionals assessed with case vignettes picturing “African” versus “French” patients (multiple linear regression involving two-way interactions). From previous intergroup research on the predictive validity implicit attitudes measures^{16,21}, one could expect a small to medium effect size of approximately $f^2 = .10$. With $\alpha = .05$, to achieve a power of .80, a sample of at least 115 participants was needed. Given the recruitment at the national level and through mailing lists, a sample of 450 participants (150 midwives, 150 obstetricians, and 150 anesthetists) was expected. Such a sample would achieve a power of .99 for the global analysis, and be still adequate for analyses by subcategory of care providers.

Analysis

A descriptive analysis of the participants' socio-demographic characteristics and the location and type of practice will be carried out.

To have a clearer idea of the distribution of the biases, we will follow Haider's suggestion²² and transform the IAT scores (Implicit Biases indicators) into a 7-point scale. We will compute mean and SD for Valence and Strength IAT scores, and explicit attitude scores to describe the respondent's population according to their levels of biases from moderate to strong. The associations between occupation, type of practice, gender of participants and IATs scores will be tested with ANOVA analyses.

Vignette responses will be first analyzed with a series of ANOVAs to test for potential differences in treatment options between French and African patients. Then, following further Haider's second suggestion²², we will transform the IAT score into a 3-group scale (positive bias toward Africans vs. no preference vs. negative bias toward SSA). We will run a series of ANOVA on the responses to option treatment to test for the interaction between the group bias (positive bias vs. no preference vs. negative bias) and the patient's name in the vignettes (SAA vs. French).

All analyses will be performed using SPSS 27 and R. To correct for multiple testing, we will consider as significant results only those that show a p -value below .01.

Discussion

Social inequalities in health, particularly those based on ethno-racial differences, are well documented. However, this study is, to our knowledge, the first in France and in the field of perinatal medicine to focus on the role that implicit biases of caregivers might play in the provision of differential care and healthcare disparities. For this reason, it aims to provide original data in the field of implicit bias in perinatal care coming from Europe, where it has been given little attention until now. In the United States, this issue was raised as early as 2003 in a report by the Institute of Medicine entitled *Unequal Treatment*, which emphasized that racial/ethnic healthcare disparities contributed to racial/ethnic health disparities¹¹. This seminal report highlighted the potential role of healthcare providers' biases in racial/ethnic healthcare disparities. It was then followed by an increase in studies exploring Implicit Biases among healthcare providers using measurement tools such as the IAT in various medical settings^{12,13,23,24}, but data on IB in the context of perinatal care remain limited.

This interest toward implicit biases is, however somewhat older. The American sociologist Anselm Strauss showed in the 1960s that health professionals could unconsciously attribute to patients a "social value" that depended on their social and economic position, but also on their ethnicity²⁵. This assigned social value could determine certain aspects of care. The concept of implicit cognitive bias has been developed within the disciplinary framework of social psychology. These biases are unconscious prejudices of various kinds - racist, ageist, sexist, homophobic, towards the obese - which may be present even though the people who hold them may not express any explicit prejudice. This concept of implicit bias appeared in the United States in the 90s and gained significant momentum in the 2000s with the development of a measurement tool known as the Implicit Association Test (IAT)¹³. This test that can be applied to various prejudices was used in multiple domains such as recruitment, justice, education, and medicine. In the medical field, the existence of IB among professionals associated with more negative perceptions of some social groups of patients, especially in terms of evaluation of their intelligence and their likelihood of at-risk behavior and non-compliance with medical advice, has been demonstrated in sectors as varied as cardiology, emergency care, traumatology, pediatrics, neurosurgery, pain management, orthopedics or urology²⁶⁻³². Note that most of this research focuses on racial IB^{12,23,24} and generally demonstrates pro-White preferences.

Besides the existence of IB largely documented among healthcare providers in the US, the association between provider IB and provider communication behaviors and patients' reactions has also been documented, although the evidence is controversial³³. Notably, greater

providers' IB as assessed with the IAT, significantly predict lower quality provider-to-patient communication in racially discordant medical interactions^{24,34}. In contrast with these results, several recent systematic reviews have consistently concluded that there is little evidence to support the role of providers' implicit prejudice in their treatment recommendations^{12,24}. The results of our study will be interpreted taking into consideration the limitations of these tools and the uncertainties in their meaning.

The hypothesis that part of the health inequalities is due to non-medically justified differential care is fundamental in that this is a modifiable factor and therefore path to reducing the magnitude of these unfair inequalities. The methodological approaches to address these issues can only be multidisciplinary. In this field, it would be risky to think that epidemiology, social psychology or sociology could be sufficient on their own. Finally, although conceptual tools such as implicit bias or differential care are tricky to handle and can be epistemological traps, their mobilization in France in this research program opens up a field of research on certain forms of discrimination in the field of health and sheds new light on the issue of social inequalities in perinatal health between migrants and non-migrants.

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Appendix A – Selected vignettes

FOLLOWING-UP/SCREENING

<p>Pap test beginning of pregnancy (MW & O)</p> <p><i>Mrs. X is a 30 year old primigravida, that you see for her first prenatal visit at 9 weeks gestation age. She has no family history or particular medical or surgical history. Her pregnancy is spontaneous and desired. During the interview, you understand that she has no regular gynecological follow-up and has never had a Pap test.</i></p>
<p>You provide information regarding the prevention and screening for cervical cancer.</p>
<p>You do a Pap test.</p>
<p>You plan a postpartum appointment for a Pap test.</p>

<p>Down syndrome screening (MW & O)</p> <p><i>Mrs. X, primigravida, 25 years old, consulted for her pregnancy follow-up at 13 weeks' gestation. The first trimester ultrasound shows no abnormality, nuchal translucency is measured at 1.2 mm for a craniocaudal length of 62 mm. When you inform Mrs. X about the possibility of performing a serum marker assay for trisomy 21 screening, she tells you that she does not know if she wants this screening and asks you if she should do it.</i></p>
<p>You tell the patient that the screening is not necessary if she does not intend to terminate the pregnancy in case of a Down syndrome diagnosis.</p>
<p>You explain that the screening decision is up to her.</p>
<p>You explain the Down syndrome prognosis.</p>

<p>Anesthesia consultation (A)</p> <p><i>Mrs. X, 25 years old, presented for a prenatal consultation at 37 weeks' gestation. This is her first pregnancy and she has no previous history. She has not received any prior information on the epidural, and she asks you about the risks, particularly low back pain. You have a very complete institutional information document. Your consultation time is 10 minutes.</i></p>
<p>You explain low back pain have no link with epidural</p>
<p>You provide details on the possibles neurological complications linked to an epidural.</p>
<p>You refer the patient to the information document</p>

<p>Heart murmur (A)</p> <p><i>You receive Mrs. X, 35 years old, future 3rd pare, for her pre anesthesia consultation in the 8th month. The pregnancy was normal except for asthenia in the 3rd trimester. At the examination, the BP is 110/65, the HR is 95/min, at the auscultation you discover a systolic murmur 2/6 which was not known according to the patient, the rest of the clinical examination is normal.</i></p>
<p>You prescribe a heart ultrasound.</p>
<p>You control the blood formula.</p>
<p>You reassure the patient, the situation does not require further exams.</p>

PAIN

Post C-section pain (MW, O, & A)

Mrs X, 35 years old, primiparous, gave birth by caesarean section for fetal heart rate abnormalities. The anesthesia consisted of an epidural extension with adrenalized xylocaine. The cesarean section did not present any difficulties. The prescribed postoperative analgesia consisted of paracetamol per os 1g x4/d for 4 days, nefopam 20mg x4/d per os for 4 days, and ibuprofen 400mgx3/d per os for 2 days. On the second postoperative day, the patient presents with significant abdominal pain that she feels prevents her from caring for her newborn properly. However, the nurses report that they saw Mrs X get up without any problem and take her child in her arms to breastfeed.

You think the patient is exaggerating her pain level.

You do a pain evaluation using the visual analog score (VAS) for pain

You think the patient needs an additional analgesic treatment.

Initial wish for no epidural (MW & A)

Mrs. X, a 30 year old primiparous woman whose pregnancy was normal, was admitted to the delivery room at the beginning of labor with a cervical dilatation of 3 cm, she was very painful. During the pre anesthesia consultation, this woman had clearly expressed her wish to give birth without an epidural. You are present when she arrives in the delivery room at midnight.

You talk with the patient to convince her to have an epidural.

You tell the midwife to call you if the patient finally decides to go for an epidural / You propose a balloon to manage her pain.

Forceps pain (O)

You are called to the labor ward for Mrs. X, a 35 year old primigravida. At the end of a normal pregnancy, she went into spontaneous labor at 39 weeks' gestation. The labor lasted 9 hours, under epidural analgesia. After 30 minutes of expulsive efforts, the fetus was in OP, middle part, and was not progressing. The FHR is normal, the amniotic fluid is clear. You decide to perform an instrumental assisted delivery by forceps. While she was previously well relieved by the epidural, Mrs. X reports that she is in a lot of pain and becomes agitated when you try to place the forceps.

You think the patient exaggerates her pain.

You think the patient is nervous because of the use of forceps.

You decide for an additional analgesic treatment before the use of forceps.

PATHOLOGY

Pre-eclampsia suspicion (MW, O, & A)

You receive for a prenatal visit at 30 weeks Mrs X, 35 years old, second pare with no previous history. She has a BMI of 27. Her pregnancy has been normal until now. On examination, she reports some edema of the lower limbs and her blood pressure (BP) measured with a suitable cuff is 140/95, checked once at 140/90. The urine dipstick was negative.

You control blood pressure before the next consultation.

At 34 weeks gestational age, blood pressure is 14/9, dipstick indicates a proteinuria of 0.3g/L. You control proteinuria after 24h.

The patient is finally recovered at 38 weeks gestational age for a BP of 140/90 with proteinuria of 0.32g/24h. The fetus is eutrophic, COR is normal. The blood work is normal. The cervix is unfavorable. You discuss (with the obstetrician) the advisability of a cervical maturation within 24h.

Fetal active movements diminution (MW & O)

Mrs. X, 32 years old, presented at 40 weeks' gestation and 2 days in the maternity hospital emergency room for a decrease in active fetal movements. The pregnancy was normal. She explains that she has not felt any active movement for the last 12 hours, that her back is very painful and that she has not been able to sleep for several weeks. On examination, the blood pressure and urine dipstick are normal, the fetal heart rate is normal. The ultrasound revealed a eutrophic fetus with some movements not felt by the patient. The Doppler and the amount of fluid are normal. The cervix is mid-long, posterior, closed.

You think the patient wishes an induced labor for organizational reasons.

You admit the patient for medical attention.

You prescribe an induced birth.

Postpartum headaches (A)

Mrs X, nulliparous, gave birth by vaginal delivery without complications and without epidural. You are called at D4 postpartum when the patient was to be discharged from the maternity hospital because she complains of headaches with a VAS of 5. The clinical examination is normal, the hemoglobin is 9g/dl. The interrogation did not reveal any history of migraine.

You explain that headaches are probably linked to anemia.

You prescribe brain imaging before release.

You prescribe brain imaging after release.

MW: midwives ; A: Anesthesiologist ; O: Obstetrician

For each vignette, participants rated each management option using a 7-item scale that ranged from 1 (strongly disagree, this is clearly the wrong treatment option) to 7 (I strongly agree, this is clearly a good treatment option).